PARTICIPATION IN THE 80's AND 90's:

WHO ASKS THE QUESTIONS IN

LIVESTOCK DEVELOPMENT?

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A dissertation submitted in partial fulfilment
of the requirements of the
Master of Science Degree
in Tropical Animal Production and Health.

Centre for Tropical Veterinary Medicine
University of Edinburgh
1991

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CHAPTER 1 INTRODUCTION

1.1 Background

It is a truism that small farmers in developing countries are normally very good at creating a sustainable livelihood out of their local resources, employing a combination of skills and traditions adapted to their surroundings (Conway 1987). Problems of development often arise when such farmers are subject to external political influence, the provision of new and expanded resources, rapidly introduced new and sophisticated technologies, which are foreign to their local environment and outside of their indigenous knowledge.

It can be argued that farmers whose traditions are being disrupted by such change should be left to their own devices and allowed to develop at their own pace, even if that means living in what Westerners perceive as grinding poverty, disease and malnutrition. However with the world becoming smaller due to growing populations, mass communications, trans-national companies and greater world-wide trade, change and `development' is inevitable.

The challenge in rural development is to make the interventions and introductions of innovations for change, in a way that not only raises production, but increases sustainability, both economic and ecologically, and fits with the farmers' desires and culture.

Projects are the cutting edge of development and projects with the aims of increasing production and sustainability are not new, but there are, for many observers too few success stories. According to Gittenger (1982), the most difficult problem in successfully implementing projects is poor project analysis due to inadequate or inappropriate information.

To find out about rural poverty factors, many outsiders[1] use questionnaire surveys. These provide data for planners, statisticians and economists, but minimise the rural contact required of the professionals who use them. Questionnaire surveys often take more time and resources than estimated at outset, limit researcher's wider activities, and generate misleading data and unread reports (Chambers, 1983b). Some bad questionnaire surveys make rural people appear ignorant when they are not (Campbell and Stone, 1979). Other sorts of surveys, involving careful measurements and not limited to questionnaires, have much to contribute, especially when social, medical and natural scientists combine.

Social anthropologists who practice total immersion in their villages learn much in depth, but are often unable or unwilling to communicate their knowledge (Chambers, 1983b). Rhoades and Rhoades (1980) state that, though powerful, anthropologist's survey tools[1] remain academic and largely un-adapted to the needs of applied researchers and project implementers.

[1] 'Outsiders' describes all individuals or groups who are not long-term members of the community.

[1] A social science tool is a mechanism used to collect information either by observation or participation. A technique refers to a tool which narrows the data field by focusing on a particular set of behaviours e.g. interview probe. An instrument usually refers to greater specificity in the procedures of a tool. The term `method' is sometimes interchangeable with tool, technique and instrument. (Marcucci, 1990).

1.2 Objectives

This dissertation takes an overview of rural development and within that overview specific reference is made to livestock development projects. The concept of local people actively participating in their development is discussed in relation to new methods of promoting, such `participation', the interaction of outsiders with locals and of information gathering.

1.2.1 Information gathering, farming systems research and rapid rural appraisal

The first objective is to review the methods of information gathering used in agricultural development projects over the past thirty years. This is done from an historical perspective.

In the early 1970's, when the lack of success of development projects was being analysed (Kearl, 1976), there was a call for a shift in development strategy. Criticism that new agricultural technology was frequently irrelevant to small farmers led to the emergence of the Farming Systems Research (FSR) approach in the late 1970's (Sutherland, 1987). FSR attempted to bring together multi-disciplinary teams to carry through the research process and thereby offer the farmer a more appropriate message and package through extension. According to Rhoades (1985), the euphoria among international development agencies for FSR has unfortunately grown more rapidly than the appropriateness of its methods. FSR was probably an improvement upon the research and development techniques which preceded it and there are many examples of its successful application e.g. realisation that mixed cropping was more productive than mono-cropping, and the subsequent research with it, for subsistence farming (Belshaw, 1979). The dissertation identifies and discusses the problems of FSR. These are seen to centre around the survey and questionnaire methods used during the initial descriptive phase of FSR.

Problems with FSR data-gathering methods have to a certain extent been partially solved via the development of more qualitative and rapid appraisal tools. Such tools came into use in the early 1980's and are collectively known as Rapid Rural Appraisal (RRA). The nature of RRA is discussed, Chambers (1983b) describes RRA tools as more eclectic, inventive, adaptable, open to unexpected information, and capable of allowing timely analysis and reporting.

1.2.2 Participation

The term `participation' commonly appears in documents discussing development, in project proposals and requests for funding. The second objective of this dissertation is to explain the nature of the concept "participation". To hypothesize about the likely benefits of increasing the level of active participation by local people at all stages of development project execution.

The discussion proposes that the most important process in the organisation of any development project is the encouragement of the active participation of the local people. Without this participation it is not possible to determine what the problems, conflicts, constraints, aspirations, local desires, and various cultural particulars are! It is argued that it is fundamental for development projects to take such matters into consideration.

Participation though is not without its critics and problems brought up with regard to participation are discussed.

1.2.3 Participatory methods and their use in livestock development projects

The third objective of the dissertation is to review the various analytical and explanatory tools available for promoting and encouraging participation. Such tools have been used in anthropological studies for many years but are still relatively new to livestock development. It is possible that such tools have a role in solving some of the problems still existing in FSR and RRA.

There are a few reports of the use of these tools in livestock projects, particularly those projects working with pastoralists. The use of such tools are appraised with the help of the case studies presented, and if possible recommendations may be made as to which are most suitable for use in livestock project appraisals.

Indigenous Technical knowledge is found within every defined community and its relationship with customary and social values, is increasingly acknowledged. Participatory rapid appraisal tools play an important role in developing indigenous knowledge and using it as a foundation from which to build more productive, sustainable and stable rural communities.

Several authors account for the lack of success of livestock development projects as due to the greater complexity of livestock farming systems and the secondary role livestock may play to agronomy in many systems (Bernsten *et al.*, 1983; Taylor-Powell and von Kaufmann, 1986; Kujawa and Oxley, 1986). Therefore in reviewing participatory rapid appraisal tools mention is made of this view and the ability of participatory tools to overcome such problems discussed.

