Cooperation Committee for Cambodia

Comité de Coopération pour le Cambodge

CONDUCTING A SMALL RESEARCH STUDY

TEN STEPS TO ANALYSIS

2nd Edition

Analyzing Development Issues (ADI) Project

Cooperation Committee for Cambodia (CCC)

2006

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Finally, special thanks go to the CCC-ADI Team – namely Ms. Sopha ANG, Mr. Seakly KUNG, Mr. Il OEUR, and Dr. John McANDREW – for giving the author the opportunity to further develop the original book, for their substantive contributions to the drafting of this material, and for validating the usefulness of the additions to the original material.

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About the Author

Dr. Rebecca F. Catalla (less formally known as Pem) is a development researcher whose experience spans nearly 20 years. Pem came to Cambodia in January 1998. For 2½ years, she was the Research and Capacity Building Coordinator of the AFSC-UNICEF research project on Socio-Cultural Vulnerability and Coping Strategies (SCVCS). She has done similar work for a range of projects in the country for and with international and local NGOs, the Cambodian government, as well as overseas-based consulting firms. Her first stint with the CCC-ADI project in 2001 was on the Special Research Course on Analyzing Development Issues for the project's training alumni and which resulted in the publication of the study on *Small-Scale Land Distribution in Cambodia: Lessons from Three Case Studies*. In 2004, she facilitated the training on quantitative analysis for ADI's study on the *Impact of the Garment Industry on Rural Livelihoods: Lessons from Garment Workers and Rural Households in Prey Veng Province.*

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ACRONYMS & ABBREVIATIONS

ADI	Analysing Development Issues
CCC	Cooperation Committee for Cambodia
FGD	Focus group discussion
PRA/PLA	Participatory Rapid Appraisal/Participatory Reflection and Action/Participatory Learning and Action

PART 1

INTRODUCTION

About This Book

This is a book about how to do a small research study in order to explore or analyse a problem or an issue. It is written for the staff of NGOs working in Cambodia and all others who are often involved with assessing new situations, designing new projects, solving organisational problems and/or evaluating their programme/project interventions. All these situations require study and analysis, and have paved the way for the development and further strengthening of this material. What it presents are small-scale research and problem solving principles that can be used in exploring or examining local, national or even international issues.

The book is not a manual on academic research, which could be a much longer and more thorough process. Neither is it about project planning, monitoring or evaluation, although the described methods can be used at any point during the project cycle or whenever more information is needed before a decision is made. Rather, the book aims to be a practical guide and reference for those who are new to research or have undertaken such an endeavour but require an affirmation of their knowledge and experience. And, while research concepts, principles and procedures are presented to ease understanding, the book is not an attempt to oversimplify research and to create an impression that it is a mechanical and linear process. Research is a dynamic and iterative process and researchers will need to be creative in adapting the suggested procedures and steps in their search for answers to their questions and/or need for information.

The Cooperation Committee for Cambodia (CCC) re-worked the contents of this book based on the series of training courses facilitated by the Analyzing Development Issues (ADI) Project from 1999 to 2005. It draws upon the experiences and questions raised by participants while conducting their own small scale research activities, on hand-outs that participants received during their training, and on other reference materials that have served both the academic community and those engaged in social development work. Additionally, it presents as examples the studies conducted with the participants of the ADI trainings on a range of social and development issues, including indigenous responses to depletion of natural resources, domestic violence, labour migration to Thailand and the Thai-Cambodian border, small-scale land distribution, etc. Annex 1 provides a list of selected research studies that the ADI team and their training participants have conducted since 2001. A glossary of terms presented in Annex 2 is an addition to this book to guide the beginner who may be unfamiliar with terms in social research. Annexes 3 – 7 are also new materials to further assist the reader with other research concepts as well as tools and techniques.

While some of the materials in this book may not be useful for every situation, it is hoped that the experienced NGO worker and other users will be able to select the ideas that are relevant, ignore others, and adjust the rest to fit their unique research problem or situation. Feel free to read the entire book or skip to the sections that seem relevant to your needs. Suggestions for improvement to this reference guide are always welcome.

Overview to the Ten Steps to Analysis

Why do we do research and what kind of research?

..place of research in programme/project planning, implementation, and monitoring.... understanding research and evaluation... distinguishing between qualitative and quantitative approaches... combining approaches... critical thinking and research... the values of the researcher

Research is an endeavour that finds a place in the daily things that we do. We seek information and process the data we get individually or with family/friends when we want to find answers to questions such as what might be a good school to pursue graduate studies, what properties or assets for investment would yield the most benefit, what restaurants to go to that serve good yet reasonably priced food, what health facilities our families or friends can visit in times of sickness or urgent medical attention, etc.

The practice of research in social development also entails posing questions and finding the information that will help us to understand certain phenomena or problems about which we can devise responses. In this context, research is a source of knowledge on issues about which a level of familiarity is required and serves as a basis for informed decisions, whether this may concern the conceptualisation of a new project or a review of a programme or project intervention.

Defining Research

Research is a systematic investigation to find answers to a problem.[1] The aim may be to uncover new information (discovering data) and/or interpreting relations among parts of a specific issue that is being studied (theorizing). There are three general reasons why people engage in research:[2]

1. for *exploration*, or to provide a beginning familiarity with a topic. This approach is typical when a researcher examines a new interest or when the subject of the study is relatively new. It is also appropriate for more persistent phenomena or social problems such as drug use/abuse, gang rape, etc. Exploratory studies are usually done for three purposes (a) to satisfy the researcher's curiosity and desire for better understanding, (b) to test the feasibility of doing a more extensive study, and (c) to develop the methods to be employed in any subsequent study. This type of study is quite valuable in social scientific research, as these are essential whenever a social investigation is breaking new ground, and they can almost always yield new insights into a topic for research.

[1] Burns, Robert B. 2000. *Introduction to Research Methods*. London: Sage Publications, p.3.

[2] This section draws from Babbie, Earl. 1998. *The Practice of Social Research.* Eighth Edition. Belmont, CA: Wadsworth Publishing Company, pp.90-92.

The CCC-ADI study on Understanding Drug Use as a Social Issue is an illustration of an exploratory study. Responding to an observation that drug use has increased among young Cambodians from all social strata, participants to the Round 13 Training and the ADI Team looked into the trends of this phenomenon among young people in three selected villages in the north-western province of Battambang. Specific questions posed were whether or not drug use among young people increased, decreased or remained the same; reasons for the pattern; demographic characteristics of the users; types of drugs used; and similar other questions that would help create an understanding of its incidence.

2. for *description*, or to describe situations and events. An important purpose of many social development studies is to describe situations and events. When conducting such a study, the researcher observes and then describes what was observed. This entails careful and deliberate steps as this calls for accuracy and precision compared to casual investigation. National demographic or socio-economic surveys frequently fall under descriptive studies as these provide profiles or characteristics of the population. Ethnographic studies also fall under this type of study as these can provide rich and detailed information about individuals and groups.

The Small-scale Land Distribution in Cambodia study of CCC-ADI is a representation of a descriptive study. Conceived and implemented in 2003 to address the ongoing debates and discussions on social concessions on land, the investigation aimed to describe three different land distribution schemes among poor people in selected sites of three provinces and examined the factors that contributed to the success, problems and/or failures of the schemes. As part of the descriptive objective, it delved into the attributes of the land distribution schemes: involvement of government officials (in terms of beneficiaries gaining/losing access to land); information dissemination about land distribution; whether or not some guidelines or mechanisms were employed; how the schemes built on people's participation; size and type of land distributed; and problems that accompanied the land distribution schemes.

3. to *find explanations* and to offer recommendations/solutions. In conducting a study that has an explanatory purpose, the researcher sets out to explain social phenomena and events. S/he delves into why things happen the way they do, the factors that shape or contribute to the occurrence of a social problem (including the consequences), the reasons why one social group may behave differently from another, etc. Establishing the relationships or linkages between and among the factors being delved into also forms part of the effort to provide explanations for a social problem or issue being analysed.

CCC-ADI's study on the Impact of the Garment Industry on Rural Livelihoods is another CCC-ADI study provides an example of an explanatory study. It does so as Round 15 participants and the ADI Team examined reasons why workers from selected villages in the province of Prey Veng migrate to Phnom Penh to find work in garment factories, including the specific conditions in rural areas that lead garment workers to migrate; assessed the effects of garment factory employment on rural livelihoods, and on gender and labour relations amongst households; and determined the garment workers impact on organised labour in the country. In effect, it explains how garment factory work in the capital city has shaped rural social structures (i.e., livelihood and labour patterns, gender and household relations) as well as organised labour in Cambodia.

WHILE IT IS USEFUL TO DISTINGUISH THE THREE PURPOSES OF RESEARCH, IT SHOULD BE NOTED THAT MOST STUDIES WILL HAVE ELEMENTS OF ALL THREE. *In the above-cited example on understanding drug use, the study's exploratory nature unveils the trends of drug use among young people. It takes on a descriptive nature as it describes the characteristics of the drug users as well as drug use patterns among them. Explanations were also sought as the study looked into the causes and consequences of drug use in the study sample.*

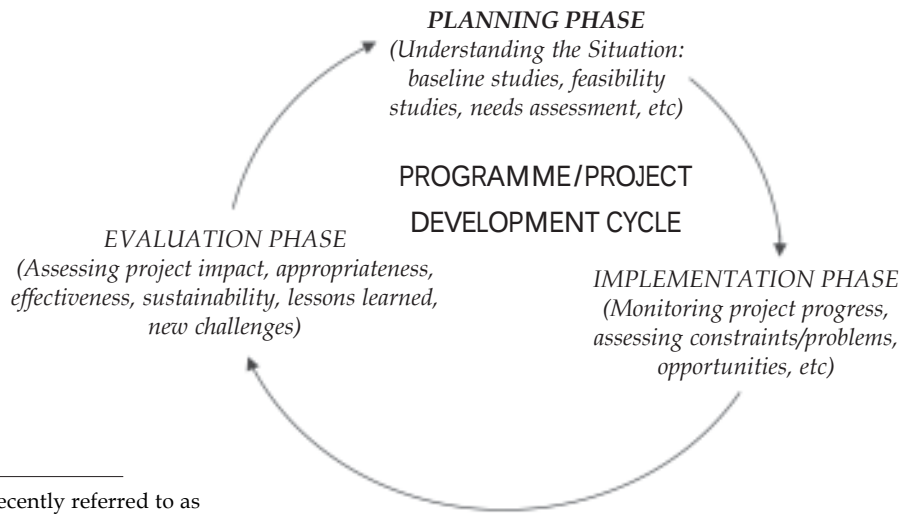
Research and the Programme/Project Cycle

The above-described purposes of research find practical applications in the programme/project cycle of social development interventions (Figure 1). In the planning stages, research assumes importance as development practitioners undertake baseline or benchmark investigations, feasibility studies, needs assessment, or other exploratory studies that take form in participatory rapid appraisal[3] (PRA) methodologies (e.g., village mapping, livelihood analysis, focus group discussions, etc.). The intent is to establish the information that will help the programme/project holders design the programme and its component interventions such that these can respond effectively to the situation that needs addressing.

As the programme/project is executed, regular and continued information gathering and processing takes place for monitoring purposes. This is to keep track of the programme/project's progress and to understand the project's implementation processes, and can take formal and informal forms (e.g., through planned and unplanned visits and reflections of project staff with the beneficiaries to check whether targets are being met within the resources that have been set). Midway through the project, a carefully designed research through an evaluation could be undertaken to examine whether the project objectives are being met, to look into the project constraints and opportunities, and/or to determine if new measures to the changing situation have to be formulated.

With the programme or project coming to a close, research again assumes a role as a final evaluation is conducted. Information collected and processed often aim at measuring the impact of the project, including appropriateness or relevance of the project design and objectives, efficiency, effectiveness and sustainability, as well as lessons learned.

Figure 1. Research in the Context of the Programme/Project Cycle



[3] This has been more recently referred to as participatory learning and action (PLA).

A question that may surface at this point is: how does research differ from evaluation? One definition of programme/project evaluation asserts that it is "the systematic collection of information about the activities, characteristics, and outcomes of programmes for use by specific people to reduce uncertainties, improve effectiveness, and make decisions with regard to what these programmes are doing and affecting" (Patton, 1987:14). In effect, its occurrence at various phases of the programme/project permits the immediate use of information for a specific, action-oriented purpose. This action-oriented nature of programme evaluation is essentially its distinguishing characteristic from basic scientific research. Patton (1987:14) succinctly captures this when he notes that the latter is conducted "to discover new knowledge, test theories, establish truth and generalize across time and space". The former on the other hand, is carried out "to inform actions, clarify options, reduce uncertainties, and provide information about programmes and policies within contextual boundaries of time, place, values, and politics". This distinction is frequently spelled out given that programme evaluation employs social research methodologies – specifically, research designs and data collection as well as data analysis tools and techniques – to generate needed information.

Distinguishing Between Research Approaches

Beginning and experienced researchers frequently confront the dilemma of whether they are conducting a qualitative or a quantitative study, or whether what they have is a qualitative or quantitative piece of data. In essence, the difference lies in the philosophical bases and assumptions of these two orientations and, as such, in the ways in which the data are collected and how many observations should be gathered (Table 1). Despite these differences, existing assertions and practice have advanced the use of both approaches in a multi-strategy research since no one methodology can answer all questions and provide insights on all issues (Burns, 2000:11).

Quantitative research (also known as the traditional scientific approach or conventional/ basic research) proceeds from a perspective that scientific knowledge is the only valid form of knowledge[4] (Neuman, 2000:7). In this approach, scientific reasoning is based on deduction, and on a scientific hypothesis that can be proved to be false. Researchers aim for a disciplined objectivity in their attitude toward subjects and their collection and treatment of data. They tend to emphasise the control of research conditions to minimise bias and threats to the validity of findings, and commitment to a research design developed prior to entering the field of study (Lewis-Beck et al, 2004:893-894).

A quantitative research endeavour thus is characterised by deriving a sample for which the researcher wants to draw conclusions, since it is not possible to collect data on an entire population. It requires the selection of a proper, statistical random sample and to use data processing procedures that permit the researcher to deduce relationships or linkages between the variables or issues being examined in order to draw conclusions about the population (Lewis-Beck et al, 2004:896). Thus, as implied by its name, quantitative research results in the computation of a variety of quantities, frequently of a numerical nature. At its simplest, quantitative research has been said to refer to counts and measures of things (Berg, 1989:2).

The main strengths of quantitative studies lie in the following (Neuman, 2000:9):

- precision and control. Control is achieved through the sampling and design; precision through quantitative and reliable measurement

[4] This perspective is called positivism, an orientation that incorporates methods and principles of the natural sciences for the study of human behaviour or to study social phenomena (Berg, 1989:9; Burns, 2000:4).

Table 1. Distinctions between qualitative and quantitative approaches

QUALITATIVE	QUANTITATIVE
Assumptions Reality socially constructed Variables complex and interwoven; difficult to measureEvents viewed from informant's perspectiveDynamic quality to life	Facts and data have an objective realityVariables can be measured and identified Events viewed from outsider's perspective Static reality to life
Purpose Interpretation Contextualization Understanding the perspective of others	Prediction Generalization Causal explanation
Method Data collection using participant observation, unstructured interviewsConcludes with hypothesis and grounded theoryEmergence and portrayalInductive and naturalisticData analysis by themes from informants' descriptionsData reported in language of informantDescriptive write-up	Testing and measuring Starts with hypothesis and theory Manipulation and control Deductive and experimental Statistical analysis Statistical reporting Abstract impersonal write-up
Role of Researcher Researcher as instrumentPersonal involvementEmpathic understanding	Researcher applies formal instruments Detachment Objective

Sources: Brown, L. David and Rajesh Tandon (1983); Narayan, Deepa (1996), Burns (2000).

- Statements of causation can be derived through experimentation (i.e., having a "control" and "experimental/treatment" situation[5])
- Hypotheses are tested through a deductive approach and the use of quantitative data that permits statistical analysis

Qualitative research, on the other hand, is a term for an array of strategies for conducting an inquiry that aims at discerning how people understand, experience, interpret, and produce the social world (Lewis-Beck et al, 2004:893). Deriving its roots from a host of philosophies and a long anthropological tradition, this typically includes, but is not limited to, determining the perspectives of people, or what is often referred to as the actor's point of view (Lewis-Beck et al, 2004:893; Mason, 1996:4). It is marked by certain defining characteristics such as its case orientation, sensitivity to cultural and historical context, and reflexivity. Reflexivity refers to the researcher's ability to critically reflect on their own role in the research process, particularly in terms of how s/he brings in a

[5] In experimental research in social development, the 'control' situation can refer to neighbourhoods or villages where no programme/project interventions were introduced, whereas the 'experimental/treatment' situation are neighbourhoods or villages where interventions had been planned and implemented. This situation arises when there is a deliberate effort to compare changes (or lack of it) in both control and experimental neighbourhoods, such as in water and hygiene programmes/ projects.

degree of bias into the research situation since they are an active part of the process and that a researcher cannot be neutral, or detached, from the knowledge and evidence they are generating (Mason, 1996:6).

Unlike a quantitative research situation, a qualitative research project lays emphasis on 'naturalism' or observing events as they unfold without manipulating any conditions, and the ongoing development and refinement of the research design after entering the field of study (Lewis-Beck et al, 2004:894). This suggests that the approach requires people who are able to 'think and act strategically', flexibly, and creatively while in the field to 'combine intellectual, philosophical, technical and practical (and ethical) concerns' (Mason, 1996:2). This is because qualitative researchers do not carry with them research blueprints in the conduct of their investigations and are thus compelled to 'think on their feet' (Mason, p.165). Much like their quantitative counterparts, qualitative researchers are expected to practice ethics and rigour in their work, which assume particular significance for the latter because of the relationships they build with their informants, and the need to produce social explanations that are generalisable in some way.

The value of qualitative studies lies in their ability to (Marshall and Rossman, 1989:46; Burns, 2000:13):

- Engage in eclectic methodologies, assume a hypothesis-free orientation, and implicitly accept the natural scheme of things
- Delve in-depth into complexities and processes, such that these are able to unravel informal and unstructured links and processes in programme/project interventions
- Enable the researcher gain an insider's view of the field

The distinction between quantitative and qualitative data in social research is the distinction between numerical and non-numerical data (Babbie, 1998: 36). When someone says that her/his life is difficult, s/he is making a qualitative statement. When you say s/he is a "9" on a scale of 1 to 10, you are attempting to quantify the qualitative assertion. It is worth noting thus, that every observation (or piece of information) is qualitative at the outset, whether it is one's experience of difficulties, the location of a pointer on a measuring scale, or a check mark entered in a questionnaire. None of these things is inherently numerical or quantitative, but sometimes it is useful to *convert* them to a numerical form (Babbie, 1998:36).

Quantification often makes our observation more explicit. It also can make it easier to aggregate and summarise data. It likewise opens up the possibility of statistical analyses, ranging from simple averages to complex formulas and mathematical models (Babbie, 1998: 37). On the other hand, qualitative data provides greater depth and detail, and can be richer in meaning than quantified data. Fortunately, there is no need to choose between the two in terms of which is better or more appropriate to social research as both are useful and legitimate tools of research (Babbie, 1998:38; Mason, 1996:4). A researcher's mastery of both will confirm that hunch that some research situations and topics are most amenable to qualitative investigation, others to quantification, and that the two approaches will necessarily call for different skills and procedures. Central to any effort of combining approaches (and methods), however, is the need to establish what is being achieved in so doing.

one [research approach] is not necessarily better or poorer than the other; both may represent different philosophies but both are legitimate tools of research and can supplement or complement each other, and provide alternative insights into human behaviour

Critical thinking and research

Critical thinking in the context of research is the ability to examine every step of one's research activity, establish their links to one another, and evaluate the data being generated, processed and interpreted in terms of its clarity, completeness, and consistency. Put simply, it is taking on a questioning stance or subjecting to scrutiny all that we do when we engage in a research situation for the purpose of producing a thorough and analytical research report. It commences at the design of the investigation when topics are selected and analysed for its relevance and contribution to knowledge generation, who is being served by the research, what resources it will call for, and how the defined topic shall be analysed. As data collection instruments are formulated for the identified topic, issues of adequacy and clarity of questions being asked in relation to what is being sought is brought to bear as the researcher carefully outlines the key elements on which data collection shall focus.

A questioning stance on how information is being collected can also be present during the data collection phase of the research. The concept of reflexivity in qualitative studies best captures what is called for at this stage. That is, while one may be engaged in conducting a survey, there is a need for the researcher to be aware of the biases s/he may have or influences s/he may unconsciously bring into the interview process. This becomes manifest in how the researcher relates to the respondent, particularly in creating an impression that the respondent is obliged to give out the needed information, or that the researcher is more knowledgeable than the interviewee about the latter's situation, which can inadvertently create distrust or hesitation in the sharing of information. It also surfaces in how the researcher probes for information to ensure clarity and completeness in responses being evoked.

In the processing and interpretation of data, critical thinking again assumes importance as the researcher subjects to scrutiny her/his efforts to summarise the collected information such that the overall presentation is consistent with that specified in the study's objectives. This takes place as s/he examines how best data can be condensed for ease of understanding by the user, and as s/he discerns patterns in the data – whether these are in tables/charts or presented as case studies – and explores what the patterns signify in the overall picture that is being presented.

The above suggests that being in a critical thinking mode compels a researcher to iterate between her/his research phases, to be constantly analytical and interpreting as well as finding explanations over the actions that s/he is taking and the information s/he is deriving. It also implies identifying or exploring alternatives – whether this may be in collecting and sifting/processing the data, or in surfacing visible and less visible trends as well as finding explanations to observed patterns in the data.

Researcher's values

It has been noted in an earlier section that every observation (or piece of information) is qualitative at the outset, be this one's experience of difficulties, the location of a pointer on a measuring scale, or a check mark entered in a questionnaire (Babbie, 1998:36) This suggests that how we see various situations, events or things is shaped by our own views or convictions that in turn, are the product of our experiences, acquired knowledge and social environment. Inherent in these views are the values that we have formed such that our immediate reaction could be positive (i.e., encouraging or probing), negative

(i.e., indifference or lack of interest) or even selective to that someone's statement that her/his life is difficult.

Such values or judgments, including the assumptions we take, are necessarily present as these find expression in our preferences for a research endeavour, whether this be a quantitative or qualitative approach or both. Such preferences emerge in the problems or topics we consider worthy of investigation (Burns, 2000:10) or in the research questions we feel are significant to look into. It also becomes evident in our choice of informants in the field (when we utilize qualitative methods), in how we sometimes mechanically ask and note down responses rather than actively listen to what is being said by respondents, and in how we interpret and report our findings. The researcher's preferences find a place as well in the research approach that s/he chooses, particularly in terms of who the research will serve and how it will be used since the players or stakeholders to be involved can play a crucial role in the entire process. Those inclined to employ the participatory approach, thus, can mobilise their grassroot or other organisational partners towards a bias for the latter gaining a semblance of control over their development efforts or becoming self-determining development players.

More traditional quantitative researchers maintain that social research should be objective and value-free, an orientation that has roots in the application of methods and principles of the natural sciences in the study of human behaviour or social phenomena. Efforts at attaining an objective and value-free research continue to hold sway today among some social researchers but there are assertions that such objectivity may not be possible since much of what social research focuses on has a social context and that "humans think and learn, have an awareness of themselves and their past, and possess motives and reasons" (Neuman, 1998:64). Critical then to the conduct of social research is the researchers' acknowledgement of the values they may be bringing into the endeavour and an awareness of how these may be influencing their research processes and findings and for what end said values are shaping the research endeavour.

The Ten Steps to Analysis & The Thinking Through Schema Explained

Having established some of the concepts, principles and key concerns behind the conduct of social research, the subsequent sections of this book will show the different steps used to analyse a research problem and to come up with a good research report. The steps are neither new nor difficult if we relate these to how we search for answers to the questions we confront in our daily lives. The challenge is in putting our design in good shape, getting all the important and relevant information, avoiding easy or simplistic answers and recognizing that some research problems can be more complex than others. With practice, anyone can improve their own thinking and analytical skills. Remember that even if you have all the facts, there still are no perfect answers. Research, however, can open options for you or for its other users to explore.

The ten basic steps to developing a good research are shown in Figure 2. While this may be viewed as if one is climbing the stairs, a "thinking through schema" or framework has also been presented to help the researcher in reflecting on what s/he wants to examine and bring out during the endeavour. Like the ten steps, the schema has been part of the series of training courses facilitated by the ADI Project, particularly from 2001 to 2005. The schema is presented in a way that the corresponding specific steps are also evident in order to avoid confusion and for the reader to realize that both take parallel steps and aim at drawing out the key elements that will make for an effective and useful research. The parallelisms between the two are further spelled out in the subsequent chapters of this book which walk you through the research process and builds on your own knowledge, time, skills, and experience.

Figure 2. The Ten Steps to Analysis and the Thinking Through Schema

THE TEN STEPS TO ANALYSIS

1. Determine the topic, purpose and unit of analysis with relevant stakeholders
2. Make a plan to gather information from a variety of sources
3. Collect, classify and organise the information
4. Describe your findings and make connections between the parts
5. Identify the root causes and key issues and write your analysis
6. Arrive at conclusions
7. Generate recommendations that will address root causes and key issues
8. Write the report
9. Reflect on the research findings with stakeholders
10. Disseminate your findings.

STEP 1		STEP 2		STEP3		STEPS 4, 5, 6 & 7	STEP 8
RESEARCH OBJECTIVES	KEY RESEARCH QUESTIONS	INFORMATION NEEDS	INFORMATION SOURCES	DATA COLLECTION TOOLS/TECHNIQUES	DATA PROCESSING	IDENTIFYING THE MAIN/ ANALYTICAL POINTS	REPORT WRITING

MAIN POINT	SIMILARITIES/ DISSIMILARITIES TO AVERAGE SITUATION	REQUIRES EXPLANATIONS/ FINDING REASONS? (Y/N)	WHAT IS THE EXPLANATION?[ROOT CAUSES, KEY ISSUES]	IMPLICATIONS ON RESPONSES TO ISSUE AT PROGRAMME & POLICY LEVELS	ARRIVING AT CONCLUSIONS
Represents highlights or pieces of information that stand out in data summaries (tables, charts) and which bear on research objectives or key research questions	▪ *How is the main point linked to the other observations?* ▪ *What examples of similar or dissimilar situations can you compare the findings to?* ▪ *What material or document can you cite to support the findings or observations?*	*INDICATE HERE IF YES OR NO*	▪ *What data in the current study substantiate/ provide reasons for the pattern/ trend?* ▪ *What other experiences lend support to the explanation provided?* NOTE: Not all main points require an explanation...	▪ *In what ways are the findings significant to the study's sample? What necessary practical actions and policy (re-) formulations do the findings suggest?* ▪ *What do the findings mean relative to existing knowledge or to building new knowledge? What new issues or streams of knowledge do the findings point to and which researchers should explore?* NOTE: Not all main points require an implication...	▪ *Based on established connections/ relationships observed between the main points/patterns in the findings, what general statements can be made in relation to the research questions?*

PART 2

DESIGNING THE RESEARCH

Step One

Step One: Determine the Topic, Purpose, & Unit of Analysis with Relevant Stakeholders

What is your topic? Defining the research problem and its significance... determining the study's feasibility... formulating the problem statement and key/research questions... distinguishing between research purpose and objectives; programme objectives and research objectives...

STEP 1	
RESEARCH PROBLEM/BROAD RESEARCH QUESTIONS	SPECIFIC RESEARCH QUESTIONS/ RESEARCH OBJECTIVES

What Is Your Topic? Defining the Research Problem

The research process begins with the researcher selecting a *topic* – a general area of study or issue such as those earlier mentioned on landlessness, drug use, people's livelihoods or domestic violence. The choice of a topic or research problem can depend on a number of reasons. Personal interest is one of these and may be shaped by the researcher's own knowledge, experience and circumstances (Burns, 2000:27). Establishing the usefulness of the research findings or its significance is another way to sift through the range of the identified topics since this helps clarify the motivation for doing the work. Reflecting on how feasible the study is can also firm up decisions on what topic to study. All are important reasons for selecting the research problem because these are elements that will sustain the researcher's interest in completing the endeavour.

Establishing the Research Problem's Significance

Explaining the value of a research problem is vital because it clarifies the purpose and motivation for the work. If a researcher does not know why the research is being done, it is unlikely to generate much personal or public interest. Below are the different ways by which the research purpose or its significance can be clarified so as to prioritise an issue in selecting a topic:

- *Review existing studies*. The researcher should do a quick but wide-ranging search for available information such as previous studies, evaluation reports, monographs, journal articles, etc. A review of the literature establishes evidence of the planned study's relevance for practitioners and policy makers, and how it will contribute to knowledge (Marshall and Rossman, 1989:31).

- *Involve stakeholders*. Those affected by the issue to be examined should be able to voice out what they feel to be critical information for its understanding. Colleagues can have valuable information gained through experience. Technical people and community workers generally do not record their observations or write reports hence their insights must be drawn through brainstorming activities during informal meetings, brief workshops or a simple questionnaire (Narayan, 1996:40).

This process makes the study more useful, generates support, interest and the beginnings of a commitment to the research and subsequent findings.

- *Make connections between why you want to do the study and results.* Stating the general purpose through a series of answers to questions may help clarify and narrow the scope of work. Some questions to ask are:

  - In what ways would finding answers to the research problem important?
  - What type of information is expected at the end of the study?
  - Who will benefit from this research?
  - How will they benefit from it?
  - Is the research issue important enough for us to spend time analysing and proposing solutions to it?

Determining the Study's Feasibility

With the research purpose clarified, the limits and scope of the topic can be further pinned down. Critical to this is a review of likely constraints to the conduct of the study such as accessibility of study sites, personnel, financial resources and time. Box 1 presents a list of things to consider when reflecting on possible constraints to the planned research.

Box 1. EXPLORING THE FEASIBILITY OF THE STUDY

Accessibility of the Study Sites

- ✓ Where will the study be conducted?
- ✓ Is the proposed location of the study accessible by road? By what means of transportation can the planned study site be reached? What implications does this accessibility issue hold for the planned duration of the study?

Personnel Limits

- ✓ Who will conduct the study/who should be involved? How many members should comprise the study team and what will be their respective roles?
- ✓ If a member of a programme implementing team will be involved, will s/he concentrate primarily on the study for a defined period, or will it be conducted in addition to her/his other duties?
- ✓ Will an outsider be involved in the study? What are her/his skills?
- ✓ What resource people will be available to assist with the planning of the study?
- ✓ How much time can they be expected to devote to the study?
- ✓ What personnel are available to collect data; to do the field work in data collection?
- ✓ What personnel are available to do data analysis?
- ✓ Will computer analysis be necessary?
- ✓ Are people available to analyse data utilizing the computer?
- ✓ What media will be used to disseminate the findings?
- ✓ Who will write the report or make findings available to different users?
- ✓ Who will be involved in the discussion of results and specific planning of steps for follow-up?

Financial Limits

- ✓ How much money is available for the different phases of the study?
- ✓ What facilities and materials are available for the different phases of the study?

  The phases include (a) planning, (b) training of field workers, (c) development of data collection guides and tools, (d) field data collection, (e) data processing and analysis, (f) report writing and other means of disseminating the findings, and (g) discussion and dissemination of results to plan follow-up

Time Limits

- ✓ What is the time frame for the study? How much time will it require?
- ✓ When will the study be initiated? When is the best time to do it?
- ✓ How much time can be spent in the field?
- ✓ How much is needed for data analysis?
- ✓ By when should results be available and in what form to different categories of users?

Adapted from Narayan, Deepa. 1996. *Toward Participatory Research.* World Bank Technical Paper No. 307. Washington, DC: The World Bank

Formulating the Problem Statement and Key/ Research Questions

A research problem statement is a brief description or elaboration of a perceived knowledge gap, particularly on a pressing issue. Conventionally, it spells out the general context of the research problem, why the problem is worth studying (i.e., the purpose or significance) which would have been established in the process of selecting or prioritising a research problem, and the research questions to be addressed.

The general context of the research problem provides the background on the topic. It may cover what is already known about it based on a review of existing studies (e.g., statistics, observed trends), the debates (if any) or various perspectives that have been advanced about it, and the specific conditions characterising the location or site of the study. If the topic relates to a particular project, a description of it also finds a place in this section of the research proposal/plan or report. This background in effect sets the tone of the study and situates the research problem or topic against the bigger picture which it represents. Below is an illustration of how one may present the general context of the research problem.

Box 2. AN EXAMPLE OF A PROBLEM STATEMENT

Understanding Drug Use as a Social Issue:

A View from Three Villages on the Outskirts of Battambang Town

Problem Statement

Cambodia's transition to a market economy in the early 1990s opened up trade relations with other Southeast Asian nations and came to have far reaching consequences for the country. While most of this trade is legally sanctioned, there are products transported though Cambodia, and sold within the country itself, which are unquestionably illegal. The trafficking of illicit drugs is one such activity.

Until the mid-1990s drug use was primarily associated with foreigners and wealthy Cambodian youth. However, by the late 1990s drug use was on the rise among young Cambodians from all social strata. This was particularly true of drugs in the category of amphetamine-type stimulants (ATS), the most common known locally as *yaba* or *yama.* In the new millennium the flow of amphetamines into Cambodia has reached staggering proportions. The U.S. Department of State reports that: "Cambodia has experienced a significant increase in recent years in the amount of amphetamine-type stimulants (ATS) transiting from the Golden Triangle. The UNODC [United Nations Office on Drugs and Crime] estimates that 100,000 methamphetamine tablets enter Cambodia each day, some 75 percent of which are thought to be exported to Thailand." This means that, even after discounting the drugs transported through the country, more than 9 million ATS tablets remain in Cambodia each year from this source alone.

In addition to the ATS trade that originates from the northeastern border of Cambodia, the UNODC reports that: "Methamphetamine is the major drug that continues to be trafficked from Thailand into the western and northwestern provinces of Cambodia.... Districts in Battambang and Banteay Meanchey provinces are believed to be 'hot spots' for such trafficking." The UNODC report underscores that while the importation of ATS from Thailand into this region of Cambodia has existed for several years, the quantity appears to have increased due in part to greater local demand, especially in urban areas. The UNODC report further documents an apparent increase in the trafficking of precursor chemicals into Cambodia for the local production of ATS.

The provincial town of Battambang in northwestern Cambodia lies along a major drug trafficking route. This ADI study endeavors to explore the trends of drug use among young people in three villages on the outskirts of the town. The research similarly attempts to identify the causes and consequences of drug use among young people, examine the effects of drug use on family life, and assess the impact of drug use on community life.

Research questions detailing the specifics of the identified topic can also form part of the statement of the problem, although others choose to present it as a separate section. A research question is a question which a study is designed to address. These are the questions on which the researcher really wants to know answers, and in this sense, are the formal expressions of the problems needing answers or even solutions. It reflects the essence of the planned inquiry, and is not the same as a question which an interviewee might ask an informant (Mason, 1996:15).

Research problems frequently take the form of questions – mainly "what", "how", "why" – as doing so puts the issue in a way that can be investigated and that specifies its nature and scope (Yin, 1994:5; Lewis-Beck et al, 2004: 966-967). The use of such questions paves for choices about the focus and direction of the study, for setting its boundaries, achieving

manageability, and anticipating a successful outcome (Lewis-Beck et al, 2004:967). One or more research questions establish the foundation around which a research project is developed. Their selection and wording determines what, and to some extent, how, the problem will be studied. Quantitative researchers sometimes formulate their sub-research questions into hypotheses, which are statements that predict the relationships between some characteristics that are to be observed in the planned study (e.g., whether household characteristics will affect young people's drug use in a positive or negative way). Table 2 below provides a description of the more common form of questions used in framing research questions and the research methodologies that they suggest.

Table 2. Forms of research questions and potential research methodologies

FORM OF RESEARCH QUESTION	DESCRIPTION	POTENTIAL RESEARCH METHODOLOGIES
"What"	■ require a descriptive answe ■ directed at describing characteristics of and regularities in some social phenomenon such as categories of individuals (e.g., literate vs. illiterate, employed vs. unemployed, etc.), social groups of all sizes (e.g., association of elderly people, neighbourhood groups, etc.), and social processes (e.g., exchanging labour or *provas dei*, seasonal migration, etc.) ■ normally precede "why" questions	■ Survey ■ Case studies/oral histories ■ Archival/documentary analysis (i.e., draws on documentations or records)
"Why"	■ ask for either causes of, or reasons for, presence of characteristics or patterns of behaviour ■ concerned with understanding or explaining relationship between events, or within social activities and social processes ■ normally precede how questions	■ Experimental design (with control/treatment groups) ■ Survey ■ Case studies
"How"	■ concerned with explanations, bringing about change, and with practical outcomes and intervention	■ Experimental design (with control/treatment groups) ■ Survey ■ Case studies

Sources: Lewis-Beck et al, 2004: 966-967; Yin, 1994:4-8

Research questions can have one to two broad or overarching questions that are then further framed into more detailed formulations or sub-questions. Identifying these could begin with the researcher brainstorming on a list of logically linked questions, which can be subsequently refined or reduced as s/he considers the methodology and research methods for the study, as well as its practical, ethical and even political implications. The researcher might ask her/himself the following in the process of formulating the research questions (Mason, 1996:17):

- Am I clear about the essence of my inquiry, and what I want to explain or explore? Do my research questions express or problematise these?
- Are my research questions consistent with each other, and linked to each other? Do they add up to a sensible whole?
- Are my research questions coherent? Would anyone but me understand them?
- Do my research questions make possible, and probably, intellectually interesting answers?
- Are my research questions open enough to allow for the type of inquiry I require? Will they allow me to generate further questions at a later stage, as I undertake data analysis?
- Are my questions original and worth asking?
- Am I asking the right number of research questions at this stage?

Research questions then are the backbone of one's research design and should thus be clearly expressed because these will spell out how the researcher will connect what it is that s/he will investigate with how s/he will go about investigating it. They are vehicles that the researcher will rely upon to move her/him from the broad research interest to the specific research focus (Mason, 1996:16) and overall methodology for data collection and analyses. It is for this reason that social researchers have noted this research phase to be the most critical and perhaps the most difficult part of any research design (Lewis-Beck et al, 2004:966). To ease the understanding of the above guidelines, Box 3 presents some of the research questions that have been formulated for the above cited drug use study.

Reviewing the Literature

Researchers take existing studies into account if they are to come up with a good research project in general and good research questions in particular. They read what has been written on the chosen topic if only to avoid repeating what has already been done. Reading the relevant literature can also provide insights that the researcher may not have thought about. Other specific purposes of the literature review have been said to include (Neuman, 2000: 446):

- To demonstrate the researcher's familiarity with the body of knowledge that is relevant to the topic and to establish credibility. Having the review tells the reader that the researcher knows about the topic to be explored/explained and is familiar with the major issues surrounding the topic. It also increases a reader's confidence in the researcher's professional competence, ability and background.
- To show the path of previous studies and how the planned or current project is linked to it. The review also shows the development of knowledge on a specific subject and places the planned/current research in a context and demonstrates its relevance by making connections to a body of knowledge.

- To integrate and summarise what is known in the specific topic being studied. Reviewing existing studies enable the researcher to pull together and synthesize the results of said studies. Points of agreement and disagreement in these studies are cited, including what is known up to a point in time.
- To learn from others and stimulate new ideas. Going through existing literature identifies gaps in knowledge and reveals procedures, techniques, and research designs worth replicating so that the researcher can better focus her/his problem statement and gain new insights.

The most common reason for writing a literature review relates to the second purpose of creating links to a developing body of knowledge (Neuman, 2000: 446). It usually appears at the beginning of the proposal or report and helps establish the significance and relevance of a research question. It tells the reader how the planned research project fits into the big picture and its implications for a field of knowledge. The review can emphasize how the planned/current research continues a developing line of thought, or it can point to a question or unresolved conflict in prior studies to be addressed. It can also pave for hypothesis building as the researcher finds evidence supporting her/his hunch about the positive or negative relationships among some attributes to be covered in the planned study. In the process of writing the analysis of findings, the researcher's knowledge of existing studies also places her/him in a position to cite said studies in terms of how her/his findings confirm or negate these previous studies' results.

Box 3. AN EXAMPLE OF RESEARCH QUESTIONS

Understanding Drug Use as a Social Issue:

A View from Three Villages on the Outskirts of Battambang Town

Key Questions

Trends of Drug Use

1. In the past five years has drug use among young people increased, decreased, or remained the same? What are the reasons for this? What are the age groups of the drug users? Their gender? Their social economic backgrounds?
2. What are the types of drugs used? Before and now? When did users start taking drugs? Reasons for taking these types of drugs? Access to drugs? Costs of drugs? Frequency of use? Time and location of drug use? How do drug users support their habit? Do they have legitimate jobs? Deal drugs? Steal? Become sexual workers?

Causes and Consequences of Drug Use

1. What are the circumstances that give rise to drug use? Circumstances within the family? Among peer groups? At school? At work sites? During migrant work? Between boy and girl friends? What makes drug use attractive? Do drug users try to persuade others to use drugs?
2. What happens to young people because of drug use? Are they still accepted by their families? By other villagers? Do they still attend school? Do they work? Do they still go out with their old friends or only with other drug uses? Have they ever been arrested? Has their health been affected? Are they aware of HIV/AIDS? Do they use needles? Do they use condoms?
3. Have the drug users ever tried to stop taking drugs? Have they ever entered a drug centre or drug program? Is it possible for them to stop taking drugs without any medical assistance?

Effects on Family Life

1. What are the social economic circumstances of the drug user households? Composition of household members? Biological parents or stepparents? Both parents living at home? Ages and gender of children living at home? Livelihood sources of households? Involvement in labour migration? Are the households better-off, medium, poor or very poor?

2. How many household members are taking drugs? When did they start taking drugs? What type of drugs do they use? How did they come to take drugs? Working away from the village? Going out with their friends at night? Getting drugs at school? Were parents aware that drug use was a problem in the village before their child started to take drug? Were parents aware of the consequences of drug use before their child began to take drugs? Are the parents aware of the consequences now?
3. How has drug use affected the behaviour of young people? Have they become violent? Lost interest in life? Suffered health problems? Become involved in theft or other crimes? How has drug use affected other members in their household? How has it affected the relations of their household with other villagers? How has drug use affected the livelihoods of their households? Do they spend more money on health costs? Have their households become less productive?
4. Have parents been able to deal with the drug use problem of their children? What have they done? Is it possible for their children to stop taking drugs without medical assistance?

Impacts on Community Life

1. What is the social economic background of the village? What percentage of village households are better-off, medium, poor or very poor? What are the livelihood sources in the village? What have been major changes in the village in the past five years? What are the major problems?
2. Is drug use a problem in this village? When did the problem start? Who is involved? How did they become involved? What are the reasons for this? Are the households with drug users mostly better-off, medium, poor or very poor? Are they long time residents or recent arrivals?
3. What aspects of community life have been affected by drug use? Has security been affected? Has there been more theft? More fighting? Gang activities? Disruption of community events? Has there been a drop in school attendance? Are parents afraid that their own children might become drug users? Has there been an increase in HIV/AIDS or other health problems? Have young people left their homes? What has been the effect on household livelihoods? Have drug user households become less productive and poorer? What has been the affect on community development activities? Has drug use affected the involvement of users or members of their households in community development activities?
4. How have people responded to the problem? Parents? Teachers? Local authorities? Police? NGOs? What still needs to be done?

Conducting a systematic literature review begins with a clear idea of what the researcher wants to look for. With a fairly firm grasp of the research questions to be addressed, s/he can engage in the following activities to find the necessary materials for her/his review:

- Locate research reports (including programme reports, government documents, etc) in libraries of different organisations
- Seek the help of individuals or organisations who undertake studies as they may be of help in your search for relevant materials
- Surf the Internet as this could lead you to documents that touches on your research problem

Distinguishing between Research Purpose, Research Objectives, and Programme Objectives

Research purpose, research objectives and programme objectives are terms that can create confusion particularly for beginning researchers who are immersed in the implementation of social development programmes. As suggested in an earlier section, a research purpose responds to the question of "what am I doing this for?" (Mason, 1996:18). Answers to this

can cover what knowledge gaps are being addressed and how it is contributing to what is generally known about the subject matter at the theoretical, policy and practical levels, as well as what social and political agendas or change it is advancing or advocating for. There can be more than one purpose to any research project, and stakeholders involved may hold differing interests in the research. Social researchers occasionally equate this with the significance of the study, which an earlier section of this material delved into.

Research objectives capture the *specific* (rather than the overarching) research questions that the study aims to address. These frequently define the tasks that you will undertake and suggests the set of findings that the reader can expect from the study. The overarching or broad research questions cannot be stated as one's objectives because these can still be too general and does not shed light on how the broad areas of the topic or research problem will be treated and/or analysed.

Programme objectives obviously differ from research objectives in that the former focus on how an endeavour expects to *create* change. This set of objectives subsequently serves as measures against which monitoring and evaluation is undertaken, and can provide the basis for coming up with objectives to assess progress or impact of the programme-related interventions (Feuerstein, 1986:22). Programme objectives also mirror varying levels, and can include development objectives, effect or impact objectives, and immediate objectives (Dale, 2003:63).

Establishing the Unit of Analysis

Units of analysis generally refer to <u>what</u> or <u>who</u> a researcher studies (Babbie, 1998: 93; Lewis-Beck et al, 2004: 1157). These typically also are the units of observation or the foci of a researcher's investigation, and can either be an individual, a social group, an organisation, an event, issue, roles, social practices, etc. in explaining or generalising about the research problem area. A unit of analysis then is not the topic that a researcher studies but is the frame of reference in discussing the said topic. Researchers refer to a particular unit of analysis from which data are gathered as a "case" (Vogt, 1993:239).

Units of analysis *may be* different from the units of observation, however (Lewis-Beck et al, 2004: 1157). This happens when the researcher aggregates or combines data at the individual/group level to describe a country-level social phenomenon or issue. If we were to expand at the national level the study on drug use, for instance, findings at the individual level regarding number of young people using drugs may be summarised in the form of a mean score, then assigned as the overall incidence score for the country to identify how patterns of drug use compare with the trends in other countries within the region. In this situation, the unit of observation is the individual, but the unit of analysis is the country. This example suggests that as one goes up a higher or larger unit of analysis, smaller units or cases necessarily become subsumed into the larger one since one is stepping further into a bigger scale of social organisation.

Depending on the purpose of the study and availability of time, a researcher may opt to employ more than one unit of analysis in exploring her/his research problem. Thus, if one examines the household as the unit, individuals comprising the household are smaller units of analysis that s/he may choose to simultaneously examine. This is evident for example when one is assessing a household's well-being (first unit of analysis is the household) and is also examining the contribution of members' income or food-earning activities towards said situation of the household (second unit of analysis being the individual). Unless the specific research questions call for it, however, it is not necessary to employ more than one unit of analysis.

The concept of unit of analysis is further clarified in the discussion below on several common units of analysis.

Individuals

Information gathered on individuals as units of analysis frequently focus on their characteristics and aim at describing persons who are being studied. Each person's attribute is combined with others in the sample to come up with averages, percentage or frequency distributions, a table, an illustration, or some form of data summary. Individuals as units of analysis may be randomly or purposively sampled, depending on the research questions or objectives.

AN EXAMPLE:

In understanding the work situation of women and men in garment factories in Phnom Penh, a researcher formulates key study questions that are of particular interest to her/him (e.g., questions relating to profile of workers, work conditions and benefits). Specific interview questions (aimed at answering the key study questions) in the data collection instrument therefore solicit information concerning each of the individual workers in the study sample. Upon completion of the individual interviews, the researcher combines the information to come up with summaries such as average age, levels of education, mean number of months/years working in the factory, % of them who are married/unmarried, % receiving different types of benefits, etc., all of which are descriptive of the individual workers being studied. Averages and frequency distributions are two of the analytical tools employed in coming up with the description of the workers. Again depending on the purpose of the researcher, s/he may choose to complement or elaborate on the quantitative information with specific case studies or stories of two or three individuals. These case studies may have been obtained through a multi-phase sampling procedure.

A NOTE:

Focus group interviews are obviously not an appropriate information gathering technique when the unit of analysis is the individual. There are several reasons for this: *first*, group interviews are not exactly the forum for soliciting information that are unique to individuals (e.g., age, level of education, etc.); *second*, group interviews can be dominated by one to three outspoken or articulate persons and will therefore not generate information from the more shy ones in the group; *third*, time of researchers and of people comprising the group to be interviewed is not productively used since the type of data solicited do not permit an analysis specific to individual variations or differences.

Social groups

Information gathered on social groups as units of analysis frequently focus on the group characteristics and aim at describing said group (e.g., a family or household, street gangs, married couples, friendship or peer groups, etc.). The point of reference of the interview questions, as such, is the group being studied. If the researcher is collecting quantitative data, each group's attribute – like in the individual unit of analysis – is combined with others in the sample to come up with averages, percentage or frequency distributions, and the like. Similarly with individual units of analysis, social groups may be randomly or purposively sampled, again depending on the research questions or objectives of the research.

AN EXAMPLE:

An NGO working in a certain district in Kampong Thom wanted to extend support to neighbouring villages of where they are presently working. This NGO has heard of the poverty in the adjoining villages but did not know for sure how poor the villagers are. To find out the living standards of the villagers and how best it could help, the NGO decided to do a baseline study. They set the household as the unit of analysis to generate a picture of the poverty situation at this level and to effectively target the needy family units.

Specific interview questions (addressing the key study questions – e.g., who are the poor in the villages?) in the survey instrument sought information concerning each of the households in the study sample. The questions posed for instance, consisted of gender, age and education of household head and other members, special characteristics of household members (e.g., female head, having an elderly or disabled member), assets owned (e.g., riceland, livestock) agricultural production and income earning activities, health practices, etc.

All the questions, in effect, are descriptive of the households being studied rather than about one individual member of the family. The interviewee or respondent is often knowledgeable about the household and thus, is an adult member who has lived with the family for sometime. Averages, frequency distributions, tables, and other forms of data summaries are analytical tools also employed in coming up with the households' description. Again depending on the purpose of the researcher, s/he may choose to complement or elaborate the quantitative information with specific case studies or stories of two or three family units.

A NOTE:

Focus group interviews are possible with households as unit of analysis. For example, a researcher may want to compare households representing different livelihoods (e.g., lowland/upland/deep water rice farming households, those engaged in fishing, those in logging, etc.) in terms of survival strategies they employ during cycles of food shortage. Representatives of these different households can talk about their respective experiences, and the researcher synthesizes the discussions according what is unique to each household type and what is common across them.

Organisations

Investigations with organisations (i.e., collective with formal goals, members and tasks) as units of analysis necessarily focus on data that applies at the organisational level (e.g., NGOs, formal village associations, corporations). Like the individual and household as units of analysis, information obtained is summarised to describe the organisation being studied. Specific concerns that could be of research interest, for instance, are circumstances of their formation, how they recruit and control members, the types of strategies they adopt in relation to their goals, and causes of their growth, change, or demise (Lofland and Lofland, 1984: 87-89).

AN EXAMPLE:

A researcher wants to look into NGOs supporting vulnerable women (e.g., victims of violence, 'street' or homeless women) through shelters and to draw out organisational factors that contribute to or hinder the successful return of the women to mainstream society. The data s/he decides to collect in relation to his or her research questions/ objectives include the values that the NGOs hold about their target group, size of funding that the organisation receives for its work, the number of staff providing support, the

specific forms of assistance extended to the women while in the shelter, etc. and how these combined and individual factors influence the women's views of and what they will do with their lives outside the shelter. The analysis focuses on the organisations (in this example, the NGOs) as a unit or an entity. S/he sets the NGO as the unit of analysis to generate a picture of what it is in organisations that can contribute to or hinder effective assistance among a vulnerable population sector.

The interview questions then focus on organisational elements rather than on individual staff members. The interviewees or respondents can consist of the individual staff at different levels of the organisation (e.g., programme managers, finance person, trainers, the beneficiary women, etc.) but the frame of reference during the interview is always the organisation. Summary figures on quantitative information (through averages and frequency distributions) can also be used. Again depending on the research objectives, the researcher may choose to complement or elaborate the quantitative information with specific case studies or stories that highlight particular strengths or weaknesses of the organisations being analysed.

A NOTE:

Focus group interviews are possible with organisations as unit of analysis. In the above example, staff members, women receiving the support, people within the neighbourhood of the organisations can make up the focus groups in ferreting out organisational characteristics that facilitate or hinder its impact on the target group.

Settlements *(villages, towns, provinces)*

Settlements are geographically and socially defined territories that are made up of elements such as individuals, households, formal organisations, material resources, etc. When used as a unit of analysis, a researcher looks into all or selected elements of the specific settlement (e.g., a village), as well as these elements' interactions in order to see how the study issue is played out, for instance, on a village scale. Information being generated from different sources (e.g., individual, household, and/or group interviews, documents) is examined to understand the application of the issue at the settlement level.

AN EXAMPLE:

An illustration of settlements as units of analysis is the study of Social Services of Cambodia (SSC) on the impact of armed conflict on social capital. Identifying the village as that level where measures of social capital can be best captured, the research team defined the village as the unit of analysis and collected and analysed specific impact indicators. Comparing two villages, some of the information the team gathered consisted of village histories, and social capital (e.g., informal networks, sharecropping practices, customs relating to informal credit, etc.) in the context of livelihood activities, village-level services (e.g., basic education, primary health care, security, etc.), etc.

In this example, sources of information included individuals (i.e., key leaders, persons from different occupational groups) and households. Analysis of the interviews, however, was in the context of how individual and household experiences indicated the presence or absence of social capital at the village level.

Programmes/projects

Studies looking at programmes/projects (e.g., a credit programme, a micro-enterprise project, a training course, etc.) as units of analysis delve into data in much the same way as one does when s/he is employing households or organisations as the focus. That is, the point of reference of the interview questions and data analysis is the programme being studied. The sources of information are all those who participate in the programme – e.g., those who designed and implemented the programme, beneficiaries at the individual and household levels, as well as others who may not have been involved but may have an opinion on the programme. Data summaries present the different aspects of the programme being analysed and address the research questions that have been posed.

AN EXAMPLE:

The specific example that one could refer to in this instance is the study of the CCC-ADI participants on land re-distribution. Here, the participants looked into three applications of land re-distribution schemes (i.e., the programme is the unit of analysis) in terms of beneficiaries, distribution criteria, type and size of land distributed, etc. to come up with lessons and recommendations for the thinking that would go into a sub-decree on social concessions. Analysis of the programmes involved examining the experience through a case study on each scheme. Lessons (including strengths and weaknesses) across these programmes were then culled and presented to key organisations working on the issue of social concessions.

Table 3 below provides a summary of the above discussion and captures the key elements of each unit of analysis.

Table 3. Summary notes on units of analysis

UNIT OF ANALYSIS	INFORMATION GATHERED	HOW ANALYSED
Individuals	Characteristics of individual persons (e.g., age, gender, educational attainment, marital status, attitudes, prejudices, beliefs, personality traits, etc.)	Summarised to describe students, single parents, women.
Social groups	Attributes of the social group – point of reference of questions is the group that is being studied. Some examples are leadership patterns, changing structure of families or households	Summarised to describe families, street gangs, married couples, friendship cliques, etc.
Organisations	Attributes/characteristics/issues relating to the subject (e.g., how organised, nature of work, etc.)	Summarised to describe, analyse NGOs, corporations, communities
Programmes/ projects	Attributes/characteristics/issues relating to impact or failure/success, unique initiatives, etc.	Summarised to describe, or analyse best or bad practices or lessons in development work with partner groups, etc.
Social practices	Attributes/characteristics issues relating to values, norms, roles, development practice of NGOs/IOs, etc.). Examples are marriage & family practices, Buddhist practices in Cambodia, changing values, etc.)	Summarised to explore, describe, analyse changing or prevailing patterns and how these affect society, etc.
Social problem or issue (e.g., drug use, landlessness, domestic violence)	Attributes/characteristics/nature of the social problem (e.g., patterns of landlessness, incidence of HIV/AIDs, prevalence of domestic violence, etc.)	Summarised to characterize or examine the degree to which issue is affecting individuals, families, communities, to generate strategies for solving problems, etc.

STEP TWO

Step Two: Make a Plan to Gather Information from a Variety of Sources

Specifying the study's information needs... types of data to collect...establishing sources of information & data collection methods... combining data collection methods... Sampling procedures and sample size... Designing data collection instruments... Preparing for data analysis...

STEP 2	
INFORMATION NEEDS	INFORMATION SOURCES

Specifying the information needs

Planning for the information-gathering phase generally follows after the broad topic has been re-formulated into more specific and manageable research questions or objectives. As an initial step, the researcher attempts to make a list of the key elements or information needs that the research questions suggest. These may include demographic characteristics of households or individuals (depending on the units of analysis identified), activities that the households/individuals engage in, factors/conditions that contribute to the incidence of a social phenomenon or impact of an intervention, qualitative and quantitative impact of said phenomenon/intervention, etc. The identification of these general categories of information within the questions also pave for the development of the questions to be posed in the data collection instruments.

In defining the information needs of the study, however, it is useful to keep the following in mind (Narayan, 1996:43-45):

- Prioritise the information needs. It is better to rank in some detail the information needed and posing questions can help clarify the priorities. For example: What must I absolutely know by the end of the study?" or "What can wait until another time?" Also a useful guide to answering this is to go back to the research questions and objectives to check if the identified information is really necessary for the analysis of the data.
- Decide on the degree of detail. Another important decision is the depth to which any given attribute should be covered. For example, is it enough to know about the respondent's main source of income, or is information necessary about other occupation or seasonal work? Again, the research questions and objectives should keep the researcher on track in terms of how much detail to cover and how the details will support data analysis.
- Determine degree of accuracy needed. Time, money and headaches can be saved if levels of accuracy are determined before data collection. For example, many studies try to assess precise household income levels even though determining income levels accurately is very difficult.

The researcher will also need to be aware the types of data s/he will collect. The subsequent section attempts to provide an overview on this issue.

Types of Data and Levels of Measurement

As previously learned, data can be quantitative (i.e., numerical) or qualitative (i.e., non-numerical). Quantitative or numerical information typically refer to counts and measures of things, while qualitative ones comprise of social orientations (e.g., perceptions, beliefs, attitudes, personality traits, etc), social roles and status (e.g., caregiver, parent, teacher, community leader, rich, poor, literate/illiterate, etc), social processes (e.g., coping strategies, reciprocity or social exchanges, seasonal migration patterns, etc.) and the like. Also as noted before, none of our observations is by nature numerical or quantitative, but converting them to a numerical form by assigning values on the attribute makes the observation more explicit and eases our tasks of aggregation and analysis. Worth knowing at this point are the terms that will subsequently come up, namely *variables* and *attributes*. Variables are sets of attributes or are observable features of something that can take on different values or can be put into several distinct categories (Lewis-Beck et al, 2004:1172). An attribute, on the other hand, is a characteristic that a respondent, subject or case does or does not have. Gender, for example, is a variable composed of the attributes *female* and *male*.

The terms are of relevance because variables and attributes can be measured at different levels. The typical levels of measurement employed particularly in quantitative research are as follows and are portrayed in Figure 3 (Lewis-Beck, 2004; Babbie, 1998; Vogt, 1993; Agresti and Finlay, 1986):

1. ***Nominal*** measures simply refer to a categorisation within variables and merely offer names or labels on characteristics. Examples of nominal measures are gender (male, female), marital status (never married, married, widowed, divorced), religious affiliation (Buddhist, Christian, atheist), etc. Nominal variables are often qualitative, since two distinct values for these variables differ in quality rather than quantity. This is considered as the lowest level of measurement because its quantification is only for classifying or categorising them and cannot be used for computations such as addition or subtraction.

2. ***Ordinal*** measures are variables which a researcher can logically rank order. These are those that permit us to state that an individual has more or less of an attribute than another individual, but they do not convey the magnitude of differences between the individuals. Ordinal measures consist of a collection of naturally ordered categories of qualities or characteristics (e.g., first, second, third). Examples of these are social class, position on an attitude scale (e.g., highly concerned, very concerned, concerned, etc.), groupings based on educational attainment (e.g., most to least educated), differences in height (shortest to tallest) and so on.

3. ***Interval*** measures refer to variables whereby numeric values are of equal distance and have intrinsic meaning. For this type of measure, numbers are assigned to objects or events which can be categorised, ordered, and assumed to have equal distance between the scale values. A usual example is income measured in dollars where an income of $1,000. is immediately understood. In addition, the distance between someone with a $1,000 income and someone with a $1,001 income (i.e., one dollar) is equal to the distance between someone with a $565 earnings and someone with a $566 earnings (i.e., one dollar). Values of an interval measure can have a zero point but this is assigned arbitrarily and can meaningfully be added and subtracted but not multiplied

or divided. The values can also be compared not only in terms of which is, for instance, larger or smaller/older or younger, etc but also in terms of how much larger or how much older). These can also be converted to lower levels of measurement such ordinal or nominal measures but information is lost when this is done.

4. ***Ratio*** measures refer to variables where values/numbers assigned to objects can be categorised, ordered, and assumed to have equal intervals between scale points. It is only at the ratio level of measurement that one can make proportional statements, or that something is twice as much or three-fourths smaller. These measures share several common characteristics with interval measures and its distinguishing characteristic is that it has a real/non-arbitrary zero point. Examples of this measure are age, length of residence in a given place, number of organisations belonged to, number of times visiting the pagoda during a religious event, number of times married, number of friends who are *Chams*, etc.

There are two other labels used to refer to quantitative data, namely *discrete* and *continuous*. Discrete variables are those can take on an enumerable set of values. Examples are number of children in the family, population size of a village, number of visits to a health centre in a year, etc. It should be noted however that for this type of variable, the basic unit of measurement cannot be sub-divided. One can't say for instance, that s/he has 2.5 number of children. Continuous variables, on the other hand, are those that can take on a continuum of possible values. Examples of this are height, weight, age, amount of time it takes to read a book, etc. With continuous variables, there is always another possible value between any two possible values.

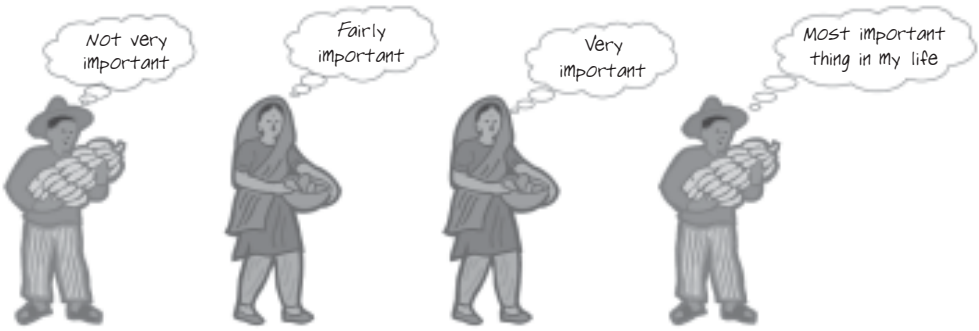
Levels of measurement are worth knowing because it allows the researcher to determine the type of data s/he will collect, since this will shape the nature of her/his analysis. If at the outset, for instance, s/he gathers data on age or income which are already grouped (i.e., at the ordinal measure), the resulting information will not permit her/him to come up with a mean income or a mean age (since ordinal data *cannot* be converted to interval or ratio type), thereby limiting the precision of the analysis and the ability to provide a proximate characterisation of the individuals or populations being studied. Understanding levels of measurement also allows one to realize that s/he cannot come up with a mean gender or a mean religious affiliation. In effect, realising the qualities of the data we collect also opens doors in terms of what descriptive (or inferential) statistics we can employ in the analysis of data.