CHAPTER 2 FARMING SYSTEMS RESEARCH

2.1 The Evolution of Farming Systems Research

In the early 1970's the green revolution in India was considered a success because it had increased yields of wheat and rice over large areas. However it soon became apparent that `green revolutions' in other areas, crops and livestock were not occurring. Many innovations proposed by agricultural research were not being adopted by farmers. Upon evaluation it was concluded that the reason for non-adoption was that generally the innovations were unsuitable for the local agro-climatic and socio-economic circumstances. The adoption of the methods of temperate farm-management economics to tropical small farm production systems revealed that the small farmers were economically rational but severely constrained by uncertain new production environments and shortage of cash. They were ready enough, however, to adopt innovations they themselves perceived to be economically attractive. The doctrine grew that research should be determined by explicit farmers' needs rather than by the preconceptions of researchers (Simmonds, 1985). This new doctrine was to develop into farming systems research (FSR). FSR stressed the interdependence of the disciplines from biological, environmental, social and economic elements of agricultural production.

2.2 What is Farming Systems Research?

FSR is primarily a diagnostic tool, providing a better understanding of the strengths and weaknesses of existing production systems, which multi-disciplinary specialists can use to design packages of improved agricultural inputs (Richards, 1986). The packages aim to be farmer-centred, holistic, on-farm, iterative and continuous (Maxwell, 1986).

FSR was aimed at the poorer farmers who had failed to benefit from agricultural development projects which previously favoured innovative farmers. FSR was an improvement upon the existing research and development procedures, and its successes are well catalogued (Simmonds, 1985).FSR has a basic methodology or "tool kit" that consists of four phases, as outlined in Figure 1.

The descriptive phase [(1) figure 1] has four steps:

1. To determine the research target or recommendation domain[1]. This is usually done by reconnaissance and observation;

2. An exploratory survey determines what questions should be asked to assess baseline data and knowledge, and how they should be asked, to prevent miscommunication;

3. The design and implementation of a survey questionnaire, or an interview schedule;

[1] The recommendation domain is the farming system narrowly enough defined that any recommendations that arise from On Farm Research (OFR) work may reasonably be expected to apply to all the constituent farms of the domain.

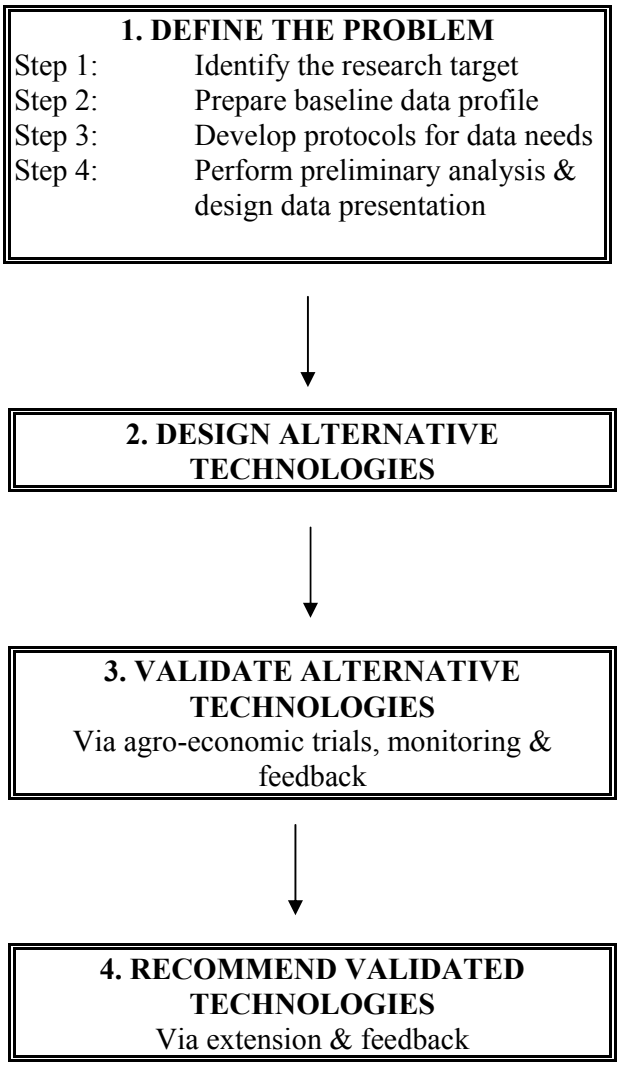

Figure 1
Phases of Farming Systems Research (adapted from Simmonds, 1985)

4. To perform a preliminary analysis of data and design data presentation that follows conventional protocols of farm economics (Simmonds 1985).

These four steps are typical of early Farming Systems Research. This rigid schedule of questionnaire design and data presentation was eventually recognised as one of the main short comings of FSR.

2.3 Problems with Farming Systems Research

Harwood (1982) noted of FSR:

> *"Once a target has been selected, the systems survey and description begins. This is not only the most crucial phase but the one least successfully accomplished in most systems research. Unfortunately, the systems are so complex and so variable that precise enumeration is extremely difficult if not impossible".*

This view is particularly relevant to farming systems which contain livestock because of their unique problems and constraints[1] for which many crop research methodologies prove inadequate (Kujawa and Oxley, 1986).

One glaring problem of the descriptive phase of FSR (that Harwood (1982) cites as the most important) is that it consists of researchers' descriptions and not the farmers' own perceived way of doing things i.e. it is "top down" and not "bottom up". This top-down bias is considered a serious flaw in any rural development strategy by many authors (Chambers *et al.*, 1989, Farrington and Martin, 1988, Bunch, 1987, Bernsten *et al.*, 1983).

Rarely is the research designed to respond to producer needs, and most research agenda are set by scientists, research institutions, national governments, or donor agencies rather than the producers themselves" (Okali and Knipscheer, 1985).

Biggs and Gibbon (1986) and Chambers and Jiggins (1986) state that FSR projects tend to be run rather autocratically from the top because many researchers and extension staff find it difficult to relate to poor rural people. Biggs and Farrington (1990a) go on to state that FSR rarely recognises the contributions of farmers and is geared toward the number of journal articles published rather than the number of practical innovations adopted by farmers.

Other problems associated with FSR are that:

1. There is a misguided adherence to the formal stages of the system. People become obsessed with the detailed defining of client groups and demarcation of responsibilities (Biggs *et al.,* 1986).

2. There is antagonism between proponents of different sets of methods and manuals instead of fostering of linkages between poor farmers, extension workers, and senior scientists (Biggs *et al.,* 1986).

3. Many FSR projects are dominated by expatriates or outsiders to the career structure and workings of the local research and extension system (Collinson,1982; Biggs, 1984).

4. Methods and analytical tools used were designed for commercial production and not subsistence or semi-subsistence peasant communities (Rhoades, 1985). Richards (1986) makes the point that FSR tries to construct "free-standing agro-ecological models" rather than interpret the reasons why the model is as it is and how its likely to

[1] These are discussed in Chapter 6.

change.

5. FSR often fails to address the question of whether the classification of the recommendation domain is stable[1]. Consequently by the time the phases of the FSR have been completed the "target" has moved on (Maxwell, 1986).

2.4 Solutions to FSR Limitations

The authors of articles highlighting the problems of FSR tend to agree that the solutions should revolve around:

1. Greater participation of farmers while maintaining an economy of time and cost;
2. Improved information gathering (Harwood, 1982).

Some of the following quotations illustrate this point:

> *"FSR has focused on technology-related and area-based projects when its most enduring impact could have been achieved by discovering with local researchers the culturally, institutionally and environmentally adapted approaches to research and dissemination"* (Biggs and Farrington, 1990b).

> *"FSR needs to be re-orientated towards an analysis of the `social knowledge system' if it is to improve the effectiveness of its inputs to agricultural research and development"* (Richards, 1986).

Maxwell (1986) suggests improved data collection through questions such as `was it always like this?' `will it always be like this?' and to focus not just on the farming systems but the characteristics of areas and villages and the influences that act upon them.

To conclude, it can be seen that projects which have socio-economic applications (that, to a greater or lesser extent includes all livestock projects) require systematic, flexible, and timely data collection. Developing social science tools that help FSR to gather appropriate data is now a widely recognised priority. Marcucci (1990) claims that conveying the `ways and means' of social science tools, remains fairly obscure to non-social scientists and is implicitly known, but seldom discussed, among social scientists. Marcucci (1990) goes on to describe the terminology and methods used in social science for the benefit of non-social scientists.

Various `tool kits' of social science tools for information gathering are now being developed. They are grouped under several headings and are discussed in chapters 5 and 6.

The immediate needs for rapid appraisal or data gathering have though been partly eased by the development of the Rapid Rural Appraisal tool kit.

The concept of a "Rapid Appraisal" tool kit providing systematic, flexible, and timely data

[1] Maxwell (1986) describes the four types of change that may occur with time and provides examples of changes that commonly occur with various determinants.

collection, was first presented at a workshop at the Institute of Development Studies, University of Sussex in October 1978. This concept is discussed in chapter 3.

CHAPTER 3 RAPID RURAL APPRAISAL

Beebe (1987) defines rapid appraisal as:

> *"Any systemic activity designed to draw inferences, conclusions, hypotheses, or `assessments', which includes the acquisition of new information, in a limited period of time".*

Research methods meeting the above definition are called by a number of names such as "Sondeo" (Hildebrand, 1982), "Rapid Rural Appraisal" (Chambers, 1983a), "Informal Agricultural Survey" (Rhoades, 1982), "Rapid Reconnaissance" (Honadle, 1979), "Informal Methods" and "Reconnaissance Survey" (Shaner *et al.*, 1982) and "Exploratory Survey" (Collinson, 1981). Following the major conference at Khon Kaen University in 1987[1], Rapid Rural Appraisal (RRA) now appears to be the universal term for this tool kit. Molnar (1989) though has produced the latest "state-of-the-art" review of rapid appraisal tools. Molnar notes that there are few critical evaluations of the methodological underpinnings of the different tools used in RRAs, and that writers of RRA methodology are generally social scientists who assume emerging methodological quandaries will be solved by common sense or basic principles of sound data collection. There are as yet few guide-lines regarding the minimum levels of training required to use the different parts of the tool kit properly. Molnar (1989) summarises the several quandaries emerging from the various applications and the solutions available to those wishing to select practical tools for use. This dissertation will draw upon some of his material in chapter 6 on participatory rapid appraisal tools.

3.1 Rapid Rural Appraisal Tools

The basic set of tools in the RRA kit are as follows (Khon Kaen University, 1987):

1. Interview and question-design techniques for individual, household, and key informant interviews;
2. Methods of cross-checking information from different sources[1];
3. Sampling techniques that can be adapted to a particular objective;
4. Methods of obtaining quantitative data in a short time frame;
5. Group interview techniques, including focus-group inter-viewing[1];
6. Methods of direct observation at site level;
7. Use of secondary data sources.

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[1] At this conference Beebe (1987) presented a paper describing in detail the issues surrounding the concept of RRA.

[1] For example information gathered in a "key informant" interview may be later checked by debate within a group meeting.

[1] This is where group interview focuses on a particular section of the community.

RRAs are generally carried out by multi-disciplinary teams. The data-gathering process is cross-checked by having research members rotate among different teams. After the initial period of data-gathering, the information is formulated as secondary data into maps, diagrams, and sketches. This secondary data provides a framework for further data collection and formulation of hypotheses.

3.2 The Potential Problems of RRA

Beebe (1987) provides a comprehensive study of the possible short comings of RRAs. The main points include:

1. Over reliance on the initial findings; Price (1982) suggests that the final conclusion will usually be at odds with the initial appraisal since guesses are usually wrong!;

2. Too much focus on the RRA as an end in itself;

3. Insufficient time and planning resulting in development tourism[1];

4. Too much attention spent on observed things and not enough on the relationships and how things change with time e.g. seeing indebtedness but not the relationship of interest rates and wages.

5. That the quality of the RRA is highly dependent upon the expertise of the individuals carrying out that exercise (Molnar, 1998).

All the above problems are particularly relevant to livestock farming systems. The participatory rapid appraisal tools discussed in chapter 6 help solve many of the RRA problems mentioned above, as well as provide the additional benefits of increased participation, mentioned in the next chapter.