Figure 3. Levels of Measurement

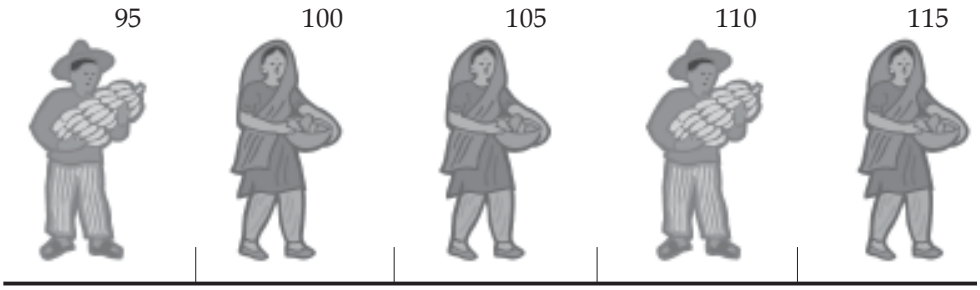
Nominal Measure Example: Gender

Female Male

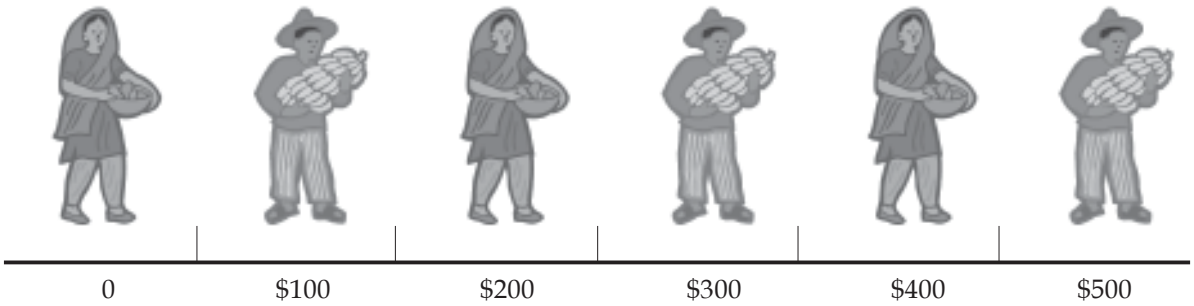
Ordinal Measure Example: Religiosity "How important is religion to you?"



Interval Measure Example: IQ



Ratio Measure Example: Income



[a/] Adapted from Babbie, 1998:143

Levels & Dimensions of Analysis

Data can also be viewed in terms of their levels and dimensions of analysis. Analysis of data can be either at macro or micro levels. One is analysing data at the *macro* level when aggregates or combinations of individuals such as cities, towns, provinces or nations become the unit of analysis. Data analysis occurs at the *micro* level when individuals, households, or neighbourhoods, etc serve as the unit of analysis. There is no cut-and-dried definition, and one may opt to analyse a level of analysis between the very micro and the very macro (Lewis-Beck et al, 2004: 563).

Dimensions of analysis are a less simple concept. In essence, this suggests that data can represent concerns or qualities that can be categorised as socio-cultural, political-legal, economic-financial, and so on. These data groupings are typically context questions which can provide reasons for why people have certain perspectives or why they behave the way they do. Presented as the ADI Framework in the first edition of this book, the idea is to keep the researcher conscious of the many players and factors that influence a situation in many different ways and at different levels of society. Again, however, raising questions or analysing data pertaining to these concerns should proceed from the research questions or agenda of the researcher. Annex 3 provides a brief description of the different dimensions of analysis as presented in Table 4.

Table 4. Levels and dimensions of analysis

LEVELS/ UNITS OF ANALYSIS[a/]	DIMENSIONS OF ANALYSIS					
	SOCIO-CULTURAL	POLITICAL-LEGAL	ECONOMIC-FINANCIAL	TECHNO-LOGICAL	INFRA-STRUCTURE	PHYSICAL ENVIRONMENT
MACRO Cross-national/ regional National/country-wide Regional (@ country level)						
MICRO Individual Household Neighbourhoods Organisation/ association/ groups Social action/ practice, etc.						

[a/] A third level, the meso, has also been employed in the analyses of issues/programmes, etc. The meso conventionally focuses on that between the macro and the micro such as regional characteristics or attributes that impact on micro and macro concerns.

Identifying the Sources of Information

Having identified the information needs, one can go back to determining possible sources of the information aside from the defined units of analysis. Who has the answers and how do you find them? Will you need to do individual/key informant interviews or group discussions? Who are these individual/key informants and who should comprise the group discussions? What secondary sources or materials will provide data to reduce amount of time for the interviews? What types of secondary materials will need to be consulted? Who has them and where are they located? What other evidence do you have to collect to understand the real situation? Which stakeholders or non-stakeholders should be interviewed to arrive at a balanced perspective?

Identifying the sources of information is inevitably linked to the data collection methods to be employed. Doing so entails thinking about what and who would yield the most reliable and valid information for the defined information needs (see a separate section for a discussion on reliability and validity). Some common sources of information are:

1. Documents or files in libraries, I/NGOs, government offices
2. Reports or surveys pertinent to the topic
3. Community/non-community members (a sample)
4. Formal/informal leaders (e.g., traditional healers, monks) of the community; elderly members of the community
5. I/NGO personnel; members of community based organisations
6. Local authorities/provincial or local government representatives of the area; government officials at the national levels

Methods to gather information from the above sources consist of document review, individual interviews, group discussions, observations, brainstorming sessions, mailed questionnaires, informal conversations, case study, and the like (Table 5). In the last 15 years, methods to collect data have also comprised of those that make up the participatory learning and action (PLA) approach. Annex 4 provides brief descriptions on the range of tools and techniques that make up this approach, which have also been useful in key phases of the programme/project cycle. It should be noted that researchers can use a combination of methods to generate the needed or best possible data, to capture information from different angles and/or to verify those received from other sources. This use of multiple methods is also a way of achieving reliability and validity of findings.

Understanding the Issues of Reliability and Validity

Reliability and validity are two concepts in social research that lend credibility to the data that one has collected. Both are concerned with precision and accuracy of the information offered by the data collection instrument used.

Reliability is about the consistency, dependability, or accuracy of a data collection instrument. This means that the questions within one's data collection tool yield similar and/or consistent responses when administered to different respondents, and provide dependable evidences on an issue being examined. When a social researcher, for example, states that s/he will describe access to land situation of households in a certain study site, the questions on the data collection instrument should mean the same thing

to the respondents such that they provide similar answers. If two respondents understand one or more questions to mean different things, their answers will necessarily be different and this suggests that the instrument has a reliability problem. In addition, the instrument should *yield similar answers* across (or similar profiles of) sample respondents when one undertakes two to three rounds of interviews among the same respondents. Of critical concern as well in establishing reliability in responses is to ask only about things that respondents are likely to know answers to or are relevant to them. Obviously, if respondents come up with irrelevant or inappropriate responses on our questions to obtain a profile of the households' access to land, we may have chosen a wrong instrument to learn about their situation (i.e., a qualitative approach may have been more appropriate rather than a survey), or formulated questions to which respondents could only offer a "don't know" or an irrelevant answer. On issues that call for more qualitative responses (e.g., domestic violence, stigma against people living with HIV/AIDS), reliability is best achieved if the researcher seeks out more than one source of information or more than one method of data collection (Babbie, 1998: 131; Mason, 1996: 24).

Validity is closely linked to reliability, as this is about having a data collection instrument that measures what it is supposed to measure. It embodies appropriateness, meaningfulness and usefulness of the inferences that we arrive at about our data. This is often associated with 'operationalisation' of concepts such that asking about access to land should cover a set of questions detailing how such access is being defined, observed, or determined. For example, is it just about ownership or one's tenure status in general in relation to land being used? Is it about knowing the types and sizes of land being used? In each instance, the researcher will need to work out how well a particular method and data source might shed light on her/his concepts, whatever these may be (Mason, 1996:24).

Social researchers generally aim for reliable and valid data collection instruments to ensure the quality and usefulness of their data. Towards this, triangulation has been a strategy that they have built upon.

Table 5. Some Common Data Collection Methods in Social Research

METHOD	ADVANTAGES	DISADVANTAGES
1. Document review	▪ may be available as print document, audio or a visual/video ▪ can provide a historical perspective and statistical data on the issue being examined ▪ can reduce respondents' problems of recall on certain events	▪ occasionally difficult to access due to confidentiality and organisational/official secrecy (e.g., some State documents) ▪ documents need to be examined in terms of credibility
2. Individual interview (structured, semi-structured)	▪ can be used with literate as well as illiterate people ▪ gives interviewer a chance to get complete information ▪ produces unusual information ▪ flexible – can adjust to individual differences ▪ provides opportunity to probe/clarify misunderstandings or unclear answers ▪ permits multi-method data collection – including observations, visual cues, and self-administered sections (for those who are literate) ▪ rapport and confidence building are possible	▪ may be biased in the choice of questions ▪ involves time and money ▪ needs expertise in interviewing ▪ can cover only a few respondents in a day ▪ respondent may give the answer that the interviewer wants ▪ respondent is not anonymous
3. Group Discussion	▪ fosters group spirit when common concerns are identified ▪ provides two-way communication ▪ offers time for in-depth discussion and follow-up of ambiguous or unclear answers ▪ allows emotional as well as intellectual reactions	▪ No anonymity ▪ Works best if the group members trust one another ▪ may deviate from main focus unless the facilitator is trained ▪ hard to keep track of who is saying what ▪ interest groups or dominant individuals may get the opportunity to push certain points/agenda and may create tension
4. Observation	▪ can capture non-verbal behaviour, physical conditions, etc. ▪ can explore interactions ▪ flexible ▪ can collect unusual data ▪ holistic	▪ Subjective ▪ Time consuming and costly ▪ Needs expertise ▪ Cannot detect what people are thinking ▪ Can cover only a few respondents ▪ Presence of an outside observer can change the behaviour of the respondent ▪ difficult to record information from simultaneous events
5. Brainstorming	▪ enables respondents to speak their minds freely ▪ provides immediate feedback/results ▪ can cover a (large) group in a short time ▪ provides opportunity to hear others' views ▪ relatively easy to organise	▪ Shy members may be inhibited ▪ Inability to check how representative the ideas are ▪ no anonymity ▪ presented ideas may not be fully developed because of spontaneity
6. Mailed questionnaire	▪ can reach many respondents in a short time ▪ inexpensive to produce ▪ respondents can be anonymous ▪ gives respondents an opportunity to state ideas without fear ▪ data recorded can be summarised easily ▪ can be easily revised from programme to programme	▪ needs expertise and training in facilitation ▪ difficult to phrase questions to avoid psychological threat ▪ respondents may not take the questionnaire seriously ▪ not suitable for illiterate people ▪ much time wasted in waiting for the completed questionnaires to return ▪ difficult to answer complicated questions ▪ possibility of low response rate

Sources: Lewis-Beck, 2004; Gajanayake, S. and J. Gajanayake. 1993:26-27

Triangulation

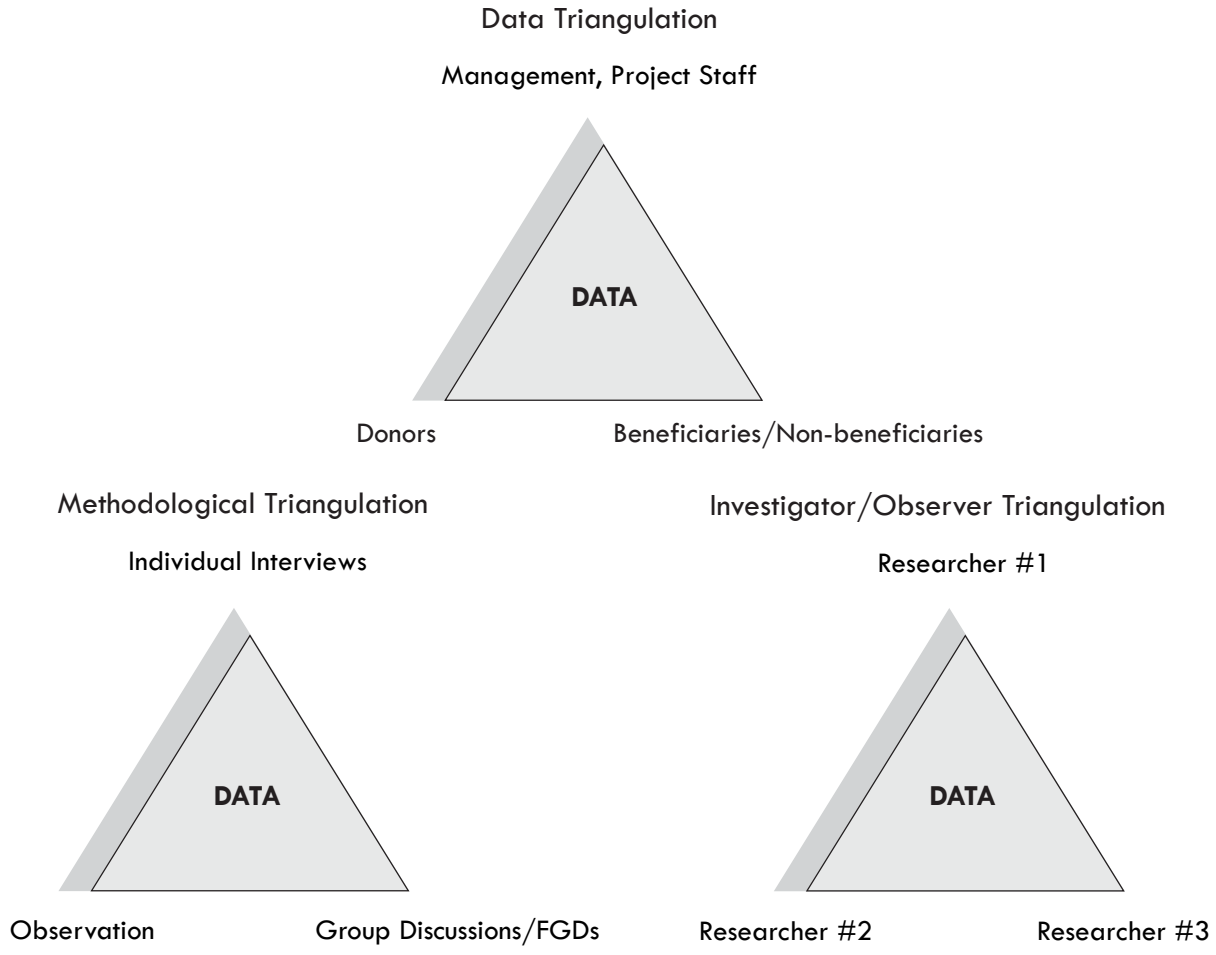
Triangulation refers to "the use of more than one approach to the investigation of a research question to enhance confidence in the ensuing findings" (Lewis-Beck et al, 2004:1142). Researchers employ this procedure because exclusive reliance on one method or source can result in bias or distortion in the findings.

There are several types of triangulation (Lewis-Beck et al, 2004:1142; Neuman, 2000:124-125):

1. Data triangulation, which entails taking multiple measures of the same issue, event or phenomenon so that the researcher is able to examine its different aspects
2. Investigator or observer triangulation, which refers to the use of more than one researcher in the field to gather and interpret data
3. Theoretical triangulation, which refers to the use of more than one theoretical position in interpreting data
4. Methodological triangulation, which refers to the use of more than one method or to mixing methods (e.g., quantitative and qualitative tools) for gathering data; such use may be sequential or simultaneous

Figure 4 illustrates three of the above types of triangulation.

Figure 4. Triangulation Illustrated



Sampling Procedures and Sample Size

A critical consideration in designing the study is to determine how to select and how many should be interviewed for the planned study. It will be recalled that the research questions shape the procedures with which the researcher will connect her/his topic and research questions with how s/he will go about investigating it or the overall methodology for data collection and analyses. Knowing the overall methodology to be employed also defines the selection process of the researcher's respondents since resource constraints will frequently prevent her/him from covering the whole population suggested by the research questions. Sampling will need to be undertaken. Sampling procedures may be classified into two general types: those done in the context of qualitative studies, and those undertaken for quantitative investigations, the decision for which again depends on the research questions and objectives. In social development, research activities often employ both. However, qualitative studies happen almost as frequently. For this reason, the procedures presented here cover sampling methods under these two conditions of generating and analysing information.

Sampling procedures for qualitative research[6]

Sampling for qualitative research is about obtaining representations or illustrations of the different substantive areas comprising a study issue (alternately referred to here as the research problem or topic). That is, the researcher engages in *theoretical* sampling or looks into the different and meaningful dimensions underlying her/his research problem and questions. Sampling for qualitative investigations, in effect, is about taking a holistic and in-depth view of a situation or issue, and understanding behaviours, events, institutions, underlying processes that underpin the issue being explored by the study. It is thus frequently purposive, and continues throughout the study as it forms a meaningful link between data collection and analysis. The sample study sites and the interviewees then are determined by the substantive areas being considered in the study.

Beginners usually pose the familiar question of "how do you tell when you have sampled enough?". Researchers seasoned in qualitative endeavours go by an adage that s/he may stop sampling when s/he is bored (Lewis-Beck et al, 2004:995). This is the idea of "saturation" or that situation when the researcher is no longer able to generate new data from whoever s/he approaches for information and that s/he has 'heard it all'. Saturation has been said to occur more quickly when the sample is adequate and appropriate, and when the study has a narrow focus. *Adequacy* means that it is not enough to hear about something from someone once – what was heard should be verified by other participants in the form of other stories which embody similar points as that which was initially heard. Verification could also be through other sources such as documents, observations, etc. *Appropriateness*, on the other hand, refers to the deliberate selection of the best persons to involve in the study.

Sampling for qualitative studies then does not involve random sampling, since randomisation means that anyone in a given population is a potential participant or informant in the study (Lewis-Beck et al, 2004:995). Not all of the said given population

[6] Examples cited in this section move away from the study on drug use and other CCC-ADI studies to allow descriptions of the range of situations where sampling procedures can be applied.

have equal life experiences that could be of interest to the researcher, and because knowledge of a topic is not randomly distributed in a given population, collecting data by chance would result in the collection of too much data on topics that are generally known, and inadequate data on those that are less known which qualitative studies frequently aim to unravel. Additionally, random sampling has roots in the quantitative approach and as such seeks to generate responses to questions against which statistical conventions can be applied to describe, explain or predict patterns of behaviour.

Box 4. AN EXAMPLE OF THEORETICAL SAMPLING

In reviewing land re-distribution schemes in Cambodia for a small study, the CCC-ADI team learned that there were a variety of 'programme' experiences on the issue in different parts of the country. The experiences represented the varied approaches through which rural people gained access to land, illustrated the attributes of the land that had been distributed and/or that people had occupied (i.e., de-mined land, inundated forest land, idle land, etc.), and were ones that could offer a good breadth and depth of lessons. The team appreciated the range of experience and information that the issue presented but recognized its own limitations. As such, it carefully examined each 'programme' experience in terms of the land distribution approach each depicted, 'land-type' situation each exemplified, availability of existing research on each, type and number of families affected, distance of each study site, and support that the researchers can get from the implementing agency. Based on these considerations, the team chose three programmes: one in Siem Reap representing a de-mined land situation and an NGO-facilitated land re-distribution programme; one in Kampong Thom to cover a people-led instance of land acquisition in an idle, forest land; and one in Battambang that also illustrated a de-mined land situation but one given by the government to refugees and returning former residents.

After defining the study sites, the team reflected on the key study questions and identified the possible interviewees, and how best to gather the needed information. It deemed that group and household interviews were the most appropriate ways of collecting the data, considering all the constraints. The team then requested the land distribution lead agencies to organise the group that would be interviewed. The request specified that the group would be made up of village leaders, key individuals involved in the distribution of land, and representatives of households that directly benefited from the land distribution. Household level interviewees, on the other hand, would include the direct beneficiaries to obtain an in-depth picture on the family units that received land.

Reflecting on the study issue above points out that there are indeed different concerns to be considered in understanding land re-distribution initiatives. Questions to ask then when doing qualitative sampling include: What are the key concerns that characterise the issue? What range of experiences should be covered? Who are the people who can talk about the different experiences? What experiences and which interviewees can be realistically included given time, staffing, and financial resources?

A careful review of the research questions is key to the sampling procedures in qualitative studies. Other factors can also contribute to the decision to use qualitative sampling

techniques. As noted, these include funding, staff and time constraints, as well as unavailability of a list of possible interviewees. Unavailability of a list of possible interviewees is particularly likely among the following study populations:

- migrant workers
- those engaged in commercial sex work
- female beer promoters in restaurants and karaoke bars
- families engaged in child labour practices
- street children (i.e., *enfants des rues* and *enfants de la rue*) in Phnom Penh
- women experiencing physical battering or domestic violence
- male household heads with more than one wife

In any of the above instances, the researcher can opt to use one of the following sampling methods:

Opportunity sampling

This form of sampling is often used when the researcher does not have any other alternative, particularly because of financial constraints, for instance. For example, a student, to complete class requirements, needs to do a survey on families' frequency of eating out on weekends. Due to lack of resources, s/he can sample and interview her co-students, neighbours or pedestrians.

Purposive or judgmental sampling

This procedure is one that involves a sample selected deliberately or on purpose by the researcher because s/he thinks the group has certain characteristics that are typical or representative of the population. To determine the availability of institutional support in credit programmes in a province, for instance, all or a selected number of NGOs involved in programmes or projects providing micro-financing or credit support may be interviewed.

A risk in the use of this method is that one cannot make conclusions about the population or universe being studied. In other words, the findings may be true of the sample obtained but may not necessarily hold to others representing the particular group from which the purposive sample has been taken.

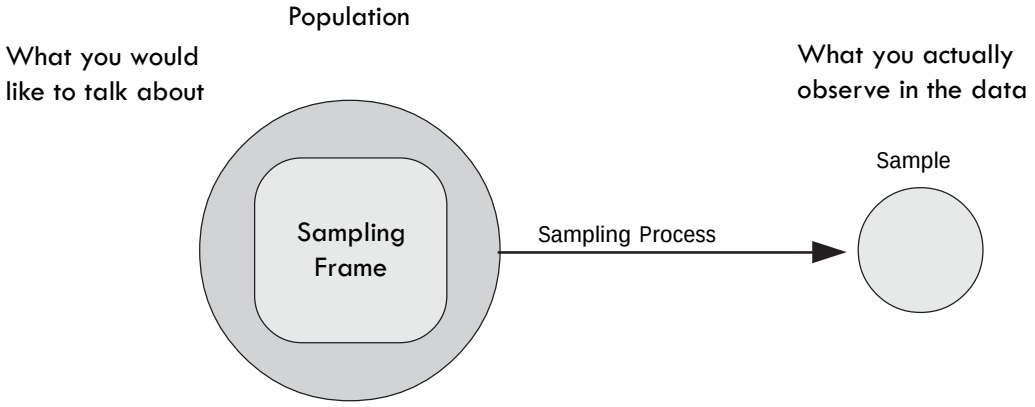
Snowball sampling

This procedure is another technique for finding research subjects. Initially, friends, acquaintance or even strangers may be asked where the target sample can be located. Once found, an interviewee can be asked where others may be located. This is an especially useful technique when the researcher wishes to reach and interview people with unusual characteristics who are likely to know one another. This technique can be employed, for instance, among commercial sex workers, persons selling guns, and women who have experienced being trafficked.

Sampling procedures in quantitative studies

Quantitative sampling is one that seeks *representativeness*, or choosing a subset of a given population so that this subset demonstrates or approximates the characteristics of said population (e.g., age, gender, ethnicity, occupation, etc.) (Mason, 1996:91). Patterns from data generated from such a representative subset or microcosm are then reported as being likely true of the wider population from which the sample was obtained (e.g., that 25% of households in Cambodia is female headed) as shown in Figure 5. Quantitative sampling is typically used in survey research.

Figure 5. The Logic of Quantitative Sampling



Source: Neuman, 2000: 202, 218

At the heart of sampling in quantitative studies or survey research is random sampling. The basis of this is the availability or the possibility of creating a sampling frame which is simply defined as a list of what will be sampled. For example:

a list of all students enrolled in a university in Phnom Penh

a list of local NGOs in Cambodia

a list of farmers in one village

a list of Cambodians who have a car

a list of shops selling cell phones

a list of garment factory workers in Phnom Penh

a list of expatriates working in local and international non-government organisations in Cambodia

Obviously, random sampling is useful only when it is possible to obtain a list of the subjects that will be studied. In this connection, it is always useful to do a pre-data collection visit to the planned sites to obtain a reliable list from village chiefs, for instance. Conducting such a visit provides an opportunity to come up with the needed list especially when this is yet to be prepared. Such a visit also allows the researcher to determine factors that could facilitate or hinder the data collection which can then re-define the scope of her/his work. It is also worth remembering that there will be instances when one cannot get a reliable list of respondents due to the highly sensitive

nature of the issue to be studied (e.g. victims of domestic violence, HIV-infected individuals in a village). In situations such as these, the more 'subjective' methods of sampling (e.g., purposive, snowball) will be more appropriate. Below are brief descriptions of the different procedures by which a research can arrive at selecting the individual units s/he will include.

Simple random sampling

Get or make the list of what will be sampled. For example, get the list of all the local NGOs in the CCC agency listing or directory. Write all names in the list on small pieces of paper, roll up the paper so the names will not be seen, put the rolled-up paper in a container (a small basket, a small box, a hat, etc.) and get one piece of paper at a time until the desired size is obtained.

Stratified or strata sampling

Stratified sampling simply means that the researcher obtains samples from sub-groupings or strata within the population[7] to be studied. To achieve this, identify all the sub-groupings/strata/levels that will be studied and within these sub-groupings, get a sample using the simple random sampling procedure outlined above. For example, a 2-strata sampling design on a study among RUPP students concerning job expectations in NGOs will involve:

1. identifying the first stratum or sub-grouping of males and females in the list of enrolled students in RUPP
2. selecting students who are in the third or fourth year of their study (if this is the particular group that you want to interview)
3. doing a random sampling from the list (as grouped by gender and by year of study), using the procedure outlined above.

Annex 5 shows an example of a two-stage stratified sampling for a baseline survey in Cambodia.

Systematic random sampling

In this method, every nth element in a list is chosen (in a systematic manner) for inclusion. If a list contains 1000 elements and a sample of 100 is needed, for example, one selects every 10th element for the sample. To avoid researcher's bias, the first element should be chosen at random. This is also known as systematic sample with a random start.

An application of this is a study on incidence of migration-to-Thailand livelihood activities of households in villages in Poipet. Given the high mobility of residents in this area and the difficulty of obtaining a reliable list of households, one can select every nth house (say, every 5th or 10th) to find out if the household depends on migration activities to the Thai border for livelihood.

[7] "Population" (also called "universe") as used in research refers to a group of persons (or institutions, events, or other subjects of study) that one wishes to describe or about which one wishes to generalize or make a general statement. To generalize about a population, one often studies a sample that is meant to be representative of the population (Vogt, 1993).

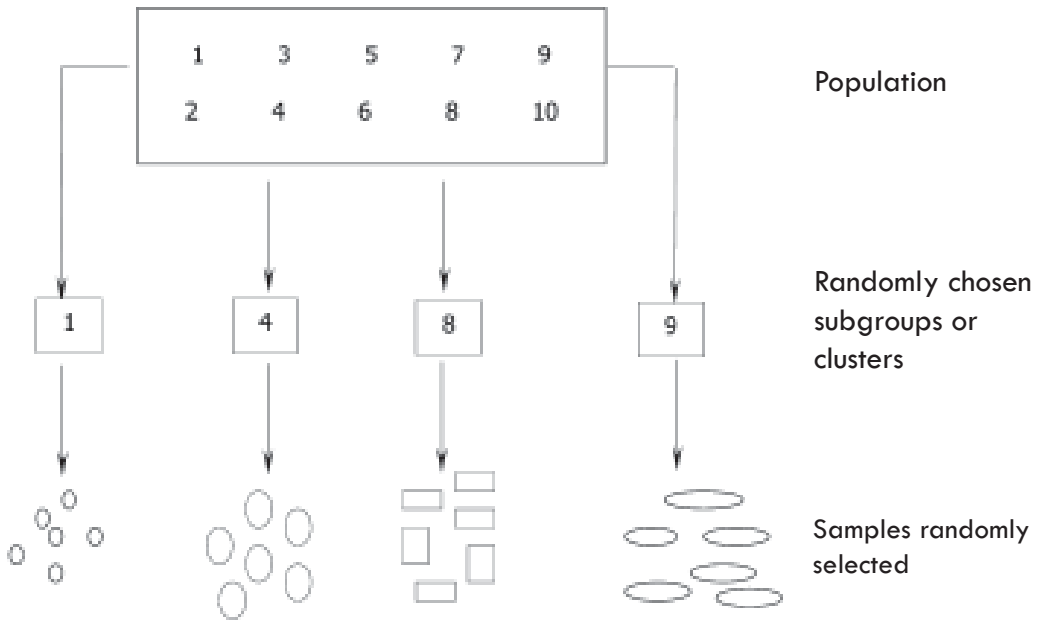
Alternatively, and if a reliable list is available, the researcher could choose every n^{th} household from the list after doing a random start (i.e., deciding on the first, fifth or seventh household as starting point, then going down the list to obtain say, every 10^{th} in the list). Thereafter, every 10^{th} household in the list will be part of the sample. So if the 7^{th} household was selected initially, the 17^{th}, 27^{th}, 37^{th}…127^{th} household will be part of the sample. To determine the n^{th} element to be sampled, divide the desired sample size into the total population size if the latter is known.

Generally, systematic random sampling requires a list. This has been adapted, however, to situations such as that described above in the example when a list is not possible or available.

Cluster sampling

If the focus of the study has been determined, for example, socio-economic characteristics of households in Phnom Penh, the sample will come from the city's population (Figure 6). Cluster sampling is the most appropriate method to take in this instance. This can be done by taking advantage of 'natural' groupings which, in this case, could be the *sangkat* or communes where residents live (you may also choose to do it by street or by district). Identify the *sangkat* you will draw samples from, then get a list of residents from the commune offices, and take the desired sample size from each *sangkat* following the simple random sampling procedure outlined above.

Figure 6. Schematic Illustration of Cluster Sampling



***Source*:** Burns, 2000:91

Given that a *sangkat* is still be too big a cluster to choose from, the researcher may want to go one step further by identifying the villages (or neighbourhoods) within the *sangkat*, then approaching the village or neighbourhood chief for a list. Cluster sampling is appropriate for Phnom Penh's population because there is no complete listing of all

persons living in the city and the population is spread over a big area. One can also do a systematic random sampling within this cluster sampling method, particularly because of households living in shanties (i.e., the homes of squatters) which may not be in the village chief's list.

Multi-stage cluster sampling can be done as well. For example, if one wants to undertake a comparative analysis of inorganic input use by region among farmers in the country, first determine the regions in Cambodia to be studied (e.g., northwest, northeast, southwest, etc.), then the provinces to sample within each region, then the district, then the commune, then the village, and finally, the farmers. Note that at all levels or strata, the simple random sampling procedure outlined above must be followed.

Multi phase sampling

This sampling method involves taking a subset of (or a small group from within) one's original sample in a study. For example, if after interviewing local NGO staff members, a researcher wants to look in more depth about these staff members' goals, s/he will get a new and separate sample from that used in the previous interviews. Again, the procedures follow that in the simple random sampling method.

A concern worth knowing across the above described procedures is that of *sampling with replacement*. This simply suggests that one can opt to have a set of 'stand-by' respondents who have also been selected in a random manner in the likely event that some of the identified interviewees are unavailable within the limited time allotted for the data collection.[8] Thus, if the researcher has set the sample size at 25 per village, for example, s/he may consider increasing this number by 5 or more (depending on her/his estimates of how many persons may not be reached during the data collection) in the process of randomly selecting her/his respondents to ensure that s/he obtains the desired sample size of 25. Unavailability of respondents can occur when they may have migrated for work for the season, are out for the most part of the day due to the planting/harvesting season, or are simply not in the village for other reasons.

Determining the sample size

In general the bigger the size, the better because the larger the sample, the lesser the error. But this does not necessarily guarantee accuracy of results.

There really is no fixed rule in establishing the 'right' sample size. Two approaches to guard against in deciding the sample size are (Fowler, 1993:35):

- ✓ Specifying a portion of the population to be included in the sample
- ✓ Taking a particular sample size based on an understanding that "it is the usual or typical approach to studying a population"
- ✓ Specifying a desired level of precision at the outset of the study

A rule of thumb with regards to this issue is that of representativeness. How well your sample represents the different individuals, families, groups (villages/communities) you are studying is more critical than the numbers that you get. This is because your

[8] It should be noted that the term has a different meaning in statistical formulations of sampling designs.

sample, as suggested in Figure 5, is supposed to be a small picture of the bigger one that you are attempting to study.

> *A NOTE ON SAMPLING*
>
> If you cook a small pot of soup, you can find out what it tastes like by eating a spoonful (i.e., taking a sample). When you cook a big pot of soup, you can still use the same spoon to taste it. You don't have to use a bigger spoon just because you have a bigger pot of soup.

Development practitioners have also used a formula for arriving at a sample size on perception-related studies. Below is such a formula that has been adapted in at least two studies in Cambodia[9] but it is worthwhile to seek the help of a statistician or someone who knows statistics when adjusting the figures (Fink and Kosecoff, 1985:62).

$$N = (z/e)^2 (p) (1-p)$$

Where N = sample size

z = the standard score corresponding to a given confidence level (or the statistical certainty chosen

e = the proportion of sampling error

p = estimated proportion or incidence (or prevalence) of cases

By definition, for a 90 percent confidence level, z=1.65; for 95 percent, z=1.96; and for 99 percent, z=2.58. Traditionally, an acceptable error level is up to plus or minus 0.10 (10 percentage points).

To estimate, for example, a sample for a study on households with garment worker members, we can say that p=0.25 if 25 percent of the households in a given village population has a member who is a garment worker. Using a confidence level of 95 percent with z=1.96 and an error level of 0.10, you would calculate the sample size as follows:

$N= (1.96/ 0.10)^2 \times 0.25 \times 0.75$

$N= (19.6)^2 \times (0.1875)$

N= 72

Thus, a sample size of 72 households with a garment worker member would create no more than ± 0.10 sampling error with a confidence level of 95 percent for a population with 25 percent of its households having a member who is a garment worker and 75 percent not having such a member.

[9] The two studies are the 1999 *Northeast Cambodia Child Survival Project (NCCSP) Baseline Survey on Knowledge, Practice and Coverage (KPC)* by Partners for Development (PFD), Phnom Penh, and the 2004 *Water and Hygiene Programme Evaluation* by Hagar. Both studies employed a slight variation on this formula.

Designing the Data Collection Instruments

Working out the questions to put together in a data collection instrument such as that for a survey generally means thinking about how our questions will solicit data that underpins our information needs and which would subsequently be aggregated or combined to respond to our research objectives/questions. This suggests reflecting on how to phrase the questions, what words to use, how much closed-or open-ended questions to employ, etc. These are important considerations since the usefulness and credibility of our information depend on how well our questions yield reliable and valid measures.

A good question has the following characteristics:

- the researcher's side of the question-and-answer process is entirely written like a script, so that the questions fully prepare an interviewee/respondent to answer questions
- the question means the same thing to every interviewee
- the kinds of answers that capture the appropriate response to the question are communicated consistently to all interviewees

Designing the questions should takes into account several concerns, as briefly described below:

1. Types of questions

Open-ended questions

Also referred to as unstructured or qualitative questions, open-ended questions refer to those for which the response patterns/categories are provided by the respondent rather than by the researcher or interviewer (Lewis-Beck et al, 2004:768). Answers to open-ended questions may describe more closely the views of the interviewees and allow researchers to obtain unanticipated answers. These types of questions are also appropriate when the list of possible answers is longer than is feasible to present. In addition, these allow interviewees to provide answers in their own words.

Closed-ended questions

Closed questions are those which contain specific response or answer categories that are given or made available to respondents. These response choices or categories should be exhaustive and mutually exclusive (i.e., responses do not have overlapping meanings). Respondents are also permitted to have multiple responses on some types of questions, for instance, main sources of income of the family throughout the year, market outlets where interviewees could be selling their crops, types of non-timber forest products being collected from a nearby forest, etc. The advantages to using closed-ended questions are: a) interviewees perform more reliably when alternatives are given, b) researchers perform more reliably the task of interpreting the meaning of answers, and c) when there is a given a set of answers to choose from, enough people will respond which will become the basis of the analysis.

Probe questions

Researchers generally employ this type of question to solicit a more complete answer to a question. It is a nondirective phrase or question used to encourage an interviewee to elaborate on an answer. It should be remembered that probes should be completely neutral. It must not in any way affect the nature of the interviewee's subsequent response.

Probe questions should be included in the interview instrument whenever the researcher anticipates that s/he will be seeking in-depth information. This strategy has two advantages:

- it gives you more time to formulate the best, most neutral probes
- you and your fellow researchers will use the same probes whenever these are needed

2. Common errors in designing questions

Leading questions

Leading questions are those that communicate what you believe to be a preferable answer. In general, such questions should be avoided although this may be asked occasionally to help people start talking about situations or facts that would otherwise not be polite or proper (Narayan, 1996:73).

EXAMPLE:

	Instead ask:
Don't you think that…?	Is it not likely that…?
What do you think about…?	How likely do you think…?

Poorly constructed questions

- *Inadequate wording*

The question is incomplete, for example:

Bad	*Better*
Age?	What was your age on your last birthday?
Reason last saw doctor?	What was the medical problem or reason for which you most recently went to a doctor?

- *Optional wording*

Sometimes, optional wording is required to fit differing interviewee circumstances. But this does not mean that the researcher does not have to write the questions. These words (usually in parentheses) are used when needed and omitted otherwise.

EXAMPLES:

Did someone attack you (or anyone living here with you) with a gun during the past six months?

Did you (s/he) report the attack to the police?

- *Poorly phrased or defined terms*

  Questions should all mean the same to all interviewees. Avoid using words that are not understood widely or the use of concepts or terms that can have many or different meanings.

EXAMPLES:

How many times in the past year have you seen or talked with a doctor about your health?

Did you eat breakfast yesterday?

- *Unclear questions*

  Interviewees should have the same perception of what constitutes an adequate answer for the question.

Unclear question	*Clear question*
When did you attend school?	How old were you when you started attending school?

With clear questions, consistently comparable data can be obtained.

A related issue in this regard has to do with "why" questions. Nearly all of this type of question poses problems. This is because one's frame of reference can influence how one answers. For example, "why did you vote for candidate A?" can result in the following answers: a) the strengths of candidate A, b) the weaknesses of candidate B, or c) the interviewee used certain criteria (My mother is a strong believer of CPP."). A better approach would be to specify the focus of the answer.

EXAMPLE:

What characteristics of candidate A led you to vote for her/him over candidate B?

Some examples on the above discussion are as follows:

Closed question	Q:	Have you lived here for a long time?
	A:	Yes, since I was born.
Open question	Q:	What do you do for a living?
	A:	I plant rice.
Probe question	Q:	Anything else?
	A:	I raise some chickens and plant some vegetables also.
Closed question	Q:	Is that your pig under the table here?
	A:	Yes.
Leading question	Q:	Older people go the *wat* more than young people, don't they?
	A:	Yes, religion is very important for older people. Younger people are busy earning a living.
Closed question	Q:	Do you go to the *wat* often?
	A:	No.
Probe question	Q:	Why not?
	A:	Because I am too busy in the field.
Leading question	Q:	But you would go more often if you had time, right?
	A:	Yes.
Open question	Q:	What do you do when you are sick?
	A:	I go to the traditional healer for treatment.
Leading question	Q:	Is your daughter the one who takes care of you when you are sick?
	A:	Most of the time, but when she is not here, my neighbours help me.

3. Questions using scaling techniques

Questions utilising scaling methods build on procedures that assign numbers to properties or characteristics of objects, events or a phenomenon. It is used to quantify a phenomenon that cannot be counted directly, examples of which are perceptions, attitudes, severity of a situation, etc (Lewis Beck et al, 2004:999). Data generated is often ordinal, since the response/answer choices can be ranked from least important to most important or based on the intensity of the feelings being solicited (e.g., "strongly disagree", "disagree", "agree," and "strongly agree" on say, domestic violence). When using scaling techniques, internal consistency is required within the items that serve as indicators of the variable or issue on which data is being sought. Established scaling techniques that can be built upon when using this type of question are the Likert scaling or that using the agree-disagree continuum, Bogardus social distance scale, Thurstone scales, semantic differential, and Guttman scaling – all of which asks respondents to choose between two opposite directions (Babbie, 1998:182-187).

4. Sensitive questions

Facts or events with some degree of social undesirability e.g., domestic violence, rape, HIV/STD, are usually not reported accurately in an interview. Research may be sensitive where it touches on aspects of life such as sexual activity, bereavement, or intensely held personal beliefs that are private, stressful, or sacred (Lewis-Beck et al, 2004:1022). If a researcher expects the admission of something that is very embarrassing or illegal, a lot of effort is necessary to convince interviewees that risks are minimal. Some steps to consider if sensitive questions are to be asked are (Fowler, 1993:89-90; Lewis-Beck et al, 2004:1022):

- Take time to build the respondents' trust and to gain their acceptance.
- Minimize a sense of judgment; emphasize the importance of accuracy. Interviewees should be aware that even negative answers are valued/important.
- Confidentiality and anonymity. Promises of confidentiality and anonymity with regard to survey responses made during introductions or in advanced letters (if there are any) usually reassure interviewees. These may be reinforced by signed commitments from researchers.

Format and Layout of Questions

Usually, easy and direct questions are asked first; those requiring a great deal of thought or sensitive questions are often placed in the middle or later part of the interview. The goal should be to make the process of asking and answering to be as easy as possible. Some general rules that will help achieve this goal are (Lewis-Beck et al, 2004:518-519; Feuerstein, 1986:83-85):

- Include a short introduction that will help interviewers to clarify what the study is about to the respondents and to assure them about the confidentiality of the information they would share.
- Differentiate between what will be read to the interviewees and the instructions to the researcher. A common practice is to use capital letters for instructions to the researcher and lower case for questions to be read aloud to the interviewees.
- Establish a clear method for handling instructions to skip questions that do not apply to a particular interviewee. The instructions should be based on a particular response and tell the interviewer where to go to ask the next question.
- Put optional wording in parentheses (her/his; husband/ wife; daughter/ son, etc).
- Check to make sure that all questions, introductions to questions, needed definitions and explanations are, in fact, written.
- Avoid double negatives in the questions; additionally, avoid asking questions that have obvious answers (see Figure 7)
- Each question should express one idea only.
- Leave space for recording 'not applicable', 'no response', 'no opinion', 'don't know', etc. This can clarify why data on some items may be missing and will ease the analysis of the data.

Figure 7. Asking questions

Source: Pretty et al, 1995:60

Length of the Survey Instrument

Criteria for interview length should include cost (i.e., in terms of travel and time, number to be interviewed per day, allowances for researchers, etc.), effect on response rate (or the number of willing interviewees in relation to the set number), and limits of interviewee's ability and willingness to answer questions (Fowler, 1993:103). A practice that has been known to work is to set the interview for 1 to 1½ hours.

Field Pre-testing

Pre-tests or trial runs of the survey instrument aim to find out how data collection guidelines and questions work under realistic conditions (Fowler, 1993:100). No matter how carefully a researcher designs a data collection instrument, there is always the certainty of error. Known advantages of the pre-test are as follows (McDermott & Sarvela, 1999:156-157; Feuerstein, 1986:86):

- It may produce information that the researcher may not have initially considered, thereby helping her/him to expand or reduce the scope of the study
- It can help determine the cultural appropriateness of the data collection tools and procedures
- It can determine how long it will actually take to interview sample respondents and indicate when are the best times for interviewing

Often useful for large-scale surveys, the pre-test sample is ideally selected from the study's sampling frame and is administered among a relatively small number of respondents using the data collection procedures specified for the study. When this is not practical or feasible, however, selection of respondents may be based on convenience or availability but those selected should mirror the planned survey sample in terms of the characteristics being studied (Lewis-Beck et al, 2004:853).

Trial-runs of the survey instrument often result in making changes to the questions, their wording, sequence, length of the interview instrument, etc. It is also possible that questions may be removed, and others added. Where resources allow, it is useful to pre-test the instrument again after it has been modified since this is the only opportunity one can have before the actual data collection.

A REMINDER

Do pre-test your instrument with a group of people whose characteristics approximate those among whom you will conduct your data gathering activity.

If pre-tests are to be undertaken in the same place as the chosen study site, such a visit to the site may provide the opportunity for obtaining a reliable list from local authorities for sampling purposes. Beginners to social research should also remember that guide questions for qualitative research are NOT pre-tested. This is because questions in qualitative research, as previously described, can evolve while data collection takes place and does not seek 'standardisation' of answers among respondents in the way that quantitative research does for the purpose of arriving at generalisations about the small picture in relation to the big picture.

Preparing for Data Analysis

Preparing for data analysis commences as the researcher reflects on how s/he will generate the data for her/his research questions and objectives, since s/he will also need to already think about how s/he would assemble such knowledge and evidence (Mason, 1996:19). In qualitative research, such a reflection continues in the field as information is gathered; ordered, grouped and linked to each other; and is further pursued for greater depth or breadth in the frequent goal of creating/advancing understanding or knowledge on the topic being studied.

In quantitative research, such preparation can take three different forms: pre-coding the closed-ended questions, preparing the dummy tables, and preparing the 'dummy' database.

1. Pre-coding the closed- and open-ended questions

A code is "a set of rules that translates answers into numbers and vice versa" (Fowler, 1993: 125). This means that all responses on closed questions with response choices/ alternatives/categories are each designated with a number that is associated with it and each code can be said to represent that answer. A code should be mutually exclusive or can represent only one answer and cannot be used simultaneously for another response category on the same question. Computerised data analysis often employs numeric codes, rather than alphabetic values.

Pre-coding is that task which the researcher undertakes when s/he pre-assigns, as appropriate, numeric codes to each question's response alternative or category *prior* to the data collection. The purpose is to facilitate the processing of data especially if the researcher expects to undertake data analysis through computer programmes such as Microsoft Access, Excel or the Statistical Package for the Social Sciences (SPSS). During the data collection, the codes for each question are ticked off or encircled to represent the answer(s) provided by the respondent. These codes or numbers are those that are entered/encoded into a computer programme in the process of creating tables from the data.

Defining the codes for the response categories brings back the researcher's knowledge on levels of measurement. Nominal variables do not have to be rank ordered – meaning, responses to yes/no, gender (male/female), ethnic grouping (Khmer, Cham, Kampuchea Krom, etc) questions do not necessarily assume codes that imply one is better/more important than the other. Thus, a yes can be a code "1" or a code "2" as long as it takes on only one code (i.e., it cannot be a "1" and a "2" at the same time). This procedure is applied to similar variables that do not have a level of importance and applies to response choices such as "not applicable (n/a)", "no response", "no opinion", "don't know" which can take on arbitrary two to three-digit codes such as 77, 88, 96, 97, 98, 99, etc. These codes should be used with caution, however, since there may be other questions that could produce similar responses (e.g., age). The researcher, in such instances, can avoid such overlaps by designating other codes (e.g., using a three digit value) to represent these particular response choices. Assigned codes for these types of responses should also be used consistently throughout the data collection instrument to reduce errors during data entry.

Questions that draw out levels of importance (i.e., ordinal scales/variables) can be rank ordered since response categories can be meaningfully ranked. Examples of such questions are those that provide grouped age (less than 19 years old, 19 – 23, 24 – 28, 29 – 33, 34 – 38, 39 and older), grouped household size (e.g., single person household, 2-4 members, 5-7 members, 8 or more members), grouped educational levels (did not attend school, literacy class, grade 1-3, grade 4-6, grade 7-9, grade 10-12), etc. In these instances, the possible responses suggest greater or lesser than qualities in the categories. Thus, these types of response choices are presented in an order where levels of magnitude are implied.

Questions that ask for specific numbers (often the interval or ratio level of measurement), on the other hand, do not require codes. That is, questions on age, number of children, years of residence in a village, number of years working as a garment worker, etc. should simply call for answers reflecting the actual figure/number. It is always better to ask for actual numbers on these types of questions because it is easier to come up with averages and other statistical summaries than if one asks for responses based on groupings.

Open-ended questions are usually not pre-coded for obvious reasons. Because respondents can offer an unpredictable range of responses on this type of questions, the coding of these responses take place after the data has been collected, listed and reviewed. Similar answers are grouped and subsequently designated a code. Thus, pre-coding frequently applies only for closed-ended questions.

Box 5 presents a sample questionnaire or interview schedule reflecting the above discussion.

2. Preparing dummy tables

A dummy table is an empty or blank table (or one that 'says' nothing) which is prepared before data are collected and into which the data will be arranged once they are collected and processed (Vogt, 1993:75). Dummy tables simply present the labels of the descriptive variables for which frequency counts and percentages and other summary figures (e.g., averages) will be presented. Examples of three dummy tables shown below draw upon the 2005 CCC-ADI study on the *Impact of the Garment Industry on Rural Livelihoods*:

Box 5 SAMPLE INTERVIEW SCHEDULE

GARMENT WORKER INTERVIEW SCHEDULE

Introduction

Greetings! My name is _____ and I am working as a researcher with a group that is undertaking a study on migrant garment workers in Phnom Penh and their families in Prey Veng. The study aims to look into the experiences of garment workers and determine how the garment industry is contributing to the livelihoods of the workers' households. This study is expected to provide recommendations on how working conditions of the garment workers may be improved, and on how households in Prey Veng may be assisted in sustaining their livelihoods and living conditions with the help of their garment worker members' remittances.

We have a number of questions that we would like to ask you but please be assured that your responses will be treated in complete confidentiality. The interview will take some of your time during which we will be noting down your answers. Would you have the time to help us with our study?

IDENTIFICATION

Respondent/site identification

Date _____
Interviewer _____
Name of Worker Interviewed _____
District _____
Commune _____
Village _____
Worker number _____

BACKGROUND

Response categories (1, 2 are codes)

1.01 Sex of Worker Interviewed
1 Male
2 Female

1.02 Age of Worker Interviewed: _____write actual number

Response reflecting actual years of education and a code (0)

1.03 Educational Attainment of Worker Interviewed
_____ write last grade completed
0 did not attend school/ not applicable

Response categories & their respective codes (1, 2, 3, & 4 are codes)

1.04 Civil Status of Worker Interviewed
1 Married
2 Widow/Widower
3 Separated/ divorced
4 Single (never married)

Response reflecting actual number of children rather than codes, and a code (96)

1.05 Number of Children of Worker Interviewed
_____ write actual number
96 n/a

Response categories (1, 2 & 96 are codes)

1.06 If married, does your spouse live with you in Phnom Penh?
1 Yes
2 No
96 n/a

Dummy Table Example 1. Reasons why Prey Veng garment workers migrated to work in Phnom Penh, September-October 2004 *(based on questionnaire for individual workers)*

REASONS	Number (n)	Percent (%)
Reason 1		
Reason 2		
Reason 3		
TOTAL		

Dummy Table Example 2. Some characteristics of households with garment workers in Phnom Penh, September-October 2004

Characteristics	Mean ($\bar{x}$)
Average # of household members able to work & contribute to livelihood	
Average # of household workers now working as migrant workers	
Average # of migrant workers who are garment factory workers	

Dummy Table Example 3 Household ranking of livelihood sources in two Prey Veng communes, September- October 2004 *(based on questionnaire for garment worker's households)*

Livelihood sources	Most Important		2nd Most Important		3rd Most Important		4th Most Important		5th Most Important	
	n	%	n	%	n	%	n	%	n	%
Livelihood source 1										
Livelihood source 2										
Livelihood source 3										
TOTAL										

The design of the dummy tables should be guided by the information that will enable the researcher to respond to the research questions and objectives that s/he has specified. Unless these are kept in mind, numerous tables could be produced and subsequently not used when time constraints catch up with the researcher and prevent her/ him from extracting the data which s/he would use to fill the tables and from interpreting/ writing up the highlights of these tables.

3. Preparing the 'dummy' database

A database is a collection of data organised for rapid search and retrieval, usually by a computer, and is often a consolidation of many records previously stored separately (Vogt, 1993:59). Typically presented in a matrix of rows and columns, each row can represent an individual record (i.e., all the data that relates to a single individual, case, or interview) or one respondent, while the columns can correspond to each question (also referred to as variable) in the data collection instrument. It is this initial data file/ spreadsheet/matrix of rows and columns that the researcher can begin working on prior to data collection. This preparation can also take place during the data collection if someone can assume the task while the researcher(s) is gathering the needed information. Once the data is collected, edited and cleaned, data entry or encoding can be entered into the formatted 'dummy' database.

A critical decision to make in readying the database is to determine what computer software or programme to use, since different programmes call for different formatting conventions (Fowler, 1993:124). Using Microsoft Access for encoding data, for instance, enables the researcher during the database's preparation phase to set a rule where the computer rejects a code when an erroneous entry has been made because this is not within the established code range of one question. Using SPSS, on the other hand, requires the researcher to "define the variable" – meaning, that s/he has to specify in each column the 'name of the variable' (or the question number in the interview instrument), what its level of measurement is, how many characters will be entered into the column, what the code values are for what answer, etc.

In preparing the database, the researcher should be aware that one data file can take on only one unit of analysis at a time. That is, if two or more units of analysis are being used, two or more data files should be readied. Thus, if analysis is to be done at the individual and household levels, corresponding data files should be prepared.

PART 3

FIELD IMPLEMENTATION & DATA ANALYSIS

Step Three

Step Three: Collect, Classify & Organise the Information

Ethical issues in research... interviewing and recording techniques... Summarising the data... Preparing the outline of the report...

STEP 3	
DATA COLLECTION TOOLS/ TECHNIQUES	DATA PROCESSING

Ethical Issues in Research

The conduct of social research brings with it certain ethical considerations. Because we deal with human subjects, guidelines are necessary in what we do because these tell us what is socially acceptable or unacceptable as we engage the time and efforts of the informants and respondents we interact with. Two of the more critical ethical conventions in social research are no harm to subjects/privacy and confidentiality, and informed consent/voluntary participation which are briefly described below (Burns, 2000:17-21; Babbie, 1998:38; Fowler, 1993:132-134).

1. No harm to subjects/privacy and confidentiality – considered the foremost ethical rule, social researchers should be aware at all times that they can cause unintentional harm to their informants and/or their communities. This happens when information that is potentially damaging to the respondents is revealed to others, particularly on issues which can cause social stigma (e.g., rape, having been trafficked). Some procedures to reduce the chances of a breach of confidentiality are as follows:

   - Those involved in the study should commit in writing to confidentiality of the information received.
   - Minimise links between answers and items which could lead to the identification of the informant (i.e., identifiers)
   - Completed interview instruments should not be accessible to non-members of the research study
   - Actual data files should reflect the ID numbers (often the questionnaire/interview instrument numbers)
   - Securely store the interview instruments when use of the actual survey instrument is over.

2. Informed consent and voluntary participation – also a fundamental ethical principle to the conduct of social research, informants/respondents should understand the nature and purpose of the research and must give their agreement to participate without being forced. Academic researchers often observe this by having the participants sign an informal consent form which lays out the purpose of the research, its procedures, risks and discomforts, its benefits and right to withdraw or discontinue the interview. Consent of the informant when tape recording the interview, when called for, should also be solicited.

Related to the above is the responsibility of the researcher to her/his interviewers, if the latter are being involved (Fowler, 1993:135). More specifically, s/he should make sure that the interviewers have full and accurate information to give about the research so that they are not in a position of being deceptive, misleading or inaccurate. S/he should also assume responsibility over the safety of the interviewers since the latter could be visiting areas or neighbourhoods where crime rate is high, or where there is a possibility of contracting an illness. Needless to say, interviewers should be also advised of the conditions of the localities they will visit to also ensure their well-being.

Another issue that bears on social research ethics is plagiarism. According to Babbie (1998:A18), plagiarism is "the theft of another's words and/or ideas – whether intentional or accidental – and the presentation of those ideas as your own". This social researcher further cites the following ground rules that underpin plagiarism:

- One cannot use another writer's exact words without using quotation marks and giving a complete citation, which indicates the source of the quotation so that the reader/user could locate that quotation in its original context. As a general rule, taking a passage of eight (8) or more words without citation is a violation of copyright laws.
- It is also not acceptable to edit or paraphrase another's words and present the revised version as your own work.
- Presenting another's ideas as your own is similarly not acceptable – even if you use totally different words to express those ideas.

Plagiarism then is an illegal act, and one can be taken to court for it. Many beginning and seasoned social researchers fall prey to this problem, thinking that readers or users of their final product will not have access to ideas, words, paragraphs that they use in their work. Unfortunately, authors (particularly researchers) of these studies from which ideas, words and paragraphs have been lifted also keep abreast of developments and recent research in their fields. Because of this, plagiarists are sooner or later found out and can be exposed, thereby losing face in their witting or unwitting efforts to establish credibility and recognition.

Understanding Response Rates

A basic measure for assessing the data collection effort, response rate refers to the number of people interviewed (or responding) divided by the number of people (or units) sampled (Fowler, 1993:39). The denominator includes all persons in the study population who were selected but did not respond for whatever reason: refusals, language problems, illness, or lack of availability. The concept is of importance in social research because high response rates increases the credibility of the data, and non-response can lead to increased costs of data collection (Lewis-Beck et al, 2004:740).

Response rates can be viewed at the level of the respondent ('unit' non-response) or at the level of the question item ('item' non-response). Unit non-response can occur for reasons earlier cited – refusal, language problem, etc. Refusals can occur, for instance, when parents do not allow interviews with children (when the unit of analysis is children) for some reason; when respondents feel that they would rather earn an income than participate in an interview; when they feel that the survey can cost them their job, etc. Conversion of such refusals into agreement has become a part of the data collection design and can comprise of the following strategies to enlist interviewees' cooperation: extending the data collection period to allow for time to build trust and rapport in the

study sites; undertaking sampling with replacement; setting up appointments with the sample interviewees even before the actual fielding of the interviewers; providing non-monetary or monetary incentives to the respondents, and so on. Also a not uncommon practice is to find another adult within the household who can replace the identified respondent, but this can pose problems when the substitute is unable to provide answers on some questions.

Item non-response occurs when respondents are not able to or do not answer questions. It also happens when skip questions are not accurately followed by the interviewer. Fortunately, these situations can be handled. That is, interviewers can negotiate with respondents when they refuse to answer a question by repeating the question, by probing why there is difficulty in giving answers, or by giving the respondent a definition of the terms (based on definitions established by or with the researcher) which may be unclear. It should be noted, however, that non-response can be an outcome of poorly designed questions, interviewers' lack of clarity on the skip questions, or by the fact that the question delves into a sensitive issue and as such requires the interviewer to take corresponding measures in order to elicit the data.

Interviewing and Recording Techniques

Selecting and Training Interviewers

Interviewers are the researcher's direct contact with informants/respondents especially when the planned study will cover a large sample. Various studies have shown that interviewer characteristics can impact on the data collection process and as such, can subject the data to errors. Some of the qualities of an interviewer that have been cited to generate good interviews are (Fowler, 1993:109; Feuerstein, 1986:90-93):

- Must have reasonably good reading and writing skills
- Able to exercise flexibility of work hours since the interviews can depend on when the respondents are available
- Must be mobile, a requirement that tends to exclude those with physical disabilities because walking long distance to reach the respondent may be called for

Other considerations that have been mentioned relate to age, sex, background and position in the community, etc but the relevance of these characteristics can depend on the nature of the study. Interviews with women relating to reproductive health, for instance, could work better with female interviewers, while interviews with children may also work best if younger interviewers were deployed rather than the more mature persons who may be viewed as parent figures and can inhibit the sharing of information.

Interviewers will need to be trained once they have been recruited. Some suggested content areas for their training are as follows (Fowler, 1993:112):

- Procedures for contacting respondents and introducing the study
- The usual practices employed in the design of the data collection instrument with respect to wording and skip instructions so that interviewers can ask the questions in a consistent and standardised way
- Procedures for probing inadequate answers in a non-directive way

- Procedures for recording answers to open- and closed-ended questions
- Rules and guidelines for handling the interpersonal aspects of the interview in a non-biased manner

The procedures with which the training is conducted also matter. The five basic learning methods involve: use of written materials, lectures and presentations, planned exercises, role playing (particularly 'mock' interviews), and observations of work in the field (Neuman, 2000:278; Fowler, 1993:113;). In terms of written materials, an interviewers' manual comes handy because this provides a complete written description of interviewing procedures, including definition of terms being used as well as conversions of local units of measures into the desired units of measure. Holding mock interviews can be valuable because this helps the interviewers to familiarise themselves with the questions and its codes (where closed-ended), the flow and skip patterns of the questions, and gain a good grasp of what the questions are asking for. Involving the interviewers in the pre-test can also be useful because this offers them the opportunity to simulate the conditions that they will experience in the study site and to reflect with the trainers on the weaknesses of the questions and on the problems they encountered in asking the questions.

The length of the interviewers' training can be from one to two weeks or longer, depending on the nature of the study. The 2004 national socio-economic survey of Cambodia, for instance, entailed a one-month training for its interviewers.

Do's and Don'ts of Interviewing

Interviews for social research, particularly those for surveys, are short-term social interactions between two strangers with the clear purpose of one person soliciting information from the other (Neuman, 2000:274). Information is obtained in a structured conversation in which the interviewer asks the pre-arranged/pre-formulated questions and records the answers, and the respondent provides the answers. The role that the interviewers assume can be challenging as they have to gain the informants' cooperation and build rapport, yet remain neutral and 'objective'. They also have to encroach on the respondents' time and privacy for information that may not directly benefit the respondents. In taking on these roles, they try to reduce embarrassment, fear and suspicion so that respondents feel comfortable in sharing information.

Although training and supervision can impart these important roles to the interviewers, there are certain guidelines that social researchers could observe in general to ensure effective data collection work. These guidelines are presented next page:

Do's	Don'ts
Spend time on: - forming the interview team - fixing roles and responsibilities - understanding the topic - planning the interview - selecting a spot for the interview	
Feel that you are a learner (leave status, achievements and experience behind).	Don't feel superior to the villagers. Don't feel that there is nothing more for you to learn. Don't hesitate to clear your doubts and curiosities.
Be sensitive to the moods (anger, boredom, hurt, enthusiasm etc.) of the people. Be alert – look for leads and follow up.	
Follow protocol – introduce yourself, tell them why you are there, ask them if it is convenient, etc.	Don't take villagers for granted – treat them with respect
Facilitate the interview	Don't all talk at the same time – it is confusing
Create an atmosphere of confidence, trust and enjoyment. Remember that everyone has something to say. Involve the silent ones, especially women. Avoid conversation monopolies (in case you run into 'talkers' take them for a walk so that the others can carry on undisturbed.)	Don't monopolise the interview; don't lecture.
Listen carefully and facilitate an information flow.	Don't interrupt; it disturbs the flow of thought of the interviewer and upsets his/her concentration.
Allow triangulation (cross-checking) to take place by the villagers themselves.	Don't misinterpret information.
Terminate 'bad' interviews without feeling bad about it. But do try to analyse what went wrong.	
Keep track of the number of interviews being conducted. Particular to quantitative research, this will allow the research team to know if they are on track in terms of achieving the set sample size.	
Record the names of the informants and give them credit for the information they have given.	
Edit completed questionnaires while still within the study site to ensure completeness and clarity of responses to the questions. Doing so will allow the interviewer to go back to the respondent(s) in cases where responses are incomplete or unclear.	

Guidelines on How to Record Information

A. Recording the Interview [10]

Recording the details of the interview is vital. In most fieldwork, a great deal of valuable information is lost due to the failure to take good notes. Some of the main and more useful recording guidelines are (Pretty et al 1995:75):

- Ask permission to record discussion of those present
- Use a discreet notebook (not a big clipboard)
- Record the detail is what is said and, whenever possible, what is not said but can be sensed (such as hesitation or tension, which can be equally important)
- Record the detail of what is observed and how the interview developed (the process)
- Record who said it (female/male, young/old, poor/not so poor person)
- Make the follow-up notes after the interview (during which the team members can compare their notes with others to cross-check information)
- Record personal impressions of the interview

B. Field Note-Taking: General Suggestions[11]

Some general suggestions when taking notes during the field data collection are as follows:

- Record key words and key phrases while in the field

  While interviewing, it is inappropriate to try to stop the respondents in a conversation and attempt to write down every word. It would also be distracting to pull out a tape recorder and place it between the participants in a natural conversation. On the other hand, it may be possible during the course of the conversation to abstract certain key terms or sentences and jot these down.