[1] Development tourism includes (1) roadside bias although it is known that poorer people are often out of sight of the roadside; (2) project bias since only places with projects are visited; (3) bias of personal contact since those met by rural tourists tend to be part of the elite, powerful, service users, `those who have not died' sections of the community; (4) dry season bias since most travel occurs during the relatively comfortable post-harvest dry season; (5) bias of politeness and protocol since courtesy and convention may deter rural tourists from enquiring about and meeting the poor people (Chambers, 1983)

CHAPTER 4 THE CONCEPT OF PARTICIPATION

4.1 The Conception of Participation

The concept of "participation" and the problems with the lack of "participation" in rural development began to reach the official reports of the major development bodies in the mid 1970's. The UN's Economic and Social Council recommended that governments should:

> *"Adopt popular participation as a basic policy measure in national development strategy" and should "encourage the widest possible active participation of all individuals and national non-government organizations, such as trade unions, youth and women's organisations, in the development process in setting goals, formulating policies and implementing plans"* (United Nations 1975)[1].

The International Labour Office (1977) stated:

> *"Participation is by itself a basic need of people and must be included as a critical consideration in any development strategy"*.

In spite of such statements Uphoff and Cohen (1980) noted that there was a danger, due to lack of consensus of what development participation was, of the term becoming drained of substance and its relevance to development programmes becoming disputable. Fortunately this does not appear to have occurred and the last 15 years have seen an orderly development of what is meant by participation, its justification and the methodologies that encourage it.

4.1.1 Interpreting participation

Participation defies a single definition. It is really an umbrella term or *rubric* under which a number of clearly definable elements may be assembled. The term though has been used more and more frequently since the late 1970's to the extent where its inclusion is almost obligatory in any development strategy.

Oakley (1991) points out that many projects seek to promote participation without being aware at the start of the project as to the likely nature of that participation. This promotes firstly: the idea of participation being just another input to be programmed and managed, secondly: the level of any participation occurring is difficult to assess, and thirdly: projects neglect to select the appropriate methodologies required to promote participation.

There are a number of ways of interpreting participation. Cohen and Uphoff's (1980) state of the art review has been particularly influential in the way it related participation to development projects and suggested the four key stages in this process:

> *"Participation includes people's involvement in the decision-making processes, in implementing programmes, sharing in the benefits of development programmes and their involvement in the efforts to evaluate such programmes."*

[1] Similar statements were made by the World Bank (1975) and the Overseas Development Administration (1975)

Another view of participation is indicated in the following quotation:

> *"Participation is considered a voluntary contribution by the people in one or another of the public programmes supposed to contribute to national development, but the people are not expected to take part in shaping the programme or criticising it's contents"* (Economic Commission for Latin America, 1973).

Such a view implies that participation is merely a means to an end, where the achievement of predetermined targets is more important than the participation of the people expected to be involved in the project.

Paul's (1987) interpretation of participation suggests an ideal whereby participation becomes more of an end rather than a means:

> "*Community participation* [is] *an active process by which beneficiary or client groups influence the direction and execution of a development project with a view to enhancing their well-being in terms of income, personal growth, self-reliance and other values they cherish."*

This statement ties in very closely with Cohen and Uphoff's (1980) definition of participation with regard to rural development[1].

Oakley (1991) argues that there are three broad interpretations of participation:

1. Participation as contribution: this is the dominant view of participation in development projects in the Third World and implies voluntary or other forms of contributions by rural people to predetermined programs and projects. Such participation is often considered fundamental to success.

2. Participation as organisation: this view describes participation which seeks to encourage rural people to determine the nature and structure of their own organisation, even if it means the emergence of formal organisations such as cooperatives. Oakley (1991) notes that the urge within development workers to suggest and structure appropriate organisations is at times uncontrollable!

3. Participation as empowerment: this is participation that results in the development of skills and abilities which enable rural people to manage better, negotiate more effectively with development delivery systems and take actions they think necessary for their development.

It is extremely unlikely that a development project could contain all three of these interpretations. But a recognisable distinction could be drawn between participation as contribution on the one hand, and participation as organisation and empowerment on the other.

Participatory surveys can be carried out to determine which form of participation might suit a

[1] "The term participation denotes the involvement of a significant number of persons in situations or actions which enhance their well-being e.g. their income, security or self-esteem".

given population/situation.

> *"The degree of participation desired must be made clear at the outset* [of the project] *and in a way acceptable to all parties"* (Uphoff 1985).

Most development literature assumes that participation as empowerment is immediately the ideal. Though this may be laudable from a western liberal point of view, it does not necessarily mean that the development organisation will be either practical or successful. Before participation is adopted as recommended by the United Nations in 1975, it's role in development must be justified.

4.2 Justifying Participation

> *"We trained hard - but it seemed that every time we were beginning to form up into teams we would be reorganised. I was to learn later in life that we tend to meet any new situation by reorganising, and a wonderful method it can be for creating the illusion of progress while producing confusion, inefficiency, and demoralisation"* (Petronius, Roman Courtier. 600 A.D., from Johnston and Clark, 1982).

4.2.1 Failures of contemporary development organisation

It is through analysis of the many failures of contemporary development organisation, that the need and the importance of participation during the appraisal of projects can be justified. Johnston and Clark (1982) in their book "Redesigning Rural Development" assert that the four most serious and ubiquitous failures of development projects are:

1. Failures of implementation due to poor coordination, limited technical knowledge or resources, and policy makers failing to mobilise the political support necessary to guide their initiative through the maze of competing and conflicting interests which may prevent implementation. Implementation failures may surface as un-funded projects or unspent allocations;

2. An inability to channel benefits to the poorest members of society rather than those who are already relatively well off (i.e. the local elites);

3. They seldom increase the problem solving capacity of the rural poor (development is done **to** the poor or **for** the poor)

4. An inability to sustain a long-term perspective in their problem-solving activities.

Uphoff and Esman (1974) noted of their studies of rural development in Asia:

"Those cases in which there was more organisation reaching down to the local level, accountable to the people, and involved with rural development functions... have accomplished rural development objectives more successfully... than have those with less rural organisation".

4.2.2. Justifying participation at the appraisal stage

Johnston and Clark (1982) devote a chapter of their book to expanding upon Uphoff and Esman's (1974) view, by suggesting practical guide-lines for the design of more effective organisation policies. Participatory surveys play a vital role in such policy development.

Johnston and Clark (1982) state that participation in any of it's three interpretations is important for productive, sustained, stable, and equitable development. The more actively committed the participation is the more likelihood there is of success.

To encourage that participation, policy or projects must be based upon intimate knowledge of local conditions obtained by first hand, village level assessments[1]. Such assessments must seek to discover:

1. What benefits of organisation are desired by the rural poor[1];
2. What sorts of potential social conflict exist within the community;
3. What techniques and experience relevant to reorganisation are available;

Knowledge of these factors as they pertain at a particular place and time should help substantially in identifying the important initial interventions most likely to lead to a sequence of reorganisation programmes which actually benefit the poor. It seems best to start with:

1. An intensely desired benefit which can be shared with (or is not desired by) the elite[1];
2. A combination of membership criteria and organisational functions which assures reasonable harmony of objectives among participants;
3. A commitment to extremely simple techniques of calculation and control. It is unwise to pressure small informal groups to include more members or more functions until they evolve confidence and experience.

The above advice is reiterated and backed up by a number of authors. Sutherland (1987) and De Walt (1985) state that socio-cultural parameters which have a critical influence on small farmer decision making are still largely neglected and that an understanding of these factors

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[1] One of the few World Bank projects, the Eastern Senegal Livestock Projects which carried out a socio-environmental survey prior to plan formation revealed a formidable list of social and administrative obstacles to project success and are described by Korten (1985).

[1]The rural poor will only invest active participation in organisation that offers highly desirable and tangible benefits, sufficient enough to overcome the bonds and habits of traditional organisation, and not otherwise obtainable at similar cost, time, and risk (Hunter, 1971).

[1]Johnston and Clark (1982) suggest four different strategies for preventing local organisation from being manipulated to the benefit of the relatively well-off local elite. All these strategies rely upon a detailed knowledge of local circumstances. Refer to **Appendix 1** for further details.

is necessary if effective improvement of the development system is to occur. Sutherland (1987) goes further:

"More participatory anthropological techniques are required because it is difficult to obtain accurate details of income, investment and ownership using rapid appraisal techniques or formal survey methods".

Kottak (1985) cites the excellent illustration of Papua New Guinea's Livestock Programme which was a:

"Socially insensitive development strategy that justified change in terms of abstract goals rather than locally perceived needs".

The introduction of cattle to the Papua New Guinea farming system was a complete failure and unfortunately little seems to have been learnt from the experience by the current political powers and developers *(pers. exp.)*. Kottak goes on to give 12 examples of similar failures with livestock projects; the point he makes is:

"That livestock projects need concrete people orientated objectives, culturally attuned technologies and social implementation strategies that count on the people's ability to perceive the problems to be solved".

Farrington and Martin (1988) surmise that farmer participation in problem identification allows easier implementation and has a substantial cost-effectiveness advantage over existing methods. They go on to suggest that the development of anthropological methods which are not time consuming, in order to identify homogeneous groups and to articulate those groups' needs deserves more attention and offer considerable potential.

The interest in and importance of discovering what Indigenous Technical Knowledge (ITK) exists within societies is also growing. Oakley (1991) reveals:

"Rural people are not ignorant, idle or apathetic, as they are often made out to be but, on the contrary, are resourceful, knowledgeable, and hard working... and emphasis has started to be placed on indigenous knowledge, skills and practices as vital contributions to development".

Farrington and Martin (1988) relate that it is important to discover and strengthen indigenous knowledge systems so that their capacity to classify, evaluate and, to some extent predict the outcome of innovations in the local environment can be used. Participatory surveys are essential to the discovery of ITK, and through the mixing of indigenous and conventional science-based knowledge progress may be made in invigorating technical solutions to new or old problems[1].

"The development of ITK is essential to empowerment in a wider context" (McCall, 1987).

[1] Scott and Gormley (1980) report on how confidence and control over the environment was enhanced by a livestock project incorporating traditional ways of sharing and exchanging cattle among pastoralists in Upper Volta.

4.3 The Problems of Participation

This section could not be complete without a critique of participation and so some of the voices of warning are listed below. However they may be external to the issue of this section which is to demonstrate how important participation in information gathering is, as opposed to the wider theory of participation.

4.3.1 Participation is a culture-bound concept

As far as participation as organisation and empowerment are concerned, participation could be seen as a tool of western-style democracy and reflects a western value of individuality. It might be interpreted as imperious disrespect for non-egalitarian societies, where the culture places greater value on the opinions of some and not others, such as `kin-ship', `patronage' and `caste' (non-individualistic) cultures.

Aronson (1985) describes in detail the Niger Range and Livestock Project, which attempted participation in the organisational sense. He concludes:

"Involving local people in decision making is easier said than done, as the Niger Range and Livestock Project demonstrates. `Needs' must be defined; ideas which match project capabilities must be sorted out; information must be gathered that is deemed secular and operable; barriers to communication must be anticipated; costs of dealing openly with all comers must be calculated; conflicting government and beneficiary interests must be mediated. There is no solving of all the problems that arise, participatory strategies may indeed raise new ones as they address others".

Aronson (1985) and Brewster (1967) make the valid point that participation is not always suitable or easy. Planners would be well advised to analyse the characteristics or social laws of societies well-suited to the concept. Discovering such social laws and taboos may well take an outsider many years. Therefore does it not make sense to attempt to facilitate the organisational participation of the local population, even through the existing local elite if that is what is pragmatic.

Taylor-Powell and von Kaufmann (1986) had to give a small number of Fulani pastoralists in Central Nigeria veterinary incentives to cooperate in their research. They realised they were working with an unrepresentative sample of the population and that through their interaction, these pastoralists were becoming even less representative. But they used this opening to collect data on a wide variety of socio-cultural parameters and were subsequently able to understand and overcome several problems which were preventing the wider population from participating with the introduction of dry-season supplementary feeding methods.

"Only when you get working on farms with farmers does the real information come out" (Taylor-Powell and von Kaufmann 1986).

4.3.2 The costs of participation

Participation in local organisation is often treated as a free good, desirable in unlimited quantities. But effective local organisation requires substantial investments of time, energy and personal freedom of action on the part of the participants. Time, energy, and freedom

from unproductive obligations are among the very few resources that the rural poor possess.