- Make notes about the sequence of events

  Activities occurring in the field are often beyond the control of the researcher and are consequently unstructured. In taking notes from the field, one useful guideline is to identify a sequence of events. As the researchers jot various brief, abbreviated notes, they should indicate what events or conversation occurred before the noted one and what began to occur following the noted event. By rethinking through the field session following the sequence in which it had actually occurred, researchers are able to recall details and substance of even very long conversations.

- Write the full notes immediately following exiting the field

  Erosion of memory begins immediately and progresses rapidly. The longer researchers wait to translate their abbreviated notes (taken in the field) to full notes, the greater the likelihood of contamination from erosion. Sometimes, even the interruption for a meal could be sufficient to flaw the full notes.

- Get your notes and your team members' notes written before sharing them with others

[10] This section builds the discussion from Pretty et al, 195:75
[11] This discussion has been drawn from Berg, 1989:73-74

The basic rule of thumb here is to refrain from talking, write up the information from the interview, and talk about it later. Besides possibly forgetting important details from a time lag before writing up notes, researchers may also accidentally exaggerate events. While completely unintentional, this exaggeration can flaw and contaminate otherwise important data.

Processing and Summarising the Data

Data analysis is the process of bringing order, structure, and meaning to a mass of collected data. It is a messy, ambiguous, time-consuming, creative and fascinating process, which does not proceed in a linear fashion. As previously noted, options for data analysis and data presentation should be discussed and decided upon even at the outset of the research design. Data analysis techniques should meet the purposes and fit the nature of the data collected.

Analysing one's data comprises of different phases, the main ones being data handling and reduction (i.e., data processing), as well as interpretation (i.e., describing the findings and making connections between the parts; identifying the root causes and key issues and writing the analysis; arriving at conclusions; and generating recommendations). Quantitative and qualitative research entail distinctive processes, as described below.

QUANTITATIVE DATA ANALYSIS

Examining the collected data in quantitative research involves the basic processes of preparing for the data handling, editing, data entry or encoding into the database, data cleaning, summarising or reducing the data into tables or other data summary forms (e.g., charts, graphs), and interpreting the findings.

Preparing for data handling. Once the interviewers complete the questionnaires, the researchers (or team members who serve as data collection supervisors) should count these to determine that the right number of interviews have been completed. They should check each questionnaire to be sure it is complete and follows instructions for skipping questions after specific answers. By reviewing the questionnaires before leaving the field, supervisors or the researchers can go back to the interviewees if there are errors or inconsistencies in the way the answers were recorded.

Summarising what information you have gathered by which method and from which sources takes place upon return from the field. To begin, the researcher sorts out the completed data collection forms (e.g., completed survey instruments, focus group discussion or key informant tools) by kind of interviewee or focus group and counts these instruments. There may be a need to throw some interviews out if these were filled out incorrectly or were not the kinds of person that you wanted interviewed. An example of this would be you wanted to interview migrants (people who have actually migrated), but someone interviewed the migrant's mother instead. This survey should not be included and be thrown out if critical information relating to the experience of the migrant individual is unavailable. Write down the total number of correct individual interviews conducted and then record the number of interviews conducted for each location or category. This would include the number of focus groups meetings and the total number of persons attending. Noting how many participants were women is also a useful exercise.

A next step is to assign numbers to the survey questionnaires in a chronological manner. These numbers serve as the "person" or "household" identification or ID. Assigning consecutive numbers to respondents per village would ease the work of locating the completed questionnaire should a need arise to refer back to it. Thus, if Village A has 20 respondents, all respondents from this village are first numbered one after another, after which the numbers are continued in Village B.

Editing the raw data. Inevitably, errors and inconsistencies in entering responses to the questions come up during the data collection. It is for this reason that editing the raw data becomes a next task and should be factored into the data analysis time when planning the survey. Things to look out for during this phase are:

- abbreviated words which will need to be spelled out
- differing units of measurement which will need to be converted into a common/ specified one (e.g., years of education should have actual number of years instead of the grade level that the person finished; number of years employed should have actual number of years instead of "since 1998")
- missing answers or blank spaces, which could be a "don't know", "no response", "not applicable" and is a concern that should have been taken cared of during the data cleaning processes in the field
- clarifying inconsistencies in the data – e.g., ticking off a "15-18" age group for a respondent yet having "doctoral degree" as her/his educational attainment; why there are responses on questions to be skipped if instruction to a question was to do so

Collapsing data onto the database. This simply suggests entering your huge data in the questionnaires onto a spreadsheet or tabulation sheet by computer (i.e., carrying out data entry tasks) or manually. Doing this permits the researcher to consolidate all the data in readiness for summarising the information through percentages and other statistics (e.g., averages, correlation coefficients, etc.) This is a fairly straightforward activity of entering the reported response codes into the pre-designed spreadsheet and can be assigned to trained data encoders if the budget for the study has been allocated for this cost.

Where open-ended questions have been used in the data collection instrument (e.g., responses on the "other" response category), the specific steps will entail (a) listing all the answers, (2) grouping similar answers and creating a new answer category, and (3) assigning codes. Recoding answers when interviewees offer a combination of answers and identifying a new code may also be called for during this time. Once the codes have been designated for the responses to the open-ended questions, data entry into the database can be completed.

Cleaning the data[12]. It is always useful to verify the encoded data through a 'cleaning' process even as data may have been carefully entered into the database. Cleaning the encoded data can be done in two ways. *Wild code checking* involves checking the categories of all variables for impossible codes. For example, a respondent's gender has been specified with codes of either 1=male, 2=female, finding a code of "3" or a number not within the range of the two codes for one of two possible answers indicates an error in the encoding. *Consistency checking* is a second way by which data can be cleaned. For example, when a questionnaire asks for the number of children that women have had, all female respondents should reflect specific numbers they cite or special codes (e.g.,

[12] This section has been derived from Neuman, 2000:316-317 and Babbie, 1998:366.

for "not applicable" if never married). If a given male respondent has a code stating three (3) children, it is obvious that an error has been made and should be corrected.

For both ways of reviewing the data, "eye-balling" the entries in each spreadsheet column[13] is one activity for ensuring the correctness of the encoded data. Alternately, one can run or command the computer to do simple frequency tables on some randomly chosen variable, a process that can surface inappropriate or inaccurate codes in the database. Administering a cross-tabulation on the data is still another procedure a researcher could resort to. In the above example on number of children that all female respondents have had, cross-tabulating gender with number of children will easily show responses erroneously coded for male respondents. Similarly, if one cross-tabulates education and occupation, errors could be detected if results show absurd patterns such as someone who has been reported as having reached only the eighth grade yet is said to be a medical doctor.

The need to clean the data cannot be overemphasised. This is because errors in entries in the database can threaten the validity of the information and can cause misleading results. And, while this is a phase that is deliberately undertaken prior to preparing data summaries, data cleaning can still occur during the tabulation or data summary preparation processes as one finds illogical or unlikely results during the processing of the information (e.g., income that is way too high for a reported type(s) of occupation).

Data reduction or summarising the data. Summarising one's data is essentially about presenting the information in ways that are easy to read and/or interpret. Some of the more common ways by which information can be reduced for easy reading and interpretation are:

- Tables
- Pie charts or diagrams
- Bar graphs
- Line graphs
- Pictures / maps

Within these presentation formats are certain numerical extractions (e.g., averages, frequency distribution, percentage distribution, etc) which will require undertaking certain procedures (Box 6). This means immersing one's self in the completed database or into that which has been manually encoded onto a spreadsheet on a large piece of paper. Below are several ways for reducing one's mass of data into useful forms.

Organise the Data

There are many ways to organise your findings and it depends on the type of study conducted. Some of the most common ways are listed below:

- By order of location when comparing conditions in different communities or ecosystems
- Chronological order for analysing specific events or changes over time
- By topic, category or theme for general problems
- By kinds of problems and causes for process difficulties
- By main actors or factors for analysing conflicts or power relationships

[13] It will be recalled that each column in the spreadsheet represents an interview question or study variable.

Box 6 Understanding statistics as summary figures for data

Descriptive statistics often describe large quantities and situations; it allows researchers to summarise large quantities of data using measures that are easily understood by the observer. For example, if you read that the ratio or rate of doctors to the population is 1:50,000 (one doctor for every fifty thousand people) you can see that too few doctors for the large population. Descriptive statistics consist of graphical and numerical techniques for summarising data.

The main types of statistics that are used are averages, percentages, and frequency distributions.

1. Percentages. A percentage means a part of something in relation to its whole which is normally taken to mean 100 or 100 per cent. To calculate a percentage, divide the number of people or things in a group by the total number in that group and multiply by 100. For example:

   Total number of people in a village = 300
   Total number of women in the village = 60
   Percentage of women in the village is therefore {60/300} x 100 = 20%

   Sometimes a percentage is given and the number of people or things represented by that percentage is needed. In which case, divide the percentage by 100 and multiply by the total number of people or things given. For example, sixty percent of 20 farmers are using a new fertilizer. How many farmers are using the new fertilizer?

   Percentage of farmers using new fertilizer = 60/100
   Total number of farmers using new fertilizer is {60/100} x 20 = 12

2. Mean or Averages. The average or mean of a group of numbers is the sum of those numbers divided by the total number (N) of those numbers. To calculate an average, add all the numbers together, then divide by the total number (N) of the numbers. For example, ten children attend a clinic and their ages are 5, 7, 5, 3, 6, 8, 6, 4, 4, 2. To get the average:

   Number (N) of children = 10
   Sum of their ages = 50
   Average age is 50/10 = 5 years

   Averages help compare different groups of numbers using just one number for each group. This is important when there are large quantities of numbers to be examined.

3. Frequency distributions. The **frequency** with which something occurs means the number of times that it is repeated at specific intervals. Where you have a lot of numbers you can use a **frequency distribution** to see how often something happens. Some guidelines are:

   - Organise your numbers into groups – arrange your numbers into groups to include the whole range of numbers from the largest to the smallest
   - All groups need to be the same width (equally wide) for comparison – doing this permits you to compare the numbers in different groups
   - Avoid overlap – each number should belong to one group only
   - Add and check your results – the total should be the same as the number of measurements that you started with
   - Turn your results into a frequency table – you can now turn your frequency distribution into a table with a title describing what the measurements are

Source: *Feuerstein, 1986:121-123*

For small research projects, a good way to organise data is to use your key questions and answer approach. To do this, use a blank interview guide and summarise the responses to each question by Tallying the range of responses to the questions. For larger studies, review your key study questions that you were trying to find answers for, then make a list of which interview questions and tools seem to respond to which key question.

A tally or frequency count is a computation of how many respondents fit into a specific data category or variable (e.g., age groups, groupings based on income levels) (Fink and Kosecoff, 1985:78). This suggests listing down all the possible answers which the researcher may have/have not pre-determined, and indicating a mark to show how many gave the same or a different response to specific questions. In CCC-ADI's study on *Small-Scale Land Distribution in Cambodia: Lessons from Three Case Studies*, for instance, interview questions corresponding to the research questions were first grouped, and responses on the interview questions were subsequently tallied and summarised. Thus on a question on how the 31 Kampong Thom respondents established their ownership over a received piece of land, the Study Team initially constructed a working table (Example 1) which listed the responses and then marked whenever similar answers came up from the household respondents, as shown below:

EXAMPLE 1.

RESEARCH QUESTION: What were the conditions required and the methods used to actually transfer the land?

INTERVIEW QUESTION: If you have full rights over the land that you received, what steps did you go through for transfer of ownership?

RESPONSES	Tally Marks	Total Count	Percent
I don't have to pay, but i have some problem cause I don't have any paper to prove my ownership so when I had a problem I went to commune, district and provincial chief to help to solve problem	I	1	3.2
My brother gave to me	I	1	3.2
Paid for land and needed paper and witness by chief of group and village chief, commune	I	1	3.2
Asked permission from army commander	I	1	3.2
No documents needed	II	2	6.5
Not applicable	III	3	9.7
Cleared land ourselves, no procedures	III	3	9.7
I don't have to pay	III	3	9.7
Must inform village chief before selling	~~IIII~~ I	6	19.4
No response	~~IIII IIII~~	10	32.2
TOTAL		**31**	**100**

Dealing with Multiple Responses

There will be instances when several respondents can give multiple responses to a question, and this should be addressed accordingly. Using the same example as the above and assuming that about 3 respondents gave more than one response, the total count of responses becomes different from the total number of cases (or respondents), at 37 and 31, respectively. Calculating the percentages for this new set of figures can pose a dilemma in terms of whether or not one should use 31 or 37 as the base for computing the percentage distribution (see Example 2 below). There is no fixed rule on this issue as long as the researcher provides a note at the bottom of the table or somewhere in the description of the table about having some respondents who offered more than one response on the question. It is not a practice to present both percentage calculations on one table, however, so the researcher should decide on which s/he should use. A number of researchers employ percentages based on the number of responses and do not provide the totals of the figures (shown as blurred figures below), but (a) note the total number of cases (i.e., N=31) after the column heading reflecting the frequency counts and (b) indicate at the bottom of the table that "total percent exceeds 100 due to multiple responses". It is also useful to know that the uppercase **N** is frequently used to represent the sample size, while the lowercase **n** refers to the frequency counts or the number of responses on each of the response categories.

EXAMPLE 2.

RESEARCH QUESTION: What were the conditions required and the methods used to actually transfer the land?

INTERVIEW QUESTION: If you have full rights over the land that you received, what steps did you go through for transfer of ownership?

RESPONSES	TALLY MARKS	TOTAL COUNT OF RESPONSES (N=31)	PERCENT BASED ON NUMBER OF RESPONSES A/	PERCENT BASED ON NUMBER OF CASES
I don't have to pay, but I have some problem cause I don't have any paper to prove my ownership so when I had a problem I went to commune, district and provincial chief to help to solve problem	l	1	3.2	2.7
My brother gave to me	ll	2	6.5	5.4
Paid for land and needed paper and witness by chief of group and village chief, commune	ll	2	6.5	5.4
Asked permission from army commander	lll	3	9.7	8.1
No documents needed	lll	3	9.7	8.1
Not applicable	lll	3	9.7	8.1
Cleared land ourselves, no procedures	lll	3	9.7	8.1
I don't have to pay	llll	4	12.9	10.8
Must inform village chief before selling	~~llll~~ l	6	19.4	16.2
No response	~~llll llll~~	10	32.3	27
TOTAL		**37**	**119.4**	**100**

a/ Total percent exceeds 100 due to multiple responses.

Classify and Group/ Consolidate the Data

Having tallied all the information on a question, the next step is to classify and group the information into meaningful categories. The data as shown in the above tables are difficult to use since:

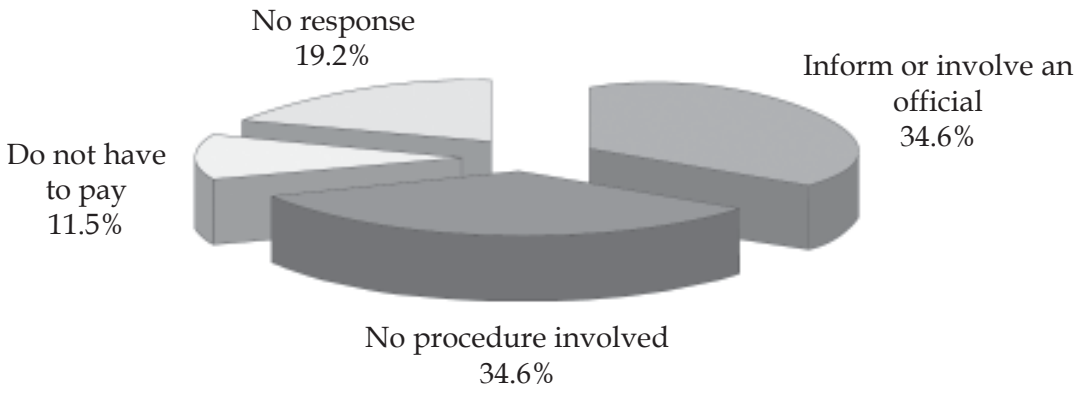
- There is no order to the responses
- It is difficult to understand
- Hard to relate with information from other interview questions, and
- Difficult to gain insights from

Hence this should be simplified further. The researcher must carefully look at the data and usually, a pattern or a recurring idea or language can be found among the responses. This pattern can then serve as a category around which responses will be counted. The responses are then summarised into percentages and is more descriptive of the households under analysis. The following table builds on that in Example 1 and illustrates how said table has been simplified and consolidated.

	N	PERCENT
INFORM OR INVOLVE AN OFFICIAL [paid for land & needed paper witness by chief or group and village chief, commune; I don't have to pay but I have problem cause I don't have any paper to prove my ownership so when I had a problem I went to commune, district and provincial chief to help to solve problem; must inform village chief before selling (6); asked permission from army commander]	9	29
NO PROCEDURE INVOLVED [cleared land ourselves so no procedure (3); my brother gave it to me (1); no documents needed (2); not applicable (3)	9	29
DO NOT HAVE TO PAY	3	9.7
NO RESPONSE	10	32.3
TOTAL	**31**	**100**

In this simplified table, only four categories were used and all similar responses were combined. All responses which mentioned officials (whether military, provincial, district or commune) were grouped together, and those responses which indicated no procedure whatsoever were combined (e.g. brother gave it me). The response "do not have to pay" was separated since it seems irrelevant to the question. In general, findings with highest frequencies are listed first and "no response" is placed last in a table being constructed. Such summary figures (i.e., the frequencies), can then be presented either as it is in a table, or in a bar or pie chart, a histogram, or a line graph (Figure 8).

Figure 8. Sample pie chart



The above is an example of how to consolidate data to make the data summary clearer. However, it is important to remember that stories behind the reported responses are just as important as the numbers and percentages. In this example, a researcher informed the group that in fact, no one has actually been transferred ownership "rights" to their land in terms of land titles. None of the villagers have any legal papers showing that the land belongs to them. The only document that apparently exists is a map that is with the village chief. If people want to sell their land, they must ask his permission and if so, he makes the changes on the map. This is the very information to consider and write down so that people have an accurate understanding of what is the real situation.

QUALITATIVE DATA ANALYSIS

Qualitative data analysis is a search for general statements about relationships among categories of data. Analytic procedures take several steps: organising the data; generating categories; testing the evolving hypotheses against the data; searching for alternative explanations of the data; writing the report. Each phase of data analysis entails data reduction as the stacks of collected data are brought into manageable chunks and interpretation as the researcher brings meaning and insight to the words and acts of the participants in the study.

Sorting and organising the data[14]. Repeated reading through the data forces the research to become familiar with those data in intimate ways. During this process, the researcher can list on note cards the data available, perform the minor editing necessary, and generally "clean up". Due to the voluminous notes that the researcher would have made in the course of data collection, the researcher will also want to organise her/his material physically into different boxes or computer files, according to some form of cross-sectional/ cross-referencing indexing and cataloguing system. Organising field notes could be done chronologically or thematically, with again a cross-referencing system that allows the researcher to easily locate and retrieve the required material in the process of examining the data. Vital to this work is to re-visit the original research questions that had been posed as these can also determine how well the researcher has addressed these questions and what new dimensions she has explored or added to the original questions.

[14] This section builds on a discussion on data analysis by Marshall and Rossman, 1989:114-116 and Mason, 1996:107-108, 131.

A useful activity in sorting/organising qualitative data is the development of diagrams and charts. Such diagrams and charts can be employed to record or represent one's data, since it could be easier to 'read' them in that way. Flow charts can represent sequences of events or a matrix of relationships between different elements of the issue being analysed. Diagrams, on the other hand, could illustrate spatial layouts or of sequences of interactions among said elements of the study issue.

Generating categories, themes and patterns[15]. Identifying salient themes, recurring ideas or language and patterns of belief that link people and settings together is the most intellectually challenging phase of data analysis and one that can integrate the entire endeavour. Through questioning the data and reflecting on a framework you base your research on, the researcher engages the ideas and the data in significant intellectual work.

The process of developing data categories involves noting regularities in the setting or people chosen for study. As categories of meaning emerge, the researcher searches for those that are internally consistent but distinct from one another. Another approach in generating categories, themes, and pattern is logical analysis in which classification schemes are crossed with one another to generate new insights. Usually presented in matrix format, these cross-classifications generate logical discrepancies in the already-analysed data, suggesting areas where data might be logically uncovered.

Content analysis[16] is a term used to analyze descriptive reports for trends, themes, or events. Content analysis can be utilized to summarise descriptive information or to transform qualitative information. It is also used to set up the coding categories for quantitative tabulations. Thus, if 100 people have been asked about the advantages of using hand pumps, this information can be summarised through content analysis, coding, and tabulation in the following manner:

Step 1. Read every other answer and write down each distinct response.

Step 2. Pick the most frequent responses and state each briefly. Group each major response into one category. For example, "Hand pumps are so much easier to use. I can send even my youngest child to collect water. The water is always clean and the pump has never broken down."

Categories:
1. Easy to use
2. Children can use
3. Clean water
4. Reliable sources – no breakdowns

Step 3. Check each category to ensure it is mutually exclusive and that a coder will be clear about which responses fall into category.

Step 4. Complete the coding procedure.

Step 5. Tabulate frequencies for each response.

Testing evolving hypotheses[17]. As categories and patterns become apparent, the researcher begins the process of evaluating the credibility of these emerging hypotheses and testing them against the data. This entails a search through the data, questioning the hypotheses,

[15] Ibid, 114
[16] This section draws from Narayan, 1996:131-132. It should be noted that content analysis is much more complex than how it has been described in this book. Further reading on this can be found in Berg, 1989 and Mason, 1996.
[17] This section has been derived from Marshall and Rossman, 1989:118

searching for negative instances of the patterns, and incorporating these into larger ideas, if necessary. Part of this phase is to evaluate data for their informational adequacy, credibility, usefulness, and centrality. The researcher must also determine whether or not the data are useful in illuminating the questions being explored and whether or not they are central to the story that is unfolding about the social situation being studied.

Searching for alternative explanations[18]. As categories and patterns emerge, the researcher must engage in the critical act of challenging the very pattern that seems so apparent. The researcher must search for other, plausible explanations for these data and the linkages among them. Alternative explanations always exist; the researcher must search for, identify, and describe them, and then demonstrate how the explanation offered is the most plausible of all.

Writing the report[19]. Writing about qualitative data cannot be separated from the analytic process. In fact, it is central to that process, for in the choice of particular words to summarise and reflect the complexity of the data, the researcher is engaging in the interpretative act, lending shape, form, and meaning to the massive amounts of raw data. There are several models for report writing and 5 different approaches are suggested[20]. First is the purely descriptive life history. Here, one person's account of her/his life is presented, framed with analytic points about the social significance of that life. Second is the presentation of gathered data through in-depth interviews and participant observation, where the participants' perspectives are presented, their worldviews forming the structural framework of the report. Third, practice is related to theory; descriptive data are summarised then linked with more general theoretical formulations. The fourth approach is an attempt to build theory by drawing on data gathered from several types of institutions and under various research conditions.

Use of anecdotes. Sometimes a few key anecdotes and quotes can effectively summarise the essence of what was said or concluded (Narayan, 1996:132). Used in context, these can be effective analytical tools (Narayan, 132). The method generally falls within the rubric of narrative analysis which refers to a family of approaches employing diverse kinds of texts that have in common a storied form (Lewis-Beck et al, 2004:705). In social development evaluations and progress reports, such anecdotal forms serve as illustrations or practical applications of an observed pattern or of an abstraction in the processes or events that are being analysed.

Preparing the Outline of the Report

Even as the researcher is still processing the data, reflecting on what the research report will look like and how it will be written should already be uppermost in her/his mind. This is because it helps to already keep in mind how the data summaries shall be presented in a coherent form. Having a report outline handy allows the researcher to write her/his preliminary impressions or thoughts on the patterns being observed about the data in appropriate sections of the report's outline.

A report is a *summarised description of events* or experiences which is prepared in order to provide users with *key information and conclusions* to assist them in making good use of

[18] Ibid, p.119
[19] This discussion has been drawn from Marshall and Rossman, 1989:119
[20] Taylor, S.J. and R. Bogdan, 1984, Introduction to Qualitative Research: The Search for Meanings as cited in Marshall and Rossman, 1989:119.

the information and/or in making good decisions. In research, reports are written to communicate clearly the research method and findings (Neuman, 2000:466). The main parts of any report usually include an introduction, the main body, and a conclusion (and recommendations).

Preparing for report writing entails several steps, the initial ones being the consideration of the following key questions:

1. Who is the audience/reader?
2. What information would they need?
3. Is the information required in a fixed format?
4. What do they already know?
5. How will the reader use the report?
6. When does the reader need the report?

Once answers have been formulated for the above, the drafting of the report outline can follow. An outline is simply a tool to help the researcher organise her/his ideas on paper. More specifically, it helps (a) to put ideas in sequence (i.e., what will be said first, second, and third); (b) group related ideas together; and (c) separate the more general, or higher-level, ideas from more specific ideas, and the specific ideas from very specific details (Neuman, 2000:466). One's initial outline can be sketchy and may further be expanded as one continues to examine the data. It should be remembered that the outline simply serves as the researcher's guide. The researcher could slightly deviate from it in the process of writing itself as new ideas develop or become clearer.

Outlines can take the form of that shown in Table 6.

Table 6. Format of an Outline

I. First major topic	One of the most important
A. Sub-topic of topic 1	Second level of importance
1. Sub-topic of A	Third level of importance
a. Sub-topic of 1	Fourth level of importance
b. Sub-topic of 1	Fourth level of importance
(1) Sub-topic of b	Fourth level of importance
(2) Sub-topic of b	Fourth level of importance
(a) Sub-topic of (2)	Sixth level of importance
(b) Sub-topic of (2)	Sixth level of importance
i. Sub-topic of (b)	Seventh level of importance
ii. Sub-topic of (b)	Seventh level of importance
2. Sub-topic of A	Third level of importance
B. Sub-topic of topic 1	Second level of importance
II. Second major topic	One of the most important
etc.	

Taken from Neuman, 2000:466

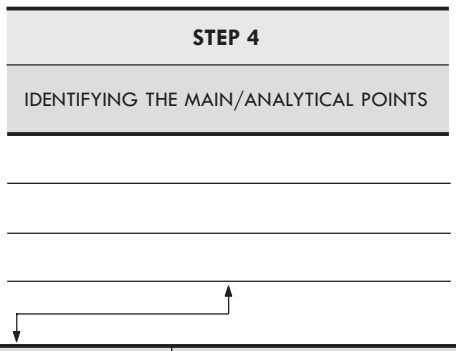
Using a concrete example, the above format and the different phases of the research process can be seen in the following outline of the report on the 2004 CCC-ADI drug use study:

ACTUAL PARTS OF THE REPORT	RESEARCH DESIGN & IMPLEMENTATION PHASES	OUTLINE LEVELS
I. Problem Statement	Problem statement/research topic	One of the most important
II. Research Objectives	Broad research objectives	One of the most important
III. Key Questions	Specific research questions and information needs	One of the most important
IV. Research Methods	Research methods identified	One of the most important
V. Findings and Analysis	Data collected and summarised	One of the most important
A. Trends in Drug Use		Second level of importance
1. Drug user profiles	Answers to specific research	Third level of importance
2. Drug use behaviour	questions on research objective 1	Third level of importance
B. Causes and Consequences of Drug Use	Answers to specific research questions on research objective 2	Second level of importance
1. Reasons for taking drugs		Third level of importance
2. Effects of drug use on drug users		Third level of importance
C. Effects on Family Life	Answers to specific research questions on research objective 3	Second level of importance
D. Impacts on Community Life	Answers to specific research questions on research objective 4	Second level of importance
VI. Conclusions	Final statements in relation to the research questions and objectives	One of the most important
VII. Implications	Relevance of research/what the findings mean in relation to policy making and to development practice	One of the most important
A. Policy issues		Second level of importance
B. Rehabilitation and education issues		Second level of importance
C. Community development issues		Second level of importance

Step Four

Step Four: Describe Your Findings and Make Connections between the Parts

Discerning patterns/trends/themes: connecting observed patterns and trends (main points) on one key question to another key question... Reflecting on observed patterns (main points) for possible explanations... Explaining/ interpreting the observed patterns...



Discerning Patterns/ Trends and Themes

MAIN POINT	CONNECTION WITH OTHER OBSERVATIONS; SIMILARITIES/ DISSIMILARITIES TO OTHER SITUATIONS
Represents highlights or pieces of information that stand out in data summaries (tables, charts) and which bear on research objectives or key research questions	• *How is the main point linked to the other observations?* • *What examples of similar or dissimilar situations can you compare the findings to?* • *What material or document can you cite to support the findings or observations?*

Discerning patterns or trends and themes in the data is essentially about drawing out the main points from one's findings and describing these. This is that phase of data analysis when the researcher examines the summarised data to glean certain regularities/irregularities and recurring themes, as well as to "read" the meanings that said regularities/irregularities and themes suggest in relation to the research objectives and key research questions of the study. Drawing out the main points is about making sense of the study results and elaborating on the observed patterns, the latter being often shaped and enhanced by the researcher's personal knowledge, review of literature, or experience on the study issue. The researcher also evaluates the data in the context of how these illustrate certain ideas or concepts that bear on the issue being examined (e.g., participation in decision-making; autocratic/democratic forms of leadership, etc.).

Patterns and trends in the data can be determined through:

- Frequencies, which establish the number of times an event occurs or a response is given. Note that there might be a difference between the frequency and what people are willing to report
- Magnitudes, which define the level and extent of an observed phenomenon (e.g., access to land, incidence of drug use and the like)
- Structures, which illustrate a system and its component parts, and that specify underlying arrangements and relationships within the phenomenon under observation
- Processes, which depict order or lack of it among the elements of a structure
- Causes and consequences

Summarised data from one's surveys or similar structured data collection instruments, however, are generally not simply enumerated as a series of figures presented in the tables or charts. Drawing out the main points and describing these is the discussion part of the report and aims at calling the readers' attention to the data summaries' highlights or findings that stand out relative to the research objectives and/or questions. A usual approach is to describe the observable trend for the total group, then to the specific data categories or sample sub-groups (e.g., categories with the most/least common responses). Differences between and among sub-groups should also be noted at this point.

Drawing again on the CCC-ADI's study on *Small-Scale Land Distribution in Cambodia: Lessons from Three Case Studies* and using frequencies as a means for extracting a main point, responses to a series of interview questions are shown in Figure 10, after which the main point is described.[21] The example also illustrates how the observed main points can be connected to each other.

[21] Adapted for this book, this example was a hand-out for the CCC-ADI Advanced Course/ Workshop Series on Basic Research in July – September 2001 (Phnom Penh) during which participants had hands-on involvement in the conduct of the published study report with the same title.

Figure 9. Example on Drawing Out Main Points

RESEARCH QUESTION: What are the criteria, processes and decision-making mechanisms used to select, verify and approve eligible persons?

INTERVIEW QUESTION: Information concerning land received (a): In what ways did you participate in the land distribution scheme?

RESPONSES	n	percent
Did not participate	18	58.1
Attended meetings	7	22.5
Protested and met with other soldiers and talked with commanders and go to Phnom Penh to meet officials	3	9.7
Worked with committee to measure land	1	3.2
No response	2	6.5
Total	**31**	**100**

MAIN POINT: Among interviewed respondents, over half (58.1%) did not in any way participate in the land distribution scheme

INTERPRETATION:

Possible explanations

- Insufficient information dissemination
- Absence of respondents during information campaign (if any)
- Isolated from the community
- Did not meet eligibility criterion
- There was no effort to solicit people's participation in the land distribution scheme

Most credible explanation (combining findings from focus group discussion)

There was insufficient information dissemination or no effort to solicit people's participation. Data gathered from focus group discussions show that while meetings were conducted, there was no mention of any information campaign.

RESEARCH QUESTION: What are the criteria, processes and decision-making mechanisms used to select, verify and approve eligible persons?

INTERVIEW QUESTION: Information concerning land received (b): What eligibility guidelines did you meet?

RESPONSES	n	percent
Soldier (most handicapped) and agreement by army commander	18	58.1
Old person	2	6.5
No criteria	1	3.2
I know the person who distribute the land	1	3.2
No response	9	29
Total	**31**	**100**

MAIN POINT: Soldiers, comprising 58.1% of respondents, qualified as recipients in the land distribution scheme carried out in 1996.