It is very useful to look upon participation as an investment because it must then be concluded that it is owned by the poor. Johnston and Clark (1982) state:

"The requirement of effective policy making for local organizations is therefore not omniscience but entrepreneurship: the ability to recognise and design programs capable of mobilising participation; the ability to abandon as unviable and ill-advised programs unable to attract that investment".

A good example of a programme which succeeded in that entrepreneurship is the famous Anand Milk Producers' Union (later the Indian National Dairy Development Board) which grew from the acute dissatisfaction of local producers with low and fluctuating prices offered by existing commercial markets; plus the fact that the village milk cooperatives placed few demands for communal labour, or for complex decisions that might favour one group over another (Korten, 1980). Other examples of vertical organisation such as contract livestock growing schemes, where the producer plays a minimal role in the supply of raw materials and the marketing of the product are among the most successful of livestock projects, possibly because the participatory investment is kept to a minimum and the benefits are attractive.

The point to make though is that planners should be aware that there are situations where organisational or empowerment participation are unviable. The identification of indicators to such situations deserves greater attention.

4.3.3 Harmony of objectives

Another problem which participation is susceptible to, is disruption of rural organisation through the surfacing and settling of conflicts among the potential participants. Any effort to link people into units of collective action will carry with it the potential for conflict as individual members seek to bend the organisation to their own interests.

This may be overcome by understanding the nature of the conflict and recognising that different people have different needs and priorities[1], though this is more easily said than done, especially for outsiders. Once recognised, conflict can be limited by limiting the organisation to either the pursuit of a single, narrowly-defined benefit, or to a particular group.

4.3.4 Lack of evaluation

Farrington and Martin (1988) make the point that there is a tendency throughout the literature to describe the intention and rationale behind farmer participation, but to give only a brief summary of the procedures and problems, making it difficult to gauge the success in practical terms. There are several case studies that describe projects using innovative methods at the outset, but which have not yet produced an evaluation of their experience (Hatch, 1981).

[1] Grandin (1988) describes a field research technique for doing this, "Wealth Ranking in Smallholder Communities".

The effectiveness of participatory methods in terms of time and cost is rarely assessed, although the importance of these criteria are sometimes recognised (Galt and Mathema, 1987). Oakley (1991) devotes a chapter of his book to evaluating participation.

4.3.5. Reorienting bureaucracies

"I see problems with the new organisation model being proposed... We are reaching a point here... and in other countries where we are questioning the capacity of clearly structured vertical organisations to achieve congruence with the needs of our people. Yet this is the model with which our people have experience and within which they are finally learning to function. Now we are proposing a completely different model of organization, which will require our people to develop new skills and learn how to move within new structures"(Bustillo, 1979).

Bustillo has a valid point, reorientation does not occur without much effort and the objective of the reorganisation should be clear.

"West African research institutes have not leapt to draw up [participatory] *research agendas for fear that they will be seen to be the political manifestos of the researchers involved"* (Aronson, 1985).

Farrington *et al.* (1988) and Uphoff (1985) also address the issue, that government agencies and to some extent donor agencies are not orientated towards working effectively with the intended beneficiaries in a participatory manner. Chambers *et al.* (1989) make some suggestions of how to implement practical change within institutions[1]. Though there are powerful and convincing calls (Uphoff 1986) for greater participation. Participation has a number of fundamental, but not insurmountable problems. What has been shown is that unless planners, whether from inside or outside the culture, have an in-depth comprehension of the intricacies of the society involved, their task of proposing entrepreneurial, sustainable and equitable rural organisation are minimal.

Livestock projects more than most require a thorough understanding of the farming system and culture involved. As outsiders are still generally pulling the strings, it is important to develop techniques which not only gather information through the participation of farmers, but which are cost and time effective and may act as that first step toward empowerment (if appropriate).

[1]This is through greater encouragement of informal (farmer) research and development (consider insurance policies), pre-service training of scientists via secondment to farms and development of problem solving skills, allowing farmers to modify research via `interphase projects', greater recognition of the work carried out with and by farmers.

CHAPTER 5 SURVEY METHODS

5.1 Formal and Informal Surveys

Farming systems researchers generally make use of two types of surveys, formal and informal. Formal surveys are surveys in which data are collected by means of a questionnaire, which is administered by enumerators to a randomly selected sample of farmers. In informal surveys, researchers themselves make field observations and interview farmers using informal, unstructured techniques in order to encourage dialogue and to probe critical issues.

Informal and formal surveys have particular strengths and weaknesses. Many researchers use both techniques in their investigations.

5.1.1 Formal surveys

Formal surveys in developed western countries, based on schedules and questionnaires, have for many years enjoyed respectability and target group familiarity. This no doubt influenced their popular and widespread use in socio-economic investigations for national planning and program evaluation in developing countries. Franzel and Crawford (1987) state with regard to FSR:

"The objectives of formal survey can be quite diverse, to verify hypotheses developed during an informal survey, to quantify parameters critical to developing an understanding of the system, or to measure resource stocks and flows".

Formal research methods are indispensable for development planners since surveys of relatively small samples allow statistical inference to a large population. Data can be quantified and aggregate results presented concisely. Sophisticated statistical methods may be used to assess relationships between variables measured. Blalock (1972) also states that surveys may be fairly easy to design and quick to implement; questionnaire forms are often standardised, thereby increasing the reliability, comparability and precision of data from one region or time frame to another.

However, as was mentioned in the introductory chapter, there is growing dissatisfaction with the use of formal research methods, and in particular their application in the developing world (Bulmar and Warwick, 1983). Much has been written on the potential problems and limitations of formal survey research (Zeller and Carmines, 1980), particularly in the rural development field (Mitchell, 1965) and also in comparison to informal techniques (Trend, 1978). Some of these scholars are quite outspoken in their criticism:

"We have devised the following descriptive definition: A Rural Third World Survey is a careful collection, tabulation, and analysis of wild guesses, half-truths and outright lies meticulously recorded by gullible outsiders during interviews with suspicious, intimidated but outwardly compliant villagers" (Chen and Murray, 1976 from Campbell and Stone,1984).

Formal surveys are generally believed to have the following limitations:

1. The time lag required to produce results;
2. The high cost of administering the survey, relative to informal surveys;
3. Low levels of data reliability due to interview-bias, seasonal-bias and questionnaire design-based errors (non-sampling error):
   "The survey may embody the concepts and categories of outsiders rather than those of the rural poor" (Chambers 1983b);
4. The irrelevance of many of the questions for specific implementation purposes;
5. There is little dialogue generated among enumerators, planners, decision-makers, and beneficiaries, since the enumerators are seldom the actual project actors. These surveys give little information regarding the causal relationships which make up the social processes of community life (Bulmar *et al* 1983).

Campbell *et al.* (1984) measured the accuracy of a formal KAP (knowledge, attitude and practice) survey on family planning in Nepal. They discovered that the non-sampling error was far higher than the sampling error[1]. They postulated that this was a common problem of questionnaire surveys written and carried out by outsiders, for the following reasons:

1. The questionnaire survey setting may be the least familiar and least comfortable context for providing personal information and expressing views; Shrestha (1979) states that using a written medium and literate values in order to elicit information is essentially a product of a literate culture and out of harmony with cultures which are predominantly oral and illiterate;
2. The questionnaire is written in a different contextual category to the one in which it is applied. This often leads to misunderstanding or "cultural reinterpretation". In this Nepalese study, this was due to the "highly literate variety of Nepali used" to ask the questions. Campbell *et al* (1984) also make the point that:

   "Survey research aims to categorise information with mathematical precision; and pre-coded questionnaires follow a logic of categorisation with non-overlapping boundaries. To what extent can we assume that `real life' follows the same logic?"

3. The questionnaire was carried out by strangers and the topic was at times of a sensitive nature.

Campbell *et al.* (1984) conclude that for development orientated research in the Third World, the incorporation of qualitative (informal) research methods within a survey were needed because these were adapted to cross-cultural research and to recording data in the context to

[1] The "sampling error" or "standard error" varies directly with the amount of variation in the variable measured and is normally calculated. Non-sampling errors, in contrast, cannot normally be calculated and are therefore often ignored in analysis. Campbell *et al* (1983) were able to measure the non-sampling error having discovered the true error of the original formal survey via an in depth informal survey. [*Reliability*, only estimates the repeatability of results using the same measuring instruments. *Validity*, the degree to which data measure what they are intended to measure, may be described but not measured (Zeller *et al.* 1980)].

which it applies.

The agreement of other authors with the above view, has led to the adoption of informal research in the form of a RRA being carried out as reconnaissance to a formal survey (Collinson, 1982; Hildebrand, 1981; Honadle, 1982). Franzel *et al.* (1987) did an experiment to evaluate the benefits of a formal (verification) survey, in addition to an informal survey (a reconnaissance RRA), in the descriptive phase of a FSR program. They did this by carefully comparing the data from the two surveys. The conclusion reached was that the contribution of the formal survey was marginal relative to its costs. This view supports the growing hypothesis that the informal survey is an effective and adequate method of developing an understanding of farming systems and planning experimental programmes for farmers. Even Collinson (1981), one of the pioneers of RRA as a supplement to formal surveys has stated that:

"Even low cost, single visit formal survey is superfluous so long as the informal exploratory survey is rigorous".

It may be that, in certain FSR situations, the formal survey may be relegated to providing the data needed to persuade/influence donors and/or distant planners. But with the greater use being made of videos as a communications medium, it may be that informal survey results along with the conditions and the opinions of the community involved could be brought into the offices of the planners as a means of influencing policy.

5.1.2 Informal surveys

Informal surveys originated as social anthropological methods[1]. The methods that are now being adapted for use by natural scientists, were being used by anthropologists as early as 1920 (Goodenough, 1952; Conklin, 1954; Gumperz and Hymes, 1964). The anthropological methods became more applied and were introduced into FSR via:

1. A drift of professional anthropologists into development due to a shortage of employment, in the late 1970's and early 1980's;
2. The evaluation of and disillusionment with development history that was occurring at the same time (as mentioned in chapter 2);
3. The *laissez-faire* attitude of liberal governments (Behnke *pers. comm*.).

"Anthropological Methods have two great values. They enable the good field worker to develop a relationship with his informants that permits him to penetrate their thoughts and discover the sentiments that may not be expressed in response to standardised questions. They make possible a description of human activities and interactions and are thus essential for the examination of social processes and of social structure" (Bulmar and Warwick, 1983).

[1]Also known as ethno-science tools; such tools were used during long periods of `total immersion' in the culture involved and the information recorded often written up in social anthropology texts.

With regard to FSR these anthropological methods were adapted by and began to appear as parallel developments, in several of the international agricultural centres (Hildebrand, 1982; Honadle, 1979; Rhoades, 1982; Collinson, 1981; Shaner *et al.,* 1982). These developments are now collectively known as RRAs. The first descriptions of RRA were confined to understanding how and why farmers managed the way they did in the confines of the environment and community in which they lived. They were quite effective at doing this, as long as the surveyors were mindful of the problems mentioned in chapter 3 (refer to Collinson's (1981) and Franzel *et al*'s (1987) remarks). However there was little mention of direct farmer participation in project design other than contributory participation.

The present philosophy of RRA has been described by various authors (McCracken *et al.*, 1988; Molnar, 1989; Marcucci, 1990 and Kumar, 1987). The definition given (chapter 3) still broadly describes their concepts of the RRA toolkit. Each author agrees as to which are the main tools used in RRA and outlines of the main tools are given below. Full discussion of each tool is beyond the scope of this dissertation.

5.1.3 Main tools used in rapid rural appraisal

The Informal Interview[1]	Here the interview has a logical framework, but it is flexible and the important questions and direction of study emerge as information is collected.
Key Informant Interviews	Interviews with a select group of individuals who are likely to provide needed information, ideas and insights on a particular subject. Key informants can be identified by asking various individuals who are the experts (or individuals who do things differently) in that particular field and then looking for names which keep appearing.
Focus Group Interviews	These are interviews conducted in group sessions to discuss a specific topic possibly to review opinions aired during individual interviews. The chairman's role is to stimulate discussion and keep it focused.
Community Interviews	These meetings are public and announced in advance. The main interactions are between the interviewer(s) and the participants (mutual checking) rather than among the participants.
Direct Observation	The systematic gathering of data in a formal manner, using well-designed instruments, questionnaires and observation record forms and ideally carried out by multi-disciplined teams. Direct observation should not be confused with `participant observation' which is long-term observation which concentrates on socio-cultural phenomena.