INTERPRETATION:

Possible explanations

- Interviewee knew official involved in the scheme
- Interviewee is handicapped or injured

Most credible explanation (combining findings from focus group discussion)

Again, based on findings from focus group discussion, we know that the only criterion for selecting recipients was disability. This observation, coupled with the fact that the whole division of these soldiers moved to the site, make them majority of recipients.

RESEARCH QUESTION: What are the conditions and reasons for implementing a land distribution scheme in a particular area?

INTERVIEW QUESTION: Information concerning land received (c): What types of land did you receive (residential, riceland, *chamkar*)? Can the distributed land be used for agricultural purposes?

RESPONSES (as summarised in a multivariate* table)

type of land	size	number of respondents reporting	arable (y/n)	use of land	percent of land used
Residential	10 x 10 m	1	N	-	-
	20 x 80 m	3	Y	rice, fruit trees, vegetables, crops	50, 70, 100
	20 x100 m	1	Y	rice, fruit trees	100
	22.5 x 80 m	2	Y	fruit trees, vegetables, crops	50, 100
	25 x 70 m	1	Y	vegetables, crops rice,	100
	25 x 80 m	14	Y	fruit trees, vegetables, crops	100
	25 x 100 m	1	Y	crops	-
	28 x 80 m	1	Y	rice	100
	30 x 80 m	1	Y	rice	100
	30 x 90 m	1	Y	fruit trees, crops	100
	50 x 50 m	1	Y	fruit trees	100
	50 x 100 m	1	Y	fruit trees	60
	150 x 100 m	1	Y	rice	-
	No info	2	-	-	-
Rice land	0.75 ha	1	Y	rice	100
	1 ha	1	Y	unused since 30 km away	

* Refers to having more than one variable

MAIN POINT: Out of the total land distributed, 94% was reported to be residential with the most frequently cited size being 25 x 80 meters. Interestingly, out of those who received residential land, virtually all used the land to plant rice, fruit trees, vegetables and other unspecified crops. Land usage was high with majority citing 100% and only 12% mentioning less than 70% land use.

INTERPRETATION:

Possible explanations

- Reasons for similarities/differences in land size: (a) majority have roughly the same land size because they themselves measured the land; (b) some have larger parcels than others because they have ability to clear more land
- Reasons for utilisation of land: (a) As people with disabilities, no source of income in the locality; (b) No money to buy food to raise crops

Most credible explanation

Same as possible explanation.

RESEARCH QUESTION: What are factors/actors that contributed to success, problems and/or failure?

INTERVIEW QUESTION: Information concerning land received (d): Were you able to choose the land that you received? If no, why?

RESPONSES	n	percent
Able to choose land received?		
Yes	26	84
No	5	16
If no, why:		
Not meet criteria	1	20
No clear criteria or rules	1	20
I came late	1	20
No response	2	40
Total	**5**	**100**

MAIN POINT: Eighty four percent of respondents were able to choose the land they now own.

INTERPRETATION:

Possible explanations

- Collective effort to sub-divide the land among themselves

Most credible explanation

Same as possible explanation.

RESEARCH QUESTION: What are factors/actors that contributed to success, problems and/or failure?

INTERVIEW QUESTION: Information concerning land received (e): How has the land you received contributed to improving your living condition

RESPONSES*	n	percent
No response (caused by missing translation, some wrote it in by hand)	15	48.4
Produce small amount of food (not enough)	10	32.3
Place to live	1	3.2
Income from selling to others nearby	1	3.2
No improvement yet	4	12.9
Total	**31**	**100**

* It should be noted that nearly half of the responses were classified as "no response" that was actually due to the researchers' error (i.e., missing translation). The remaining responses indicated in one way or another, that receipt of land improved their living conditions to a certain extent. Hence, main point acknowledged this weakness.

MAIN POINT: Among respondents interviewed, 38.7% indicated an improvement in their living conditions since they can produce small amounts of food (32.3%), they can get income from selling (3.2%) and they have found a place to live (3.2%).

INTERPRETATION:

Possible explanations

- As evident in an earlier finding on type of land received and how land has been used, households utilised the residential land they received to cultivate a variety of crops which may have contributed to some degree of income and food security.
- Also from the finding on type of land received and how land has been utilised, access to residential land created a degree of stability in their lives.

Most credible explanation

Same as possible explanation.

Making Connections Between the Observations and Other Known Patterns

Inherent to the process of uncovering and highlighting the data patterns is expounding on these or the process of interpretation. How the findings are connected to one another – using information from all completed data collection efforts (e.g., survey, focus group discussions, and key informant interviews) – should be established to articulate how the observations support/contradict each other and on a more general plane, to lend coherence and substance to the main points/observations. Making these connections can also pave for the discovery of a new or higher level set of patterns/trends as well as of underlying issues worth or needing surfacing. Where the researcher has built in several hypotheses into the study, this phase of the study is the time when s/he articulates how the findings contribute to confirming or negating said hypotheses. Defining the links between the observations should build on a conceptual scheme – again based on the general parameters of the research questions and, if any, on the theoretical framework that the study has built on. Making these connections can help add up to the building of arguments or general statements about the findings in relation to the research questions and for the study's overall conclusions.

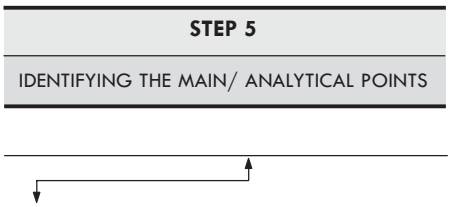
Establishing the links between the main points or the patterns/trends and themes is also the occasion when experiences or theoretical formulations external to the study can be brought in to relate the findings with the larger picture. These experiences and theoretical formulations can come from the researcher's personal knowledge or from literature that s/he is familiar with. Such connections with existing norms or other known patterns are useful since these can demonstrate how different or similar the sample is from a larger or other populations, or how the findings illustrate perspectives about development theories and practice and/or other scientific knowledge. If a researcher is describing the size of land owned by a set of respondents, for instance, s/he can show how this measures up to the average size owned by all rural households in Cambodia. A researcher exploring participatory processes in development projects can similarly set her/his findings against known measures or theoretical perspectives on participation and make statements about how her/his subject of study coincide with or fall short of established standards on participation.

Beyond elaborating on the patterns through comparisons and/or relating the study findings to one another, explanations should also go into the "why's" of the observations, or possible reasons for the observed patterns and trends. Step 5 in the next section provides guidelines on how this can be accomplished.

Step Five

Step Five: Identify the Root Causes and Key Issues and Write your Analysis

Understanding relationships/causes and effects in observed patterns on the key questions...Explaining/interpreting the observed patterns...Drawing out implications from the explanations...



REQUIRES EXPLANATIONS/ DIGGING AT REASONS? (Y?N)	WHAT IS THE EXPLANATION? [ROOT CAUSES, KEY ISSUES]
Indicate here if YES or NO	• *In what ways are the findings significant to the study's sample/units of analysis? what necessary practical actions & policy (re-)formulation do they suggest?* • *What do the findings mean in terms of its contribution to existing knowledge? What new issues should be explored?* *NOTE: Not all main points require an explanation...*

Understanding Relationships in Observed Patterns

Unravelling relationships or the links between observations is one of the key challenges to undertaking data analysis. This is because as categories and patterns emerge, the researcher must engage in the critical act of challenging the very pattern that seems so apparent or obvious (Marshall and Rossman 1989:119). The researcher must search for credible or believable elaborations other than that which the data seem to offer. Alternative explanations always exist; the researcher must search for, identify, and describe them, and then demonstrate how the explanation offered is the most credible of all.

In general, a researcher goes back to the research questions that s/he has sought to answer in examining how her/his observations are linked. Recalling Table 2 where descriptions of analyses are suggested for specific types of questions, delving into the observations' relationships can be done through one or a combination of the following ways (Mason, 1996:137):

1. *Comparing*. Comparisons can be about social groups, social phenomena, social processes, social locations, social meanings, and so on. These frequently aim to draw out similarities and/or differences on some common attributes of two or more social groups, phenomena, etc in order to arrive at some generalisation on the observations about the researcher's unit of analysis. If the researcher intends to engage in comparisons or see this method as critical to responding to the research questions, s/he has to be clear that this will be undertaken and as such incorporate related questions in her/his data collection instruments (hence the need to foresee what analytical methods would be employed in designing the research questions, objectives and data collection tools).

   Comparisons can be on something simple, such as describing migrant workers' types of work according to their status as long- or short-term migrants. Exemplified by the findings of the 2003 CCC-ADI study on *Labour Migration to Thailand and the Thai-Cambodia Border*, the researchers explored this concern as they examined their research question on whether or not migrant work has become a permanent livelihood strategy of migrant households (see Example 1 in Figure 10).

In the above cited example on CCC-ADI's study on small-scale land distribution, comparisons on certain characteristics of the three land distribution schemes paved for an understanding on their similarities and dissimilarities and defined the elements that helped shape said schemes' success/failure (Example 2 of Figure 10). Deriving these comparisons also enabled the researchers to develop the bases for responding to one of the study's research questions on what suggestions it could make so that social concessions on land in Cambodia, an issue being debated upon in 2001, could achieve some degree of success.

Figure 10. Example of a comparative analysis on observations

EXAMPLE 1. Type of Work by Long- and Short-term Migrant Workers, October 2003 (*Source: Labour Migration to Thailand and the Thai-Cambodia Border, 2003:8)*

TYPE OF WORK	LONG-TERM MIGRANT	SHORT-TERM MIGRANT	TOTAL (N=119)
Construction worker	34	2	36
Transport worker	16	3	19
Household worker	12	2	14
Waiter	9	2	11
Petty trade	9	1	10
Planting sugar cane	4	9	13
Transplanting rice	4	8	12
Clearing fields	3	28	31
Harvesting rice	3	9	12
etc			

EXAMPLE 2. Attributes of Success/Failure in Three Land Distribution Schemes
(*Source: Small-Scale Land Distribution in Cambodia: Lessons from Three Case Studies, 2001:7)*

ATTRIBUTES	BATTAMBANG		KOMPONG THOM	SIEM REAP
	Takot	Tomnop Takuon	(Traping Chambak)	(Kok Krouel)
Involvement of government officials (in terms of beneficiaries gaining/ losing access to land)	✓	✓	✓	✓
Information dissemination about land distribution	-	-	-	✓
With some guidelines/mechanisms in land distribution	-	✓	✓	✓
Land distribution processes built on people's participation	-	✓	-	✓
Size of land distributed(residential land only)				
Less than 1.0 hectares	69%		100%	94%
≥ 1.0 hectares	31%		-	6%
Type of land distributed				
Residential	✓	✓	✓	✓
Rice land	22%		-	✓
Chamcar	-	-	-	-
Proofs of ownership/certificates/ land titles issued	-	-	-	✓
Availability of support from NGOs	✓	✓	-	✓
Impact on livelihood of beneficiaries	-	-	✓	✓
Problems				
Land grabbing/confiscation/ encroachment	✓	✓	✓	✓
Claims of ownership from outsiders/ non-beneficiaries	-	-	✓	✓
Lack of clarity on offices/persons responsible for land issues	✓	✓	✓	✓
Inadequate/absence of infrastructures	✓	✓	✓	-
OVERALL SENTIMENTS OF BENEFICIARIES	(-)	(-)	(-)	(+)

2. *Developing and tracing*. This type of analysis attempts to trace and account for the emergence and growth of social phenomena, social processes, social change, etc. Particularly useful when a researcher is determining or charting the trend of a social issue, this entails laying out the findings such that a chronology of the events in the development of the issue lends itself to generating observations. Again, this assumes that the collected data permit the tracing of the issue's developmental stages, and that these have been organised or collated in a form which enables the researcher to weave together her/his data in an explanatory fashion.

   A CCC-ADI study that illustrates this approach is that on *Understanding Drug Use as a Social Issue* (2004). Here, the researchers explored the incidence of drug use over a period of 5 years by charting its findings to examine whether the trend has increased, decreased or stayed the same (Figure 11).

Figure 11. Example of analysis by developing and tracing observations

EXAMPLE: Year Respondent or Her/His Child Started to Take Drugs, February 2004

YEAR	DRUG USER (N=30)	DRUG USER HOUSEHOLD (N=33)
Before 1998	2	0
1998 – 2000	6	7
2001 – 2002	9	13
2003 – 2004	13	15

3. *Describing*. Establishing relationships between variables by describing involves the formulation of some kind of explanatory account of what is going on in a particular social location, or of the mechanics of a set of social processes. Mason (1996:137) notes that "descriptive explanation is a rather vague term" and suggests that for it to be useful, the researcher should use some criteria around which the descriptions are going to be based.

   One CCC-ADI study that illustrates this approach is *Indigenous Response to Depletion in Natural Resources* which was undertaken in 2004. The study employed descriptions by focusing on several concerns to characterise how natural resources have become degraded in two villages of Kratie and how this decline has affected its users. Using focus groups and key informant interviews, the researchers undertook resource inventories on the one hand and on the other, explored the sufficiency of said resources through a household survey. Measures of sufficiency included an analysis of the households' varied livelihood strategies and their market participation. In describing qualitative and quantitative sets of data, the researchers established the downward trend in the quality of households' resources bases and sufficiency of their resources, as well as how this decline had exacerbated the incidence of poverty in both villages.

4. *Predicting*. Predicting is based on the principle that if it is possible to observe what happened under certain specified conditions in a certain social location, then the researcher could envisage what might happen in the future under similar conditions, or where conditions are different in certain known ways (Mason, 1996:137). The use of this approach to explaining relationships requires that the researcher is clear about

what conventions and criteria for prediction s/he is using and should have indeed generated the data which fulfil these criteria. It is in this type of analysis where researchers frequently pose hypotheses (in quantitative research) or hunches (in qualitative research) and seek out as well as organise the required information to determine the likely occurrence/non-occurrence of an issue, event, phenomenon, etc in another setting under similar or slightly dissimilar conditions.

Two CCC-ADI studies carrying elements of prediction are those on *Labour Migration to Thailand and the Thai-Cambodia Border*, and *Domestic Violence in a Rapidly Growing Border Settlement.* While these did not pose research questions with prediction as a focus of the studies, both identified factors that are associated with the persistence of the two issues and hence, the likelihood of their continued incidence where these conditions prevail. On the labour migration study, these conditions included exigencies of the market economy, mobility of the Cambodian labour force, relatively open borders between Cambodia and Thailand, while that on domestic violence highlighted individual attributes such as male spouse's educational levels, male spouse's previous employment in the military or police, controlling behaviour of male spouse, female spouse's involvement in decision making, etc.

Studies on best practices also provide a good example on this explanatory/analytical method albeit these tend to be more qualitative in nature. This is because inherent to such best practice studies is a research question that asks for conditions that will enable replication of said practices in another location.

Association, Differences and Causality between Observations

Across the above modes of linking two or more observations/variables, relationships can be characterised as ones of:

(a) direct or an indirect association which reflect a positive or negative direction

(b) causality, or one of cause and effect.

Observations are said to be associated when positive/negative changes in **X** are accompanied by a positive/negative change in **Y**. Taking the above mentioned CCC-ADI study on domestic violence again as an example, the researchers' observed pattern is that the problem is likely to occur when male spouses demonstrate a controlling behaviour, when female spouses are less able to participate in decision making within the home, etc. It notes, in effect, that domestic violence (**Y**) can occur when the individuals concerned display certain attributes (**X**). The situation then manifests an element of contingency or dependence of **Y** on **X**.

Despite this apparent relationship, however, it should be noted that **X** may not necessarily cause **Y**. Individual attributes could partially shape the incidence of domestic violence but it has to be established that these indeed are associated. Quantitative researchers employ statistical tests to prove such relationships or associations, the more common of which are the Chi-square test of independence, correlation and regression[22]. It is also during these tests that they look into the magnitude and direction of the relationship. In the example being discussed, the direction suggested by one of the findings is positive

[22] Annex 6 provides a list of materials for further reading on the subject.

in that the more controlling the husband's behaviour, the more likely is the incidence of domestic violence. There is an inverse association between female spouse's participation in decision making and domestic violence, on the other hand, since the less involved the female spouse is in decision making, the more likely is the problem to occur.

The study might also have compared and assessed the varying responses of those interviewed from the two research villages. What are the differences between the experiences of the respondents from the first study village compared with those from the second study village? In this instance, the research questions/hypotheses would have looked into whether or not the two villages differed on or demonstrated the same general patterns noted about the individual attributes and the incidence of the problem. Exploring such differences and how significant the differences are between the two sets/ groups of respondents can also be subjected to statistical tests such as the t-test, the Chi-square test, analysis of variance and/or the more complex multivariate techniques for testing relationships between variables.

Expanding on the earlier discussion on how the respondents' individual attributes may or may not cause domestic violence, it has been argued that causality or a relationship of cause and effect requires the presence of three criteria (Babbie, 1998:73-74; Vogt, 1993:31):

(a) The cause precedes the effect in time, or that **X** (i.e., the individual attributes or independent variables) comes first before **Y** (i.e., domestic violence or the dependent variable) since it makes no sense to argue that a condition which happened after a phenomenon or an issue is the cause or the precursor of said phenomenon or issue

(b) The two variables or observations have been established to be interdependent or associated (i.e., empirically correlated) with one another

(c) The association or correlation between **X** and **Y** can not be explained by some third factor or variable that causes both of them. This criterion simply means that the researcher has to be certain that there are no other possible explanations that contribute to the incidence of **Y**. Thus, on the same example on domestic violence being the effect of some individual attributes, researchers should not preclude the fact that there indeed are other factors that are similarly associated with the problem, such as those that the study found and which fall within the socio-cultural and legal environment of the issue.

Causal relations can be simple or multiple (Vogt, 1993:31). A simple causal relation suggests that whenever the first event (the cause) happens, the second (the effect) always does too. Multiple causation is much more common in the social and behavioural fields and asserts that several causes can produce the same effect. Multiple causes may be such that not one of these will necessarily produce the same effect, but several of them in combination make it more likely. As evident in the example on domestic violence, some of the cited individual attributes (i.e., male spouse's educational levels, male spouse's previous employment in the military or police, controlling behaviour of male spouse, female spouse's involvement in decision making, etc) do not have the same direction (and possibly, magnitude) of association with the issue. Subjecting the data to statistical tests (e.g., correlation and multivariate analysis such as multiple regression and factor analysis) enables researchers to check out the magnitude of the hypothesised relationship, as well as to determine the combination of attributes that contribute to the incidence of the problem.

Identifying the root causes of some observed patterns in the data and surfacing the key issues from one's findings can be a fairly complex process. Despite the challenges and the level of sophistication it demands of researchers, however, this step can be a highly stimulating exercise as one weaves together her/his pieces of data and unravels the links between the patterns that they yield.

Tools and Techniques to Drawing out Relationships

In addition to the statistical tools that seasoned researchers employ in searching for explanations and for drawing out relationships on observed patterns from the data, there are other tools and techniques such as charts and diagrams that they also draw upon. Most of these are familiar to those who are exposed to the methods of participatory learning and action (PLA)[23] or the previously known participatory rapid appraisal (PRA) where these are frequently employed. It should be said, however, that a number of these tools are the more popularised versions of their original applications in the social and applied sciences. Charts and diagrams has a place in data analysis because these permit researchers to sort and categorise data, to explore what goes with what, and to contemplate how seemingly discrete data may be linked in previously unrecognised ways (Wolcott, 1990:62). Some of these tools and techniques are briefly described and illustrated below.

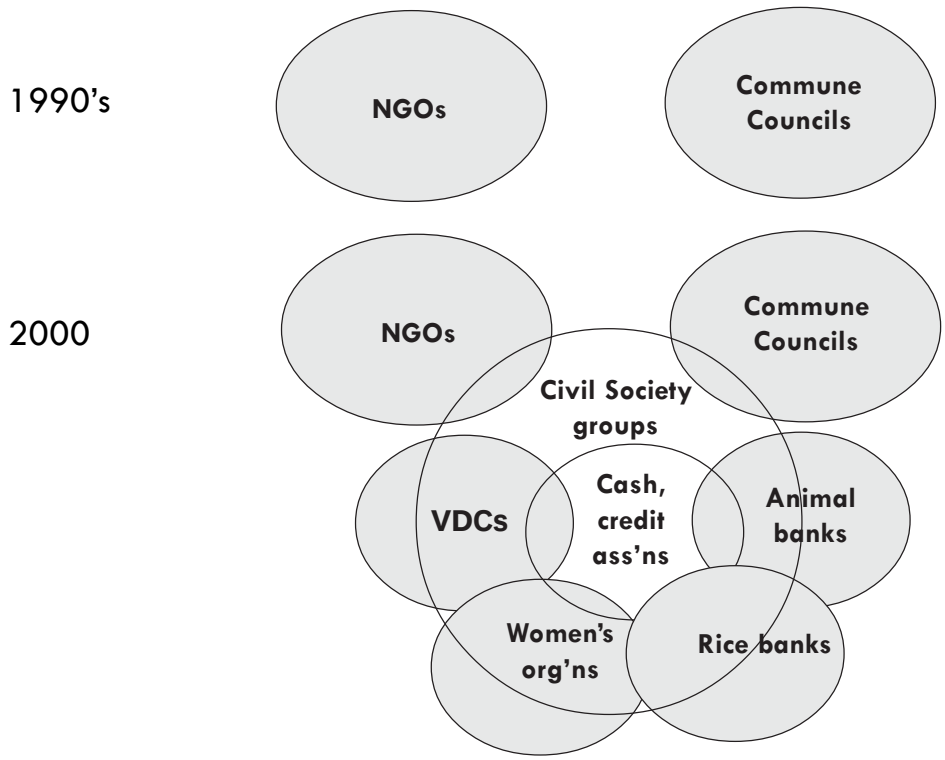
Venn Diagrams

Originally used in mathematics and named after an English logician, Venn diagrams are visual representations of data that use circles to represent sets of information and their relationships. It is more commonly used in PRA to study institutional relationships and aim at providing insights into and generating analyses of power structure, decision-making processes, etc (Kumar, 2002:234-235). Also as applied in PRA, the size of the circles and distance from each other carry meanings such that the bigger the circle, the more important is the institution or individual. Distance of the circles from one another indicates the degree of influence or contact between institutions or individuals. Overlapping circles suggest interactions and the extent of overlap can represent the level of interaction (Kumar, 234).

Venn diagrams are equally useful for researchers as they delve into and surface relationships between observed patterns/trends in their data. Through these schemas, the researcher is better able to examine relationships (or lack of it) of say, players in a development intervention particularly in terms of understanding levels of coordination and/or overlap in functions being performed. In CCC-ADI's study on *Experiences of Commune Councils in Promoting Participatory Local Governance*, uncovering the relationships among the development players could have been as shown in Figure 12 where the absence/presence of interactions or collaboration between the NGOs and the Commune Councils are traced.

[23] This is increasingly interpreted as participatory reflection and action (Chambers, 2002: x) and uses the same acronym as its progenitor.

Figure 12. Exploring relationships between NGOs and Commune Councils through a Venn Diagram



Social Network Analysis

Network analysis is the interdisciplinary study of social relations and has roots in anthropology, sociology, psychology, and applied mathematics (Lewis-Beck et al, 2004:719). Also popularised as a PRA tool, its most fundamental concept is that of a social network, which at the most basic level consists of a set of social actors and a set of relational ties connecting pairs of these actors. A primary assumption it takes is that social actors are interdependent and that the relational ties among them have important consequences for each social actor as well as for the larger social groupings they comprise. The network's nodes or members can be groups or organisations, as well as people. A goal to engaging in network analysis is to examine network structure, through such concepts as density, centrality, prestige, mutuality, and role (Lewis-Beck et al, 719). Its application in participatory reflection and analysis coincides with this original formulation as this mode of analysis examines the nature and quality of relationships, the functions that such relationships perform, frequency of contact, etc (Kumar, 2002:211). Laid out in schematic form, the network diagram provides a picture of the depth and diversity of existing relational linkages amongst the social actors being studied.

Network diagrams overlap to some degree with Venn diagrams (Kumar, 211). They differ, however, in that the latter focuses more on the relative importance of and perceived closeness of institutions with the people. The network diagram, on the other hand, has more to do with the depiction and analysis of the nature, quality, diversity and reasons for and frequency of contact of the subjects with outsiders (Figure 13). Particular to this section's purpose of identifying tools for exploring explanations and drawing out relationships on observed patterns from the data, the network diagram is of relevance to a researcher as s/

he seeks to understand the contacts and linkages of a particular set of development players with the outside world and as s/he comes up with possible measures to strengthen said development players' linkages, networks and strategic alliances.

Figure 13. Example of a network diagram

***Source*:** Kumar, 2002:212.

Livelihood analysis diagrams

Embodying a set of tools and techniques that are widely used tool in PRA/PLA, livelihood analysis diagrams in data analysis assume usefulness when the researcher is examining data or understanding trends pertaining to income, expenditure, food consumption, coping with crisis, occupation and employment-related issues, livestock, agricultural production, etc (Kumar, 2002: 289-290). These diagrams are used to help interpret behaviours, decisions, and coping strategies of households with varying socioeconomic characteristics (Theis and Grady, 1991:108). Frequently, these draw upon a combination of such tools as pie charts, flow diagrams, time line, seasonal diagrams, force field analysis, and so on to surface the trends and the interconnectedness of the elements within the patterns or trends in the data.

SWOT Analysis

The SWOT analysis is generally used as a tool for working with groups to reflect on/ analyse issues or events and for identifying strategic options facing a community, organisation, or individual at a given time (IIRR, 1996:68). Researchers can also employ the tool to further examine or confirm their observations about their data as this paves for a more careful assessment of the findings and for coming up with a more thoughtful conclusion and set of recommendations. Figure 14 presents a typical SWOT matrix.

Figure 14. A SWOT matrix

	Strengths Positive characteristics and advantages of the issue, situation or technique	**Weaknesses** Negative characteristics and disadvantages of the issue, situation or technique
Opportunities Factors, situations that can benefit, enhance or improve the issue, situation, or technique	**S-O Analysis** How can strengths be employed to take advantage of development opportunities?	**W-O Analysis** How can weaknesses be overcome to take advantage of development opportunities?
Threats Factors, situations that can hinder the issue, situation or technique	**S-T Analysis** How can strengths be used to counteract threats that tend to hinder achievement of objectives and pursuit of opportunities?	**W-T Analysis** How can weaknesses be overcome to counteract threats that tend to hinder achievement of objectives and pursuit of opportunities?

Source: IIRR, 1996, *Recording and Using Indigenous Knowledge: A Manual*, p.69

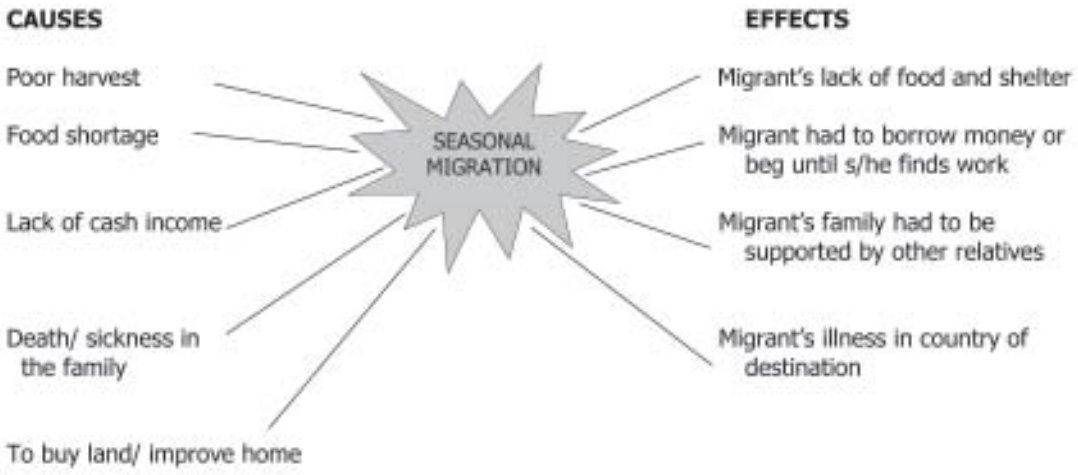
Cause and effect/ Web diagrams

Also known as *fishbone* or *Ishikawa* diagram, cause-effect diagrams focus on the causal factors of a phenomenon, activity, or problem and its accompanying effects (Kumar, 2002: 188). These are visual presentations of causes, effects and their inter-linkages, which help in arriving at an in-depth understanding of a particular topic, and provide scope for analysis, generating recommendations and for action by the study's subjects (Figure 15). Preparing such diagrams become particularly useful to researchers as this enable them to reflect on all possible causes of an issue or phenomenon, especially when statistical tests are being considered. It will be recalled that arguing for causality between observations requires meeting a set of criteria. Presenting the findings in such a diagram can help the researcher to sift through her/his observed causes and effects according to said criteria and examine possible inter-linkages between the causes and/or effects.

Force-field analysis

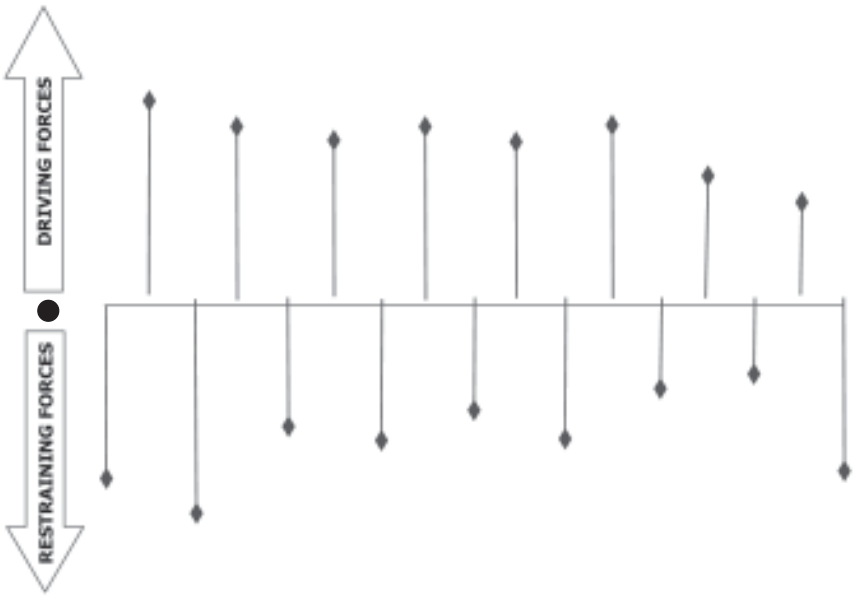
Force field analysis is a technique used to visually identify and analyse forces (or factors) affecting a problem situation, so as to bring about a positive change (Figure 16) (Kumar, 2002: 270). Used in a range of contexts, it can be a researcher's tool as s/he weighs the positive and negative aspects of her observations in order to come to a conclusion about a certain pattern/trend and, as appropriate, to come up with corresponding recommendations, especially if the study has to do with social change. The length of the arrow denotes the force depicted, but that for every force, there need not be an opposing force. The forces affecting a problem situation are assigned weights according to their perceived effect on the problem situation – thus making it easy to pinpoint the forces which need to be further strengthened and the ones which need to be weakened (Kumar, 2000:270). The tool is also employed by researchers who are into the more participatory approach as they engage their subjects in analysing a problem and in identifying solutions. Among its cited limitations are that it assumes that any problem situation can be viewed as being in a state of equilibrium, and that it is too simplistic to account for the complexities of problems.

Figure 15. Example of cause and effect diagram on seasonal migration



***Source*:** Adapted from Kumar, 2002:193; data builds on findings presented in CCC-ADI's *Conducting A Small-Scale Research Study: Ten Steps to Analysis*, 2000: 107-111.

Figure 16. Visual depiction of force-field analysis



***Source*:** Kumar, 2002:271.

Drawing out Implications

Interpreting the findings also includes drawing out the implications of these on the study sample (or the units of analysis) and/or the larger society or concern to which the sample belongs. Implications are *inferred* from the analysed patterns in the data and are the meanings that the findings hold for (a) the sample or subjects of the study, the players/ issues that bear on the group or concern being analysed such as NGOs, local authority, etc., and the larger population/issue that the sample represents; and (b) for the body of

knowledge that the study is contributing to. Surfacing the implications of one's findings involves reflecting on what is being suggested by the connections observed between the patterns and can be extracted by posing these questions:

- In what ways are the findings on the research questions significant or important to the study's sample? what necessary practical actions and policy (re-) formulations do the findings suggest?
- What do the findings mean for existing or for building new knowledge? What new issues or streams of knowledge do the findings point to and which researchers should further explore?

A research study thus can have practical and/or theoretical implications. The practical implications consider the extent to which the findings are likely to influence a social policy, an on-going programme, or public opinions concerning related public issues (Shah, 1972:51). Citing these practical implications presupposes an analysis of their possibilities for application, however, as it is not enough to merely point them out. Such analyses explore the conditions or factors (e.g., required resources, prevailing viewpoints or values, etc for formulating new policies, for instance) that will enable the reader to take the implicit suggestion(s) forward. This is when it is sometimes useful to include concrete suggestions and alternatives as a response to the implications of the findings. Implications then are <u>not</u> the recommendations that the researcher comes up with but they do pave for these.

Theoretical implications relate to theory building. That is, these take into account how the knowledge generated by the research expands existing perspectives about a societal group/sub-groups (e.g., women, children, other vulnerable population groups), issue (participation, poverty), phenomenon (labour migration, drug use), etc through the positive and negative evidences that the research study has uncovered. This is where the review of literature also becomes relevant as the abstractions derived from the findings are linked to what is already known/not known in order to pose new ways of thinking about the subject of the study. Stating the theoretical implications also takes note of the entire research process from its beginning to end, and weighs in its shortcomings. This is of value to other researchers as they design similar investigations that could come up with (a) more definitive answers to related research questions, or (b) an approach which overcomes the methodological limitations met by the current study. Needless to say, it is also useful to present as part of the theoretical implications one's views on how the findings of the research could be strengthened in the future and by what type of further research.

Implications can be cited at any point during the discussion of the findings, whenever a particular pattern strongly jumps out of the connections being made on the observations. This is especially true of practical implications since in the process of discussing the findings, the researcher's thoughts should be on the research questions and how the answers presented by the data could make a difference (through policies, programme changes, etc) on the concern being analysed. This is less true of the theoretical implications, however, which are more often spelled out in the researcher's conclusions. This is because theoretical implications call for pulling together and reflecting on all the key findings/evidences (including the research process) and abstracting or elevating these to a conceptual level so that these become comparable to the axioms and propositions that are typical of theories or similar formulations.

Figure 17 provides an example of how implications can be surfaced from one's findings.

Figure 17. Example on how to draw out implications

Research Question: What are factors/actors that have contributed to the success, problems, and/or failure of the land distribution schemes?[a/]

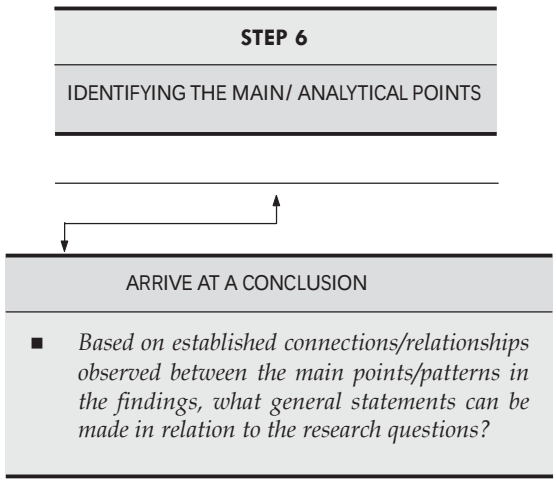
MAIN POINTS	SIMILARITIES/DISSIMILARITIES TO THE AVERAGE SITUATION	REQUIRES EXPLANATION? (Y/N)	WHAT IS THE EXPLANATION?	IMPLICATIONS FOR FUTURE LAND DISTRIBUTION SCHEMES
1. Recipients of the land distribution scheme in Siem Reap consisted of people with disabilities, widows, landless, returnees, and poor people.	- This disadvantaged sector represents the frequent targets of community development projects in Cambodia and elsewhere.	no	-	-
2. Initiative and support from multiple NGOs, including full support of CONCERN among beneficiaries of land distribution scheme, appears to be a contributory factor to the seeming success of the land distribution scheme in Siem Reap.	- This situation is not unlike that of the Koh Kor Island in Kandal province where women beneficiaries of the Hagar Shelter Project have been provided communal access to a piece of land.	yes	- The presence of the NGOs in the area benefited the recipients in several ways: WFP helped build the fairly good road that leads to the community, AGRISUD provided agricultural technical skills, provided inputs (e.g., seeds), and trained local technicians. CONCERN, in particular, made possible the distribution of land, securing certificates of ownership over the parcels of land, provided home construction materials, built irrigation canals, etc.	- NGOs can serve as catalysts to effective land distribution schemes. - While NGOs can strongly contribute to the success of such a program, dependence may be fostered among the recipients.
3. Success in the land distribution scheme could stem from the seeming sense of ownership that people have over the process of distributing land.	- Experiences in grassroots development point to a pattern that when people are actively involved in all stages of an activity, the sense of ownership over a process is strong (Burkey, 1993:63).	yes	- Virtually all of the recipients were able to select their land (91%) and all participated in the process of land distribution. Moreover, 78% were happy with the distribution scheme.	- Land distribution schemes can be more effective if people were to participate in the entire process. - Utilization of land for livelihood security and family stability can be sustained in the long term.

[a/] This example was also a hand-out for the CCC-ADI Advanced Course/ Workshop Series on Basic Research in July – September 2001 (Phnom Penh) during which participants had hands-on involvement in the conduct of the study on *Small-Scale Land Distribution in Cambodia: Lessons from Three Case Studies* and published under the same title.

Step Six

Step Six: Arriving at Conclusions

Deriving conclusions from the research findings... preparing the summary of findings... brainstorming conclusions... deriving conclusions from research findings...



Deriving Conclusions from Research Findings

Making conclusions from one's research findings is about arriving at a general pronouncement on a set of relational statements between two or more attributes/ variables or patterns that are being analysed. As previously noted, the researcher's relational statements can be positive, negative or inverse. Variables are said to be positively associated with each other when an increase in one results in a corresponding increase in the other. Recalling the example on CCC-ADI's 2004 study on domestic violence, this positive association was demonstrated by the finding that the problem is likely to occur when male spouses demonstrate a controlling behaviour. Inverse relationships, on the other hand, take place when an increase in one variable results in a decreased incidence of the second. This was evident in the same study where the problem was observed to less likely happen when the female spouse is more able to participate in the decision making within the home.

Subsequent analyses of data through comparisons, tracing, or establishing the cause and effect among the variables enable the researcher to build up a range of patterns that can point to several conclusions. In this study on domestic violence, the conclusion pointed out that "individual factors increased the likelihood of women experiencing violence, while cultural and social norms, and social institutions played a decisive role in legitimising and perpetuating the violence", the latter statement having also been examined by the researchers.

One does not stop thus and generate conclusions based only on a single observation. The process entails looking at sets of attributes and the relational statements arrived at about said attributes, making further connections and 'reading' the emergent patterns. Care should be taken, however, about making conclusions based on the obvious. Whenever possible, the researcher should point out attendant conditions or situations that may moderate the relationship between her/his variables and explain how these attendant situations can re-shape the observed pattern. Bringing in one's literature review or the theoretical perspectives that underpin the study will also be critical as these can strengthen or temper the arguments that make up one's conclusions.

Also in making conclusions about the findings, researchers should refrain from presenting broad generalisations or sweeping statements, as one's findings could be true only of the population group that had been studied, especially if the study is confined to geographical locations that may not represent the larger population being affected by the study issue. In the same manner, the researcher should avoid over-explaining or getting carried away

by the patterns s/he observes as s/he may inadvertently raise issues that are not substantiated by the data or were not addressed at all by the study. Working with one's research team members (or 'thinking aloud' with one's colleagues) to arrive at conclusions is also always useful as this can bring forth differing ways of looking at the same pattern and insights that a single researcher can miss.

To summarise, key do's and don'ts in deriving conclusions from one's research findings are:

Do's	Don'ts
Examine sets of attributes or variables before coming up with a conclusion; single observations do not make for a conclusion	Don't take relational statements at their face value – do reflect on other factors that could possibly re-shape the observed patterns
Refrain from making broad generalisations or sweeping statements, especially if the study is confined a specific geographical location	Don't get carried away by efforts to explain the patterns – explaining too much can lead to raising issues that are not substantiated by the data or were never addressed by the investigation
Compare derived patterns for the conclusion with existing literature or knowledge on the issue being examined	

Arriving at the Research Study's Conclusions

The researcher's conclusions are generally her/his summing up and final statements about the correspondence (or lack of it) of her/his findings with (a) the hypothesised relationships expressed or implied in her/his research questions, or (b) with what s/he has set out to do as stated in her/his research objectives. In effect, the conclusions review succinctly what has been attempted by the study, what has been learned, and what new questions have been raised (Wolcott, 1990:56).

Conclusions of a study generally start with the summary of findings. Presenting a summary allows the researcher(s) to review what has been done in relation to the statement of the problem/research questions and study objectives. It also provides an opportunity to anticipate critical reactions by pointing out the study's shortcomings and how, in hindsight, the methodology could have been improved. Not all opt to prepare a summary, however, but if this is the approach taken, it is useful to write brief summaries throughout the research report (i.e., through section summaries) as these can highlight insights gleaned from each section's discussions, and to keep the researcher and the reader focused. These short summaries also ease the burden of preparing an overall synopsis of the findings as the researcher can simply build on these.

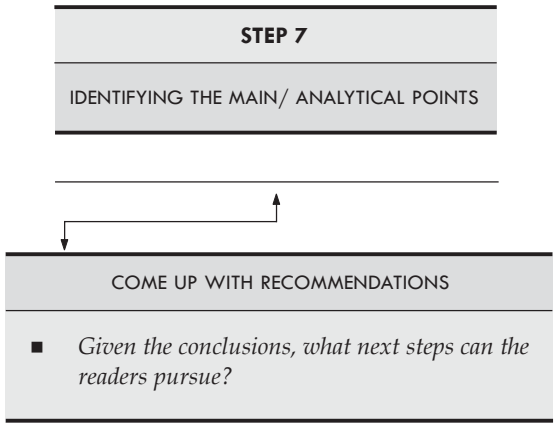
As with deriving conclusions from one's research findings, an option to coming up with statements to close the study, particularly with regards to what has been learned, is for the research team to work together in generating the broad assertions to be made about the answers to the research questions and objectives, and how they may keep the reader thinking about the study results and perhaps take these forward. The team may choose to encapsulate in two or three paragraphs the study's answers to the research questions in the context of the study's limitations, and to reiterate the theoretical perspectives that the study advanced and how the findings confirm/negate conventional ways of viewing the study issue or offer new ways of thinking about it.

A pitfall to again avoid is extending or generalising the findings to a larger population when the sample is limited and does not necessarily represent the bigger picture. Instead, one could offer recommendations for replicating the study to verify the applicability of the findings to similar or slightly different conditions. One should also again steer clear of issuing statements or raising issues that are not supported by the data or have not even been addressed by the research. This can happen when the researcher gives in to the temptation of unnecessary dramatic endings. A research study's conclusions are the endeavour's closing statements and while it can offer the space where the researchers' opinions or values can be set forth, efforts should also be made to maintain openness about how others may interpret one's conclusions.

Step Seven

Step Seven: Generate Recommendations

'Re-reading' the analysis of findings... Distinguishing between responses to micro effects and macro causes... Writing selected solutions into recommendations...



Deriving the Recommendations

Recommendations almost always flow out of one's conclusions to respond to the question of "so what?" especially if the study focuses on social development practices or social actions. This is not a requirement however as the researcher can also choose to simply spell out the implications of the study rather than come up with a set of solutions or guides on how issues generated by the study can be responded to. The decision to use implications or recommendations depends on the nature and purpose of the study, its intended users/audiences, and the style or pose of the researcher (e.g., advocate, consultant, detached observer, critic) (Wolcott, 1990:58).

Recommendations are a by-product of one's analyses and users of the study often look to the researcher for possible answers to the concerns that the study raises. Because the latter will not always have the expected answers, s/he can engage in one or a combination of the following (Wolcott, 1990:59-60):

- Pointing out elements that s/he has not understood, or that seem poorly defined as this may help uncover inherent ambiguities in the issue being analysed
- Identifying seeming paradoxes, or citing instances when the study sample's ways of doing things have resulted in different or sometimes, opposite effects from that which was intended
- Identifying alternatives to current practice (or solutions to current problems) and to assist those responsible for action, or those who may be affected by it, in examining the possible consequences of these alternatives. In this way, the analytical skills of the researcher may serve not only as a potential resource for readers but also as a potential model for them in conducting further inquiry on their own.

Perhaps a more basic step to deriving the recommendations is to initially go back to the report's different sections where the discussion of the findings can also present the implications of the observed patterns. As earlier noted, such implications – particularly the practical ones – may include the researcher's concrete suggestions and proposed alternatives to the current situation. Having noted these implications, the researcher can examine whether these need to be grouped together and classified according to different themes to make up a single or several recommendations. It would also be worthwhile to go back to one's analytical diagrams (e.g., the cause and effect schema),

where these have been employed, to draw out likely solutions to the situation/issue being addressed. The usefulness of sitting down with the research team and/or other stakeholders cannot be emphasised enough as this can also bring forth ideas on what the recommendations should embody.

An important consideration to coming up with recommendations relates to the levels to which responses are possible. More specifically, the researcher must distinguish between responses to micro effects of problems arising from macro causes (e.g., relocation of households for a government project such as the building of infrastructures; influx of lowlanders to Ratanakiri due to logging concessions, onset of industrial plantations, and hydroelectric projects thereby displacing and potentially undermining indigenous communities[24]) and those that are feasible at the macro level due to the same causes. Thus, one's set of recommendations could differ for the affected households, vulnerable groups, communities and for the provincial/national government or cut across both (e.g., advocacy). It is during these occasions when the cause and effect diagram assumes relevance so that the researcher is able to advance a realistic set of recommendations.

Other guidelines to coming up with recommendations, particularly if the study focuses on social development practices or social actions, are as follows:

- Develop solutions relevant for actual and potential players (e.g., NGOs, local government officials, affected households and communities) keeping in mind their differing mandates and constraints, as well as what responses are possible at different levels of these organisations
- Review the raw data and retrieve suggestions from those interviewed or solutions that are part of an existing coping strategy
- Review existing sectoral solutions (agriculture, credit) and how these may be improved
- Devise multiple yet coherent solutions in the short- and long-term – e.g., awareness raising/advocacy, community organising, skills training or other capacity building activities, networking, micro-finance, etc.
- Consider solutions that would address related areas of the environment, social-cultural conditions and institutions, the political-legal context, and the economic-financial realities, technological circumstances, and infrastructure
- Explore alternative/unique solutions that would address the special needs of women or the very poor

Working with Implications

Implications can take the place of recommendations whenever these are more appropriate. Drawing implications is akin to stating recommendations but allows the researcher to remain more distant and contemplative (Wolcott, 1990:60). If the researcher is addressing special audiences (e.g., practitioners, administrators, policy makers, other researchers), an indirect approach s/he could take is to tentatively identify possible implications in which questions are posed rather than answered.

[24] For details on this particular problem, see John P. McAndrew, 2000, "Field Study Report– Indigenous Adaptation to a Rapidly Changing Economy: The Experience of Two Tampuan Villages in Northeast Cambodia" Bulletin of Concerned Asian Scholars, 32(4): 39-52.

Employing implications to conclude the study lends the researcher the space to reflect on the findings and to draw upon the range of information that bears on the key concerns surfaced by the study issue. As suggested above, it is at this point when the researcher can distance her/himself from the issue or situation being examined and creates linkages in the findings to pose immediate concerns or problems to be faced; how these concerns can positively or negatively impact on the various players/stakeholders; how the socio-cultural, economic, political and legal environment can shape the situation; the consequences of different actions that can be taken; and, given the observed trends in the data, what the future may hold for the study issue or situation. One can thus touch on the practical and theoretical undertones that the findings mirror but the implicit message is to have the readers thinking about how they might make a difference – be this in taking the necessary action or pursuing the conceptual arguments that the study has posed.

PART 4

WRITING & DISSEMINATING THE REPORT

Step Eight

Step Eight: Write the Report

Reviewing and modifying the outline of the report... Writing the report and some component parts... Checklist for improving the draft report...

STEP 8

REPORT WRITING

Reviewing and Modifying the Outline of the Report

As described in Step 3 of this material, preparation for report writing commences as early as the data processing phase of the research. This is achieved by the preparation of a draft outline, which other researchers occasionally view as the expanded version of the report's table of contents. It will be recalled that the draft outline may be initially incomplete and may simply capture only the broad areas spelled out in one's research design.

The process of reviewing and modifying the report outline is a continuing one, as the data processing and preparation of data summaries continues and ideas for presenting and discussing the findings take shape. Subject headings tentatively identified in the outline may be deleted or re-formulated as content areas of identified sections become clearer, particularly during the actual writing of the report. Observations about the data in the process of preparing the summaries or new themes in the research findings could also mean adding on sub-headings or sub-sections and modifying their sequencing.

Outlines serve as the skeleton of the report, which is transformed into the report itself as the researcher fills in its different parts in the process of writing. It is useful to remember that as a tool for organising one's thoughts, these can be adjusted to make the final document all the more effective as the researcher ensures that it is better organised and sequenced, and assists the readers in following the findings that s/he is reporting.

4

Writing the Report and Some Component Parts

Report writing is probably the most challenging phase of the research process as this is the time when the researcher puts together her/his research design, findings and relevant materials into a coherent document. In this regard, some broad guidelines that have been advanced for those who prepare research reports are:

- A report is an effort to narrate the total research process and experience
- The objective of a report is NOT communication with oneself but communication with the target audience
- Major thrust of report should be to communicate what actually happened throughout the research process and not what we hoped would happen at each stage
- Write about failures and limitations of the research. If possible, include your own opinions about the reasons leading to failures or limitations in the study

- It is much easier to change an outline than to change the whole draft report. It is therefore, more efficient first to prepare an adequate outline and then to follow it by drafting a more detailed report
- Organise and divide the report into chapters, sections and subsections with appropriate headings

Table 7. Broad contents of a research report and the CCC-ADI's Drug Use Study

SUGGESTED BROAD CONTENTS OF A REPORT	ACTUAL PARTS OF THE CCC-ADI DRUG USE RESEARCH REPORT	RESEARCH DESIGN & IMPLEMENTATION PHASES
Title page Foreword Executive Summary/ Abstract Table of Contents		
Introduction	I. Problem Statement II. Research Objectives III. Key Questions	Problem statement/research topic Broad research objectives Specific research questions and information needs
Methodology (research design and data collection; data processing and analysis)	IV. Research Methods	Research methods identified
Findings	V. Findings and Analysis A. Trends in Drug Use 1. Drug user profiles 2. Drug use behaviour B. Causes and Consequences of Drug Use 1. Reasons for taking drugs 2. Effects of drug use on drug users C. Effects on Family Life D. Impacts on Community Life	Data collected and summarised Answers to specific research questions on research objective 1 Answers to specific research questions on research objective 2 Answers to specific research questions on research objective 3 Answers to specific research questions on research objective 4
Summary, recommendations/ implications	VI. Conclusions VII. Implications A. Policy issues B. Rehabilitation and education issues C. Community development issues	Final statements in relation to the research questions and objectives Relevance of research/what the findings mean in relation to policy making and to development practice
Appendices/Annexes Bibliographical References		

Writing the report

Having gone through the critical steps of the research process and written into her/his outline substantial parts of the report and possibly shifting (and creating new) sections along the way, the researcher now has to assemble these different parts to make it a whole (Table 7). As this is done, s/he will need to review the purpose of the study since the style of reporting – including its tone and language – will have to be consistent throughout the document and takes into account her/his audience. S/he should likewise carefully distinguish between fact, opinion and rumour as she writes her/his report since these can make or break the credibility of the document. The differences between these three are as follows (Pretty et al, 1995:193):

- Fact – a commonly agreed upon piece of information that can be easily proven
- Opinion – a person's or group's view on a topic or situation
- Rumour – unsubstantiated information from an unknown source

Beyond the do's and don'ts when preparing the report's first and subsequent drafts, one should be also aware that there is no single right way to say something. One way of saying something may be correct but uninteresting; another way may be interesting but inexact (Berg, 1989:158). An acceptable way may be reached after three, or four, or more attempts but this may not necessarily be the only good way to phrase ideas.

Developing the paragraphs

A fairly common problem of all writers is that of getting started (Becker, 1986 as cited in Berg, 1989:158). Finding the ideas or words for the first and the succeeding sentences for each paragraph to be written is a frequent dilemma. One useful technique is to decide between the deductive and the inductive approach to presenting the information. The **deductive** approach goes from the general assertion of an idea to the specific, while the **inductive** style goes from specific pieces of information to the more general idea which represents the cited pieces of information. A paragraph from the 2004 CCC-ADI study on *Understanding Drug Use as a Social Issue* illustrates the deductive method, as shown below:

> "... **Clearly, drug use had taken a toll on interpersonal relationships**. More than half of the drug users interviewed reported that, as a consequence of their drug use, they had more arguments with their parents and other household members. Many had left home, at least for short periods, had fewer friends, and had problems with other villagers, local authorities, and the police. Some countered that they also had more friends now among their fellow drug users. Drug user households noted similar breakdowns in the relationships of their drug using children..."

As will be noted in the above quote, the first sentence provides the general statement which has then been followed by the more specific information which substantiates it. The same paragraph can take on an inductive approach if it were re-phrased in the following manner:

> "...More than half of the drug users interviewed reported that, as a consequence of their drug use, they had more arguments with their parents and other household members. Many had left home, at least for short periods, had fewer friends, and had problems with other villagers, local authorities, and the police.

> Some countered that they also had more friends now among their fellow drug users. Drug user households noted similar breakdowns in the relationships of their drug using children. **Clearly, drug use had taken a toll on interpersonal relationships**...."

Those who know about the topic sentence may find this familiar, since a topic sentence is a statement that indicates in a general way what idea or thesis the paragraph is going to deal with (OWL, 1995-2004). Most guides to writing emphasise the importance of the topic sentence, and note that this can occur anywhere in the paragraph: in the beginning (when a deductive approach is being employed), in the middle, or as the last sentence (when an inductive method is being utilised) (WUWC, 1994). Whether the deductive or inductive approach is built upon, the key thing is that the paragraph focuses only on one idea through the details presented in support of the topic sentence.

Locating data summaries within the report

The details within a paragraph (or those sentences that succeed the topic sentence), particularly those within the discussion of the findings, generally represent the highlights of the researcher's data in relation to the topic sentence as summarised in tables, charts or other graphic presentations. These tables, charts and graphics have a place in the body of the report as these enhance the likelihood of capturing the attention of readers who 'see' facts or visualise relationships in other ways (Wolcott, 1990:64). These also keep the researchers mindful of exploring alternative forms of representation and presentation by augmenting the tedious flow of words on the printed page (Wolcott, 64). Reference to these materials, however, should be made within the paragraphs or in the text of the report to point out how they substantiate the arguments being presented. Data summaries must serve the purpose at hand and should not be added simply to break up space or create an impression (Wolcott, 1990:66).

Tables and diagrams/charts can be used within the body of the report or presented as an appendix. Where tables are numerous and create a potential distraction (or overwhelm the reader) within the body of the report, it is always best to append these materials even as these are referred to in the discussion of the findings. For this reason, these should be presented in the chronology with which they are discussed in the report. These will also need to be adequately labelled so that they are understood without having to go back to the text (Wolcott, 1990:65). Data summaries should be able to 'speak for themselves' and to stand independently of the text.

Writing the executive summary

Research reports usually begin with a short summary or abstract, the latter being more often of 50-200 words (Berg, 1989:146), used in scholarly journal articles, and contains information on the topic/research problem, key methodological features of the study, and the basic findings. A summary of four or five pages, on the other hand, is referred to as the executive summary and provides more detail than an abstract. Researchers conventionally prepare the executive summary for reports written with social development practitioners and policy makers as audience. In addition to the content areas that are usually reflected in abstracts, these longer summaries include the implications of research and/or major recommendations made in the report. These also usually are self-contained and are sometimes distributed independent of the main report among stakeholders to the study issue.

Executive summaries (and abstracts) serve several functions: For the less interested reader, they tell what is in the report; for readers looking for specific information, they help the reader determine whether the full report contains important information (Neuman, 2000:472). Readers use summaries to screen information and decide whether the entire report should be read. For the serious readers, the executive summary gives a quick mental picture of the report which makes its reading easier and faster.

Preparing the appendices

Appendices are auxiliary materials added at the back of the report and should also be able to 'speak for themselves' (Wolcott, 1990:79). Occasionally referred to as *supplementary materials*, these may include tables, charts, maps and diagrams critical to the text, in addition to other materials which the researcher(s) may wish to make available. If these additional materials are so voluminous and are bound separately, they frequently are labelled as supplement.

Appendices provide the readers with the detailed information on a concern that has been described in the body of the report, and make available illustrative case material or brief case histories that supplement the main text without interrupting the textual account. Some of the usual materials that comprise the appendices are the sample design, data collection and measurement procedures; a copy of the data collection instruments; and maps and tables.

Checklist for Improving Draft Reports

Once the researcher has completed her/his draft report, a review of the entire document is a useful exercise. S/he will need to look out for several things to ensure that s/he has covered everything and has presented the report in a coherent manner. Below is a checklist that s/he can employ in going over the completed draft:

Introduction

- ❒ Does the report state the title of the report, the author and date?
- ❒ Does the report state a brief background and history of the research problem?

Gathering Information

- ❒ Look for any missing information and add it?
- ❒ State the sources of information in the text or include them as an appendix?

Organising information

- ❒ Does the report have clear sections and headings?
- ❒ Are the sections grouped around main points in a logical, chronological or topical order?

Analysing information

- ❒ Is the information summarised around the key points and issues?
- ❒ Is the information grouped and ranked from the most important to the least?
- ❒ Is there information that the reader already knows and could be deleted?
- ❒ Is there information that the reader doesn't know and needs to understand?
- ❒ Are the conclusions based on facts and key informants and not just personal opinions?

Reporting information

- ❒ Does the report answer its key questions or objectives?
- ❒ Does the report state the findings in a coherent or organised form?
- ❒ Does the report give a few personal stories or anecdotes to illustrate key or main points observed in the findings?
- ❒ Does the report state the implications of the findings or what is recommended in the short and long term?
- ❒ Does the report include reliable sources for any key information?

Writing Clearly

- ❒ Do the main ideas emerge clearly from the report? Are they easy to find?
- ❒ Are the sentences easy to read? Are they too long?

- ❒ Does each sentence have a subject, verb and noun?
- ❒ Is the tone and use of language appropriate?
- ❒ Does the report avoid slang words and technical jargon?
- ❒ Are ideas expressed in a balanced way? (not too negative or not too positive?)

Writing Good Paragraphs

- ❒ Does each individual paragraph read as complete in itself?
- ❒ Does each individual paragraph start with a topic sentence that explains what the paragraph is about?
- ❒ Does each paragraph contain only information related to the topic?
- ❒ Does the report use examples or quotes that help the reader to understand?
- ❒ Do the paragraphs in each section link together and are connected to the section heading?

Summaries, Conclusions and Recommendations

- ❒ Is the information summarised to use the fewest words possible, without losing the meaning?
- ❒ Is the conclusion brief, to the point and clear?
- ❒ Does the conclusion refer back to the purpose of the report?
- ❒ Do the summaries and conclusions restate the main points from the report?
- ❒ Are the conclusions and recommendations based on facts?
- ❒ Do the recommendations state specific activities that need to be done?
- ❒ Are the recommendations stated in a direct, but fair way?

Layout and Structure

- ❒ If there was an established format required for the report, was it used?
- ❒ Are the headings numbered, capitalized, or underlined in a consistent way?
- ❒ Is a list of abbreviations and what each of them mean included?
- ❒ Are there annexes and does the report make reference to them in the text?
- ❒ Does the report use some pictures, tables or graphs to help summarise?
- ❒ Are graphs, charts, tables and illustrations titled, captioned, numbered and referenced to in the report?

Final Editing and Proof-Reading Checklist

- ❒ Prepare a list of acronyms and abbreviations
- ❒ Look for any missing words from typing too fast
- ❒ Sentences cannot begin with the word "And" or the word "Because" unless this is a complete sentence with a subject, verb, and noun

- ❒ Sentences cannot begin with a number. Spell them out instead ("Two meetings were held" not "2 meetings were held")
- ❒ Do not leave spaces before periods, commas and question marks
- ❒ Spell check the document
- ❒ Read carefully for words that the spell checker didn't catch (i.e. "fun" for "fund"). Both are English words but the report intends the word fund, not fun.
- ❒ Sometimes Khmer words are spelled two different ways in the same report (e.g. Kampong Speu or Kompong Speau). Choose one and be consistent.
- ❒ Make sure the pages are numbered and that the numbering for the section headings is also consistent
- ❒ Print preview to make sure there are no hanging sentences or section headings at the end of any page
- ❒ Make sure there are no first person possessives such as "I" or "we"

Step Nine

Step Nine: Reflecting on the Research Findings with the Stakeholders

Validating and enabling access to the findings... participatory processes to presenting the findings' key issues... incorporating feedback into the final report...

All too often in the recent past, researchers conducted their studies as well as wrote and published their reports without going back to their informants, leaving the latter in the dark about what happened after the researchers had gathered their data. Increased appreciation for participation and enabling access to information has shifted this mode so that more and more, researchers have gone back and validated their findings with their subjects.

Reflecting on the research findings with its different stakeholders, particularly at the community level, is an important way of confirming that the research has adequately captured and interpreted the study issue or situation. It is also an opportunity for the researcher to clarify concerns about which s/he is less sure (e.g., inconsistencies or paradoxes in the findings), aside from benefiting from feedback from their subjects. As suggested above, a more critical reason for conducting this is to create access to the findings among the primary sources of information who often do not have the luxury of time and money to pursue the outcome of the researcher's data collection activities. More than hearing about the findings and checking its veracity and satisfactory representation (including its conclusions and recommendations), such access can open doors to action taking by the different users of the research.

Participants to the conduct of such reflections can depend on the direct and/or immediate users of the research. Frequently, the researcher's audience can consist of representatives of her/his sample (e.g., families whose members use drugs, those experiencing domestic violence, local authorities and other village key informants, others in the community not affected by the issue, etc), and those who have the resources to make a difference among those affected by the study issue/situation (e.g., NGO field workers, development managers, policy makers). Because both sets of audience necessarily differ in their characteristics in terms of primary interest and information needs, time constraints, language, as well as education and literacy, one's mode of presentation should be accordingly adapted (Narayan, 1996:134). Community members, for instance, will be more likely to appreciate hearing about the findings in an oral presentation with visual displays. Those in the NGOs and policy making sectors, on the other hand, would be more inclined to receiving the executive summary prior to the event albeit could also expect a PowerPoint presentation from the researcher.

The process with which the findings are presented and feedback is solicited is critical to this reflection activity. While this can be a half-day to a full day event and tailored to specific audiences, the activity should be so designed such that those whose voices need to be heard are able to express themselves. And, where participants have the time, this can be made possible by having them engage in small group discussions so that their concerns/views about the findings are aired. The researcher may also invite the participants during these small group work what they see themselves doing to address the study issue/situation and how other solutions can be reached and presented in the research report.

Pictures taken from Chambers, 2002: 139, 150

Having spent time to reflect on the findings with its immediate users, the researcher can now finalise her/his report. The final document should mirror the feedback that has been received – whether these may have been in terms of adjustments in the data or its interpretation, in new insights, or additional recommendations. Researchers should also ensure that their final document is edited, translated into the local language, and subsequently disseminated to their intended end-users.

Step Ten

Step Ten: Disseminate the Findings

Publishing the report: distribution to various libraries... issue briefings... website posting... Presenting the report in appropriate forums...

The final step to doing a small research study is to disseminate the findings. While this may sound similar to the reflection activity that the researcher just did, this step is about making one's findings/research report available to a wider audience with or without the researcher's facilitation or presence. Disseminating one's research report serves several purposes: to advocate for solutions or for a different approach to analysing a social problem or issue, to advance methodological procedures that the researchers have explored, to create awareness on a pressing issue, etc. Social research aims at locating answers to various problems or questions and it is in this regard that dissemination of one's research material assumes importance. Decisions on who should receive the research report are generally determined at the outset of the study, particularly at its design phase.

There is a range of forums by which one's research report is made accessible to others:

- Publication in different media forms: *print* as a 'stand alone' research report or as an article in professional journals; *electronic* as website postings in the home page of the researcher's organisation or in other organisation's Internet page, and/or as films recorded in compact discs (CD) which is particularly useful for more qualitative studies that document critical concerns
- Presentations during professional meetings in the country, within the region or beyond. In Cambodia, some of these meetings include the yearly Socio-Cultural Research Congress of the Royal University of Phnom Penh, the CCC-ADI Issue Briefing Workshops, the Annual Forum of CCC-ADI Past Participants, round table discussions, meetings of various governmental and non-governmental working groups on various development issues, and the less formal forums such as the VBNK-hosted Development Café
- Planning meetings with donors and/or organisations/NGOs who receive support from the same donors (i.e., donor partners' meetings)
- Distribution of the research report to organisations whose mandate fall within the study issue/situation or to other resource organisations that researchers visit for their literature reviews.

With the completion of this final step, the researcher/ vresearch team may want to begin thinking about a next study with the learnings and maturity gained from the previous one(s) being built into the succeeding ones.

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ANNEX

ANNEX 1

ADI Research Studies

(All these studies may be downloaded as PDF files at www.ccc-cambodia.org)

1. Growing Old in the Former Khmer Rouge Stronghold of Pailin, November 2006
2. The Challenge of Living with Disability in Rural Cambodia: A Study of Mobility Impaired People in the Social Setting of Prey Veng District, Prey Veng Province, March 2006
3. Impact of the Garment Industry on Rural Livelihoods: Lessons from Prey Veng Garment Workers and Rural Households, October 2005
4. Domestic Violence in a Rapidly Growing Border Settlement: A Study of Two Villages in Poipet Commune, Banteay Meanchey Province, May 2005
5. Upholding Indigenous Access to Natural Resources in Northeast Cambodia, December 2004
6. Indigenous Response to Depletion in Natural Resources: A Study of Two Stieng Villages in Snoul District Kratie Province, September 2004
7. Understanding Drug Use as a Social Issue: A View from Three Villages on the Outskirts of Battambang Town, April 2004
8. Experiences of Commune Councils in Promoting Participatory Local Governance: Case Studies from Five Communes, March 2004
9. Labour Migration to Thailand and the Thai-Cambodian Border: Recent Trends in Four Villages of Battambang Province, December 2003
10. The Impact of the Tourism Industry in Siem Reap on the People Who live in Angkor Park, December 2002
11. Small-Scale Land Distribution in Cambodia: Lessons from Three Case Studies, November 2001

ANNEX 2

Glossary of Terms

Attribute	a characteristic or quality of something
Closed questions	are those which contain specific response or answer categories that are given or made available to respondents
Coding	the process whereby raw data are transformed into standardised form suitable for computer processing and analysis (Babbie, 1998:G1)
Correlation	is the extent to which two or more things are related to one another and in quantitative research, usually derived to come up with an index called correlation coefficient
Dummy table	is an empty or blank table constructed before data are collected and into which data will be put once they are gathered (Vogt, 1993:75)
Frequency	is the number of times a particular type of event occurs or the number of individuals/households in a given group (e.g., number of families where there is incidence of drug use as grouped according to villages studied).
Frequency distribution	is a way of presenting data that shows the number of cases having each of the attributes of a particular variable (e.g., how many persons under 18 years do not attend formal school, reached lower primary levels of schooling, attended upper primary levels, lower secondary levels, etc.)
Guide questions	a list of questions frequently used for more qualitative interviewing techniques such as focus group discussions, key informant interviews.
Interview schedule	a list of questions and spaces for their answers used by interviewers when questioning respondents (Vogt, 1993:116)
Key informant interviews	are qualitative interviews with a select group of individuals who are in a position to provide the needed information, ideas and insights on a particular issue
Mean	an *average*, computed by summing the values of several observations and dividing by the number of observations.
Open-ended questions	refer to those for which the response patterns/categories are provided by the respondent rather than by the researcher or interviewer; these are alternately known as unstructured or qualitative questions, open-ended questions (Lewis-Beck et al, 2004:768)

Percentage	means a part of something in relation to its whole which is normally taken to mean 100 or 100 per cent. To calculate a percentage, one divides the number of people or things in a group by the total number in that group and multiply by 100 (Feuerstein, 1986:122).
Questionnaire	A group of written questions to which subjects respond, and which may be mailed so that respondents can write their answers to the questions, or administered by interviewers (Vogt, 1993:184)
Reflexivity	refers to the researcher's ability to critically reflect on their own role in the research process, particularly in terms of how s/he brings in a degree of bias into the research situation since they are an active part of the process
Reliability	is about the consistency, dependability, or accuracy of a data collection instrument. This means that the questions within one's data collection tool yield similar and/or consistent responses when administered to different respondents, and provide dependable evidences on an issue being examined.
Sample	a group of subjects selected from a larger group in the hope that studying this smaller group (i.e., the sample) will reveal important things about the larger group (i.e., the population) (Vogt, 1993:200)
Sampling frame	a list of units composing a population from which a sample is selected (Babbie, 1998:G6)
Triangulation	refers to "the use of more than one approach to the investigation of a research question to enhance confidence in the ensuing findings" (Lewis-Beck et al, 2004:1142). These are of several types: *data triangulation*, which entails taking multiple measures of the same issue, event or phenomenon so that the researcher is able to examine its different aspects; *investigator or observer triangulation*, referring to the use of more than one researcher in the field to gather and interpret data; *theoretical triangulation*, or the use of more than one theoretical position in interpreting data; and *methodological triangulation*, signifying the use of more than one method or to mixing methods (e.g., quantitative and qualitative tools) for gathering data.
Unit of analysis	the *what* or the *whom* being studied (Babbie, 1998:G7); in social research, the most typical units of analysis are individuals or households
Validity	is closely linked to reliability, as this is about having a data collection instrument that measures what it is supposed to measure. It embodies appropriateness, meaningfulness and usefulness of the inferences arrived at about the data
Variables	are sets of attributes. For example, gender is a variable and is composed of the attributes *female* and *male* (Babbie, 1998:141)

ANNEX 3

Dimensions of Analysis

Levels and dimensions of analysis

LEVELS/ UNITS OF ANALYSIS[a/]	DIMENSIONS OF ANALYSIS					
	SOCIO - CULTURAL	POLITICAL - LEGAL	ECONOMIC - FINANCIAL	TECHNO -LOGICAL	INFRA-STRUCTURE	PHYSICAL ENVIRONMENT
MACRO						
Cross-national/ regional						
National/ country-wide						
Regional (@ country level)						
MICRO						
Individual						
Household						
Neighborhoods						
Organisation/ association/ groups						
Social action/ practice, etc.						

[a/] A third level, the meso, has also been employed in the analyses of issues/programmes, etc. The meso conventionally focuses on that between the macro and the micro such as regional characteristics or attributes that impact on micro and macro concerns.

The six areas presented in the above table represent six key elements: the physical environment, the social-cultural conditions, the political-legal context, the economic-financial realities, technological circumstances and the existing infrastructure conditions. These are described below:

The physical environment refers to the relevant ecosystem and natural resources available to people. It includes agricultural systems and community based forest or fishing areas. It also covers resources such as trees, plants and mineral resources as well as the accompanying climate and natural disasters, such as drought and floods. Changing land use patterns from farmland to plantations or industrial uses and from rural to urban uses likewise fall under this, but should be viewed in the context of rural/agricultural relations.

The social-cultural conditions include the different types of people with their different characteristics, needs and interests and the specific interactions between them where power and conflict are a normal part. It also includes religious and community organisations with their activities, values, cultural norms and traditions.

The political-legal context refers to national institutions, government departments, ministries, and all the laws and policies that influence the situation.

The economic-financial realities include the livelihood strategies that people use to feed their families. It includes local markets, middlemen, and international prices. Access to knowledge and information related to market demand and supply is important. All relevant economic opportunities, problems and coping strategies should also be listed. Other realities that impact local people such as availability and cost of credit, exchange rates, wages and prices need to be included as well.

The technological circumstances are the tools and methods that people use and have available to them. Changes related to the impact of old and new technologies are areas to examine in this regard.

Existing Infrastructure means just that and includes the presence and conditions of roads, bridges, canals, electricity, phone links etc.

ANNEX 4

Selected Participatory Learning & Action (PLA) Methods[25]

- *Secondary sources* such as files, reports, maps, aerial photographs, satellite imagery, articles and books
- *Semi-structured interviews* This has been regarded as the "core" of good RRA. It can entail having a mental or written checklist, but being open-ended and following upon the unexpected
- *Key informants* inquiring who are the experts and seeking them out, sometimes through participatory social mapping
- *Groups* of various kinds (casual; specialist/focus; deliberately structured; community/neighbourhood). Group interviews and activities are part of many of the methods
- *Participatory mapping and modelling* in which local people use the ground, floor or paper to make social, demographic, health, natural resource (soils, trees and forests, water resources etc), service and opportunity, or farm maps, or construct three-dimensional models of their land
- *Transect walks* walking with or by local people through an area, observing, asking, listening, discussing, identifying different zones, soils, land uses, vegetation, crops, livestock, local and introduced technologies, etc; seeking problems, solutions and opportunities; and mapping and diagramming the zones, resources and findings; general types of transect walk include slope, combing, and loop
- *Time lines and trend and change analysis* chronologies of events, listing major remembered events in a village with approximate dates; people's accounts of the past, of how things close to them have changed, ecological histories, changes in land use and cropping patterns, changes in customs and practices, changes and trends in population, migration, fuels used, education, health, credit and the causes of changes and trends, often in a participatory mode with estimation of relative magnitudes
- *Oral histories and ethno-biographies* oral histories, & local histories (e.g., a crop, an animal, a tree, a pest, a weed)
- *Seasonal calendars* by major season or by month to show seasonal changes such as days and distribution of rain, amount of rain or soil moisture, crops, agricultural labour, non-agricultural labour, diet, food consumption, types of sickness, prices, animal fodder, fuel, migration, income, expenditure, debt, etc.
- *Daily time use analysis* indicating relative amounts of time, degrees of drudgery etc. of activities, sometimes indicating seasonal variations
- *Livelihood analysis* stability, crises and coping, relative income, expenditure, credit and debt, multiple activities, often by month or season

[25] Prepared by Rober E. Mazur, Iowa State University, April 1997

- *Participatory linkage diagramming* of linkages, flows, connections and causality
- *Institutional or "Chapati" or Venn diagramming* identifying individuals and institutions important in and for a community, or within an organisation, and their relationships
- *Well-being and wealth grouping and ranking* identifying groups or rankings of households according to wellbeing or wealth, including those considered poorest or worst off leading to the identification of key indicators of well-being
- *Analysis of difference* especially by gender, social group, wealth/poverty, occupation and age. Identifying differences between groups, including their problems and preferences. This includes contrast comparisons - asking one group why another is different or does something different, and vice versa
- *Matrix scoring and ranking* especially using matrices and seeds to compare through scoring, for example different trees, or soils, or methods of soil and water conservation, or varieties of a crop
- *Key probes* questions which can lead direct to key issues such as - "What do you talk about when you are together?" "What new practices have you or others in this village experimented with in recent years?" "What vegetable, tree, crop, crop variety, type of animal, tool, equipment. . . would you like to try out?" "What do you do when someone's hut or house burns down?"
- *Stories, portraits and case studies* such as a household history and profile, coping with a crisis, how a conflict was or was not resolved

ANNEX 5

Selecting a Sample through a Two-Stage Stratified Sampling Procedure[26]

1. Define the number of interviews per commune (in this instance, the total number desired is 200)

Draw a sample proportional to the population of the beneficiary villages by adding up the target populations in each commune. The 200 interviews for a given province are then distributed among the communes in proportion to the total population of the beneficiary villages in the commune. This sampling procedure is illustrated below in the province of Kampot:

	TARGET POPULATION in VILLAGES BEING COVERED[1]	% OF TOTAL	NUMBER OF INTERVIEWS
Sre Khnong	5320	13%	26
Chres	5688	14%	28
Sre Samrong	4092	10%	20
Chumpou Vorn	7280	18%	36
Sra Anchet	4643	11%	22
Trapaing Raing	6143	15%	30
Sre Cheng	7603	19%	38
TOTAL	**40,769**	**100%**	**200**

[1] Source: Grant application for Kampot Province, October 2002.

2. Narrow down the number of villages into a sample number that is proportional to the number of villages in a commune, keeping in mind that we need only 15 villages for each province. The 15 villages for a given province are then distributed among the communes in proportion to the total number of beneficiary villages in the commune. See example below also from Kampot Province.

   The sample villages can then be selected using the usual procedures for random sampling.

[26] This example is based on the experience of CIDSE's 2003 Baseline Survey.

COMMUNE	TOTAL # OF VILLAGES	% OF TOTAL	# OF SAMPLE VILLAGES
Sre Khnong	6	26%	4
Chres	4	17%	2
Sre Samrong	4	17%	2
Chumpou Vorn	4	17%	2
Sra Anchet	3	13%	2
Trapaing Raing	2	9%	1
Sre Cheng	1	na	1
TOTAL	**24**	**100**	**15 (S=14)**

3. Distribute the calculated number of interviews per commune into the computed number of villages (e.g., 26 interviews in 4 sample villages of Sre Khnong Commune) to reach the desired numbers in the village. We can do this by dividing the 26 interviews in Sre Khnong among the 4 selected villages in proportion to their respective household populations.

SRE KHNONG COMMUNE	TARGET NUMBER OF HOUSEHOLDS IN VILLAGES BEING COVERED[1]	% OF TOTAL	NUMBER OF INTERVIEWS
Sample village 1	131	15%	4
Sample village 2	267	30%	8
Sample village 3	193	22%	6
Sample village 4	299	33%	8
TOTAL	**890**	**100%**	**26**

[1] Figures are hypothetical.

4. Using the total number of households needed in the village, calculate a sampling fraction to permit a systematic random sampling from the aster list of households in the village. Calculation of the intervals between households is as follows:

   SAMPLING INTERVAL = total # of households in the village ÷ # of desired interviews in the village

   Thus, dividing the 131 households in Sample Village 1 with 4 interviews results in an interval of 33 households.

   Sampling will be done with replacement, similar to the 1998 survey. This means that if there is no adult able to participate in the survey in household #p, the interviewer will be asked to go to household #p+1, i.e., the subsequent household listed on the village master list.

ANNEX 6

Selected Materials for Further Reading

Data Analysis for Qualitative Research

Berg, Bruce L. 1989. *Qualitative Research Methods for the Social Sciences*. Boston: Allyn and Bacon.

Mason, Jennifer. 1996. *Qualitative Researching*. London: Sage Publications.

Data Analysis for Quantitative Research

Agresti, Alan and Barbara Finlay. 1986. Statistical Methods for the Social Sciences. Englewood Cliffs, NJ: Prentice Hall, Inc.

Babbie, Earl. 1998. *The Practice of Social Research.* Eighth Edition. Belmont, CA: Wadsworth Publishing Company.

Sproull, Natalie L. 2002. *Handbook of Research Methods: A Guide for Practitioners and Students in the Social Sciences*. London: The Scarecrow Press, Inc.

ANNEX 7

Frequently Asked Questions

(** = most important)

** What is a good process to use for selecting, describing and narrowing a research topic title?

ANSWER:

- Researchers brainstorm and decide on the key words that best describe the study so that the title captures in a few key words what the research is all about

- Researchers consider quotable statements/comments from the interviewees, review and decide on that which suggests what the study is about, and employs a sub-title that indicates the subject of the research

** Is there a recommended content (outline/components) for a problem statement?

ANSWER:

There is no cut and dried outline for a problem statement. In general, this includes:

- Why is the topic considered to be problematic (in effect, the background or the immediate rationale for your study/research)? How and why did the problem emerge? How widespread or serious is the problem? In what ways does the problem impact on the lives of the people with whom you work?

- How does existing knowledge on the problem (i.e., from secondary sources/ literature/previous documentations on the issue) support your argument that it really is a problem? What are the previous studies that have been done on the issue and what do these studies say?

- What key study questions are you posing to help understand and/or address the problem?

How does a problem statement differ from a background, introduction or overview section of a research report?

ANSWER:

- A **problem statement**, as the phrase denotes, is the series of statements that researchers make to describe the issue that will be explored. It can stand on its own (i.e., serve as the introduction), or be part of the introduction or the overview section of the report.

- **Background** provides the rationale or the context for why the researchers are looking into the problem area.

- **Overview –** Webster's New World Dictionary and the Oxford Dictionary of Current English refer to this as a "general survey"- suggesting that it is that section of the report that offers a reader a general appreciation of the issue(s) being focused upon. This means that one also gives the reader a background on the subject matter.

- **Introduction** is the beginning section of the report that orients the reader to what the research report or paper is about – it can offer the macro (i.e., global, national, provincial) picture of the issue under investigation in terms of existing debates on content focus and methodologies. As such, it provides a "situationer" on the larger context of one's research topic. At the same time, however, it can also elaborate on the micro-level rationale of the research topic. Viewed this way, the introduction serves as a background and provides the reader an overview! Other researchers also include a few lines on the methodology of the study, as well as a "road map" of the report – i.e., what are the main topics being covered in the research report and how these are organized. It's not quite the table of contents but it can be one long sentence or 2-3 sentences that tell the reader what to expect from the article.

  Many researchers frequently use introduction, overview, background, and problem statement interchangeably, but there are others who use introduction as the main heading and the overview, background, and problem statement as sub-headings. All four terms attempt to introduce the reader to the subject matter to be studied, the rationale for the study (usually this is the background), and the specific questions to be addressed by the study.

  I think this is an issue of semantics and "splitting hairs". I suggest that you use one of these (e.g., introduction) and cover here everything that (a) will introduce the reader to your topic, (b) why you are doing a research on it, (c) what exactly about the topic you need knowledge/information on [or what are the questions you want to answer], and (d) how the information will be of benefit to the organisation or to your village/organisational partners [i.e., the purpose of your research]. Optional short paragraphs can include how the questions were answered (i.e., the methodology), and the report's "road map".

NGOs are often doing research for a clear purpose such as planning or problem solving. They hope to use the result in a specific way for a specific audience such as senior managers or donors. Should these be listed as objectives or described in a separate purpose section of the report? How do objectives differ from the purpose of the research?

ANSWER:

I think part of the confusion that these words give rise to is the way these are treated or differentiated in the logframe context. As I have used these terms in the context of research (and based on the 'non- academic' and academic research reports I have read over the years), **purpose** would be in the introduction section of the research report particularly in that section/paragraph where one indicates how stakeholders will benefit from the conduct of the study. In other words, the purpose presents how useful the study or research will be for the organisation (e.g., to help define strategies in effectively reaching target groups; to enhance research skills and capacities of workshop participants) or target groups of the organisation.

Research objectives, as I have used it, pertain to the specifics or elements that I would bring out from the research/key study questions. Let me take an example and recall the key questions on the land distribution schemes study:

1. What are the conditions and reasons for implementing a land distribution scheme in a particular area?

2. What are the criteria, processes and decision-making mechanisms used to select, verify and approve eligible persons?

3. What were the conditions required and the methods used to actually transfer the land?

4. What are factors/actors that have contributed to success, problems and/or failure?

5. What are suggestions or recommendations that would make social concessions work or be as successful as possible?

The research objectives I would pose are:

1. to characterize the different beneficiaries of selected land distribution schemes in the country,

2. to describe the processes and mechanisms used to grant land to poor people,

3. to compare and contrast prevailing examples of land distribution in Cambodia, and

4. to identify factors/actors that have contributed to the success, problems and/or failure of the land distribution schemes.

Note that each of the 4 objectives spring from the key study questions (i.e., they are descriptive of the knowledge areas that are inherent to the questions). But because our key study questions were very specific already, then we tended to repeat some of the questions.

The research objectives we establish, therefore, give the reader an idea of how we intend to work with the data (e.g., generate profiles of the interviewees, extract the factors that contribute to strong or weak land distribution schemes), or what we intend to do with the data we would collect as we answer the key questions.

The ***purpose*** then is extrinsic to the research itself. It defines why (and for whom) you are doing the research, while the ***objectives*** specifies the specific knowledge areas you intend to bring out based on your key study questions.

** When we develop our key questions, these often end up looking very similar to the objectives. How to best describe the difference between objectives and key questions?

ANSWER:

I answered this in the previous question. As I noted above, the objectives are the smaller components of the key questions.

** What is a better process for developing key questions? Are these breaking the objectives for the research into smaller component parts?

ANSWER:

In answering the first question, the best process I would still recommend is that of Deepa's (1996) as spelled out in the Workshop I hand-out *Defining the Research Problem Statement/ Key Study Questions*. That is, (a) gather all the stakeholders and hold a brainstorm to define what questions should be addressed by the study, (b) make connections between why you want to do the study and results, etc. I would add that reviewing the literature or secondary sources on what is currently known about the topic will also be useful. Knowledge of the literature also helps in focusing your questions.

On the second question - it's the other way around, as far as how I have learned and done it. You begin by asking the key questions, then break up the questions into smaller parts, as formulated into objectives.

** We currently teach participants to ask what they expect to find out and then compare it afterwards. However, we don't use the more formal words such as hypothesis or assumptions. For small scale research, is this ok? Is there another way to describe this?

ANSWER:

I've done research here and elsewhere that does not necessarily specify the assumptions and hypotheses of the study. So far, there have been no violent reactions from academics and non-academics. I have read research reports in professional journals that also do not necessarily spell out the hypotheses of their study. So, you're on the right track because even as you do not mention hypotheses, you implicitly provide your trainees with that necessary step that allows them to formulate the questions for the data collection instrument. To put it in a matrix form, here's what you are trying to do:

KEY STUDY/ RESEARCH QUESTIONS	WHAT DO YOU EXPECT TO FIND OUT (I.E., HYPOTHESES/ INFORMED GUESSES/ EXPECTED ANSWERS)	EXPECTED ANSWERS AS PRESENTED IN QUESTION FORM IN THE DATA COLLECTION INSTRUMENT

I am not aware of any other way to describe hypotheses formulation without using the term. I sometimes refer to it as 'informed guesses' – i.e., the expected answers are based on some experience the researchers have heard of or read about.

Most ADI participants are not professional researchers and not doing large studies. They just want a short answer to the following question. What is an adequate sample size for most small scale research situations? We say between 10 and 20%. Is that sufficient?

ANSWER:

Defining the sample and sample size for a study, small or large-scale, is not a simplistic issue of establishing a certain percent of people to be interviewed. Here are some considerations:

1. Sampling is an issue of whether your study is quantitative, qualitative, or a combination.

   - If your study is largely quantitative, the sample size becomes a function of the statistical tests that you will administer on your data. One general guideline here is a minimum of 30 respondents/interviewees for the simplest statistical test you will use (i.e., a t-test or a quantitative comparison between 2 groups). Of course, the larger the sample size, the better one is able to approximate the reality of the issue being explored.

   - If your study is qualitative, then you cannot talk about percent of people to be interviewed. You talk about the different dimensions to the issue being explored, i.e., what are the different stories being told about the issue? If you have interviewed 3-5 people and they tell the same story, then you would have reached a so-called "saturation point" on one dimension of the issue you are studying, and you move on to the next dimension that you had pre-defined.

   - If your study is both, then you also combine your approaches. That is, you may get 10-20% but this will depend on how big your 'population' is. If your population is small and you have the money for a few more days of interviewing, then you can do a complete enumeration – that is, interview all possible interviewees. However, if you have a large population – say, 70,000 – then obtaining 10-20% will entail interviewing 7,000-14,000! I am exaggerating this point but what I am trying to say is 10-20 % is still arbitrary.

     Remember that <u>sampling is about representativeness</u>. You are getting a sample to get a representative number of people who are being affected by the issue you are investigating. So, even if you obtain 10-20% and the sample obtained does not really capture the characteristics of the group you are studying, then the purpose of obtaining a sample is still defeated. What might be helpful in terms of determining the size of the sample is considering the points raised in item #2 below.

2. How much time do you have for the research? how many people are available to conduct the research? how much money do you have to implement it?

   On the first question, Nichols (1991) suggests that data collection or field work "should not take up more than 10 – 15% of the time available" for your research. So, for instance, you only have 30 days to do a research, you actually just have 4.5 days for the data collection. This is because prior to this, you will be designing the research. After the data collection, you will have to process the data and write up your findings.

   This number of days that you have for data collection will help determine what is a realistic number you can reach, depending on how many interviewers you have.

Most of the time, scope and limitations sections are quite short because people feel they have already described most of it in the problem statement. We know that studies are limited by time, money and resource (personnel), but what else should be included? People also sometimes start saying exactly how much money was spent or why a particular staff person was unavailable. This is too much, we know.

ANSWER*:*

Other concerns to be included in the scope and limitations are:

- limitations/inadequacies of the researchers in terms of probing for answers, of documenting additional information being generated, of knowledge on the specific issue in order to pose follow up questions
- researchers' lack of skills in data analyses
- problems encountered in the data collection (aside from the unavailability of the interviewees) such as inability of interviewees to respond to questions even as these were pre-tested, perceived evasiveness of the interviewees, expressed or unexpressed threats from those who will be affected by the data gathering. How the researchers solved the problems could also be included.
- deficient data collection instruments
- poor timing of the data collection period
- inconsistencies in the data gathered from the different sources
- researchers' biases, interviewees' biases
- inappropriateness of making generalizations from the findings considering the unique characteristics or conditions of the particular group that had been studied

** We were impressed with your ability to cross check information and triangulate between individual interviews, focus groups and secondary sources. Keeping in mind that we are doing small-scale research, do you have any way to describe how to do this in a simple manner?

ANSWER*:*

Compare/contrast answers from different sources, evaluate information from different sources to see how these support or contradict each other, and find possible explanations for why data may be contradictory. An assumption here, of course, is that one has searched secondary sources in the design stage of the research and has made notes of what is relevant so that in the process of analyzing and writing up the data, s/he can bring in the perspective that the secondary sources offer.

Please review and help sharpen our recommended report outline on page 85 in the Ten Steps book. We want to introduce it from the very beginning of the research process. What should we add, delete or change the order of? We purposely do not include some items such as executive summary and acknowledgment sections as these are only for larger studies.

ANSWER:

Here's how I would re-organize the outline:

Title Page

Title, author, author's organisation, date

Introduction

Problem statement: background and history of the problem, unit of analysis
Purpose of the research study
Key study questions to be addressed
Research objectives

Methodology

Description of study site, village(s)/population from which sample will be derived, sample size
Types of data collected and sources of information
Process and methods used to collect and classify data
Process and techniques used to analyze data
Scope and limitations of the study/problems encountered

Findings or Results

Main findings grouped by topic/category (i.e., descriptive findings)
Discussion (interpretation)/analysis of findings: connections between the descriptive findings, root causes/explanations, key issues identified

Conclusion & Recommendations

Brief summary of the research findings
Evaluative statements/summary of informed judgments concerning the findings (including how the research findings contributes to knowledge that will be built upon by the stakeholders)
Recommendations (selected/feasible solutions, including how others such as the government, other NGOs could help)

Appendices

Definition of terms (or you may choose to include this in the methodology section)
Tables, charts (if there are too many and including them in the text tends to be distract rather than to help)
Survey instruments
Participants to the research/list of researchers
List of acronyms (or you may choose to include this in a page just before the introduction)

** We currently state that you should throw out bad questionnaires or questions, but would like to develop a more formal checklist for how to clean data. Please help.

ANSWER:

Some guidelines are:

- While in the field, researchers should check at the end of each day the responses they generated in the questionnaire or data collection instrument. This way, there could still be an opportunity to go back and gather or validate the needed information. Ideally, the review of the responses to the question will take place during the end-of-the-day reflection of the team on how the information gathering went.
- Alternatively, have one member of the team (or, do it by rotation) review the questionnaires/interview instruments so that data cleaning (i.e., clarification of unclear information, detection of missing data) already occurs.
- Back in the researchers' office and they are cleaning the data, they may ask themselves: What percent of the questionnaires yield non-responses or irrelevant responses to one or more questions? If almost all were unable to give answers to one or several questions, throw out that question (and the data) BUT indicate this in your data limitations as poor wording of questions (if this is a reason for the non-response or irrelevant response).
- If there are only a few questionnaires that have missing data on some questions, use the data from the other respondents. Having several questionnaires with missing data on some questions is not a reason to throw out the completed questionnaire/ interview instrument.
- If indeed there are 'completed' questionnaires that mostly have irrelevant information, review these questionnaires anyway in case there are responses that will be useful to the data analysis.
- Cleaning data also involves the editing process. This really means converting all quantitative information into comparable units. For instance, if size of land has been given in "aah" as the unit of measurement, establish the appropriate conversion (i.e., into square meters or hectares) that the researchers could use uniformly.

** People are good at describing statistics... all of them! How can we help them to select the most important ones and describe those most significant? How to look for high/ low numbers? For example, is 20% good or bad? We know that it all depends on many factors and that you should compare them to other known average situations and that even a small number can be very significant. Any additional clarity on how to help them scan the processed data for main points would be helpful.

ANSWER:

The presentation and discussion of findings should really focus on the "hypotheses" of the study. That is, the low/high numbers discussed should be picked out from a table or chart because one wants to point out how these numbers contribute to understanding the hypotheses or to confirming or negating these. This is really why even the smallest numbers can be very important because these can indicate or depict an existing pattern.

In the continuing paragraph on page 22 of our study on land distribution schemes, for instance, note that we cite claims of only 2 household interviewees to lend support to the point we are raising on the lack of guarantees of land transfer certificates. Thus, the discussion of findings should be focused on the argument being made such that even the smallest numbers can become very useful.

According to Shah (1972:44), "the objective of analyzing the data, presenting them in a tabular or graphic form, and discussing the findings is to summarize the data in such a manner that they yield answers to the research/key study questions". I agree with this statement because the presentation of findings really requires a direction. If researchers are not guided by their hypotheses and key study questions in laying out their findings, then there really can be a tendency to cite all the numbers, and the researchers lose the opportunity to argue for or against their hypotheses.

Shah (1972:7) also offers 2 guide questions in presenting the findings: what did we learn? how do our findings relate to the key study questions we asked in the first place?

** We force the participants to separate findings from analysis because often, their analysis would not be based on the findings at all. They would collect data, read it and write their opinion of what was wrong with the project, and not even include the findings. However, we currently see a lot of redundancy between the two sections. We love the matrix you provided on developing implications. How should we integrate it for round seven in light of the current Ten Steps book? Later, when we do a full revision of the book, we can restructure the entire chapter, but for now, what are your ideas to best teach it for this next course?

ANSWER:

Developing implications is actually a discussion or section that will be between Step 5 (Identify the Root Causes and Key Issues and Write your Analysis) and Step 6 (Generate Solutions that Will Address Root Causes and Key Issues). Step 5 in the matrix we used during the workshop is really the column on "What is the Explanation" since finding explanations involves looking for the root causes and key issues. So, take Step 5 one further step prior to generating solutions, and have the course participants reflect more on the explanations they have identified in order to draw out the implications.

** What is the difference between conclusion and summary of a small research report? Some say that these are redundant with the recommendations. Others say it should come before the recommendations, others at the end of the report. Your opinion?

ANSWER:

- The format I have followed in almost all the research I have done is to include a brief summary at the beginning of the conclusion to help the reader recall what the study sought to accomplish and did accomplish. I have found this useful because some people (including me, sometimes), go to the conclusion right away. Preparing the summary helps them see the context of the conclusion, and decide whether or not the body of the report is worth reading.

- Nichols (1991:106) notes and I concur, that the conclusion, however, "is more than just a summary of findings – it is a point of view or opinion based on the research findings (my underscore)". In effect, this section presents the judgments you reached about the issue or situation you studied, as informed by the data that have been collected. It also includes statements concerning:
    - the consistency/inconsistency of your findings with what you initially thought would be the results or outcomes of the study (i.e., your hypothesis), and brief explanations for said consistencies/inconsistencies
    - the issues that emerged from your data analysis (which can then be addressed in your recommendations)
- The conclusion section also includes the recommendations, which should flow from your final statements regarding your findings.

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SUBJECT INDEX

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