[1]See especially Rhoades, (1982) "The Art of the Informal Agricultural Survey".

CHAPTER 6 PARTICIPATORY RAPID APPRAISAL TOOLS AND LIVESTOCK DEVELOPMENT

The last two years has seen the increased adoption of anthropological tools in the collection of information for planning, through a more participatory process (organisation and empowerment). This involves local people both assembling data and in drawing up project plans for their local area. Molnar (1989) calls these techniques "interactive data gathering and planning tools", McCracken *et al.* (1988) refer to them as "participatory rapid [rural] appraisal tools". Until their definition is clear this dissertation also refers to them as participatory rapid appraisal tools.

This chapter intends to look at the participatory rapid appraisal tools which are available and determine if some may be of greater use than others for livestock development projects. Firstly, the special difficulties livestock projects may face are researched, these are briefly reviewed in the next section.

6.1 Specific Livestock Project Problems

Bernsten *et al.* (1983) highlighted the characteristics of livestock systems and compared them with cropping system characteristics, these authors were trying to demonstrate that these characteristics impede `on farm livestock research' (OFLR), Table 1, and act as an explanation for the lack of OFLR. Their points of difference and the consequent implications are valid (Taylor-Powell *et al.* 1986; Knipscheer and Suridisastra, 1986), though not beyond criticism. McIntire (1986) suggests that Bernsten *et al.* were over-pessimistic in consideration of the difficulties faced by livestock researchers and indeed may have contributed to the lack of OFLR.

From the point of view of interactive surveys, Bernsten *et al*'s (1983) implications should be used as reasons for greater organisational participation by livestock farmers. Because of livestock systems complexities, it is the farmers or pastoralists who hold the information necessary for their development. Outsiders can only act as facilitators, recording and providing another perspective and alternative technical knowledge where appropriate. It may be that organisational participation is not appropriate for the community involved but this does not detract from the need for efficient interaction between the farmers and outsiders.

Swift (1981) puts the case for setting up networks of pastoralists collecting information about themselves and quantitative data about their environment, he suggests that such a network could help give pastoralists more power to control their destiny. Such a network would utilise the indigenous technical knowledge about the domestic economy, plants (range management) and livestock.

SITUATION WITH RESPECT TO:			
FACTOR	*CROPS*	*LIVESTOCK*	*IMPLICATIONS*
Mobility	Stationary	Mobile	Difficult to measure
Duration	Generally >1 year	Generally <4 months	Increase costs, likelihood of losing
Life Cycle	All units synchronised	Not synchronised	Difficult to find comparable units
Output(s)	Only grain/ tuber and residue	Multiple outputs, meat, hides, milk, power, manure	Difficult to measure/value treatment effect
Non-marketable inputs/outputs	Few	Many	Difficult to value input/output
Experimental unit size	Small, divisible	Large non-divisible	Increase cost risk to co-operator
Producer attitude to-ward product	Impersonal	Personal	Difficult to cull, castrate
Management Variability	Low	High	Difficult to isolate treatment effect
Observation units	Many	Few	Large statistical variability

Table 1
Comparisons of characteristics of crops and livestock, and implications for On-Farm Testing (Bernsten *et al.,* 1983).

6.2 The Role of Indigenous Technical Knowledge

Indigenous technical knowledge is the technical knowledge held by all local people, the specialised knowledge of skilled `resource persons' and the social knowledge held by dominant groups (McCall, 1987). Bell (1979) asserts that knowledge indigenous to the social group concerned often spans a range of vintages and that distinction between ITK which is `non-scientific' and other kinds which are `scientific' is likely to be of little use; particularly as the meaning of these terms is rather vague.

If the aim of a livestock project is to increase production, in a sustainable, stable and equitable manner, that development must have something to build upon. It is argued that the ITK is fundamental to any such development and that participatory rapid appraisal tools are essential in the discovery of indigenous knowledge.

Academic interest in indigenous technical knowledge dates back to the first intensive field work by anthropologists, but only in recent years has the possibility of using such knowledge as the basis for development activities been seriously investigated. There are numerous case studies which demonstrate the rationality of indigenous systems of knowledge (Brokensha *et al.* 1980; Institute of Development Studies, 1979). Such case studies often cite the use of ITK as the foundation to agricultural and community development.

Scott *et al.* (1980) describe a successful pastoralist restocking programme in the Sahel with the Wodaabe Fulani, post 1969-1973 drought. This project took into account the indigenous coping mechanisms for survival and was based on an understanding of the local culture, technically, historically and economically. Scott *et al.* (1980) thoroughly describe the Wodaabe culture before describing the actual mechanics of the restocking programme.

"The idea is simple, but in practice is richly complex. Following the custom of sharing animals (Habbanaae), locally purchased livestock was loaned for a period of three calvings at which time the borrower returned the original animal (or its equivalent value in kind or cash) and retains the three offspring... and any milk" Scott *et al.* (1980).

The project was a success, there were no problems over repayment of the loan, probably because the mechanism of the loan was a traditional one, the only difference being that the lender was not a Fulani or a herder. A profit was made on the returned animals which funded a similar scheme else where.

Several authors have discussed the use to which ITK may be put once it has been discovered. McCall (1987) states that ITK may be the only resource of the poorest groups and that it's research and release can be used to provide the initial self-belief and confidence to counter the culture of poverty and lead to some self-development. Others suggest the extent to which farmer participation can be developed will depend upon the nature of their ITK (Richards, 1986). Farrington *et al.* (1988) suggest that ITK is likely to be of highest potential value in those (usually remote and self dependent) communities which are poor in infrastructure and which have not been subjected to unpredictable external shocks. Indeed many of the examples of the successful use of ITK come from such areas, for example: the intercropping techniques in East Africa (Belshaw, 1979), Richards (1985) cites several examples of ITK in West Africa.

Fre (1983) provides a comprehensive account of the ITK of the pastoralists of Eritrea, Ethiopia. He demonstrates among other things that the pastoralists are able to express their needs, can identify their problems, know their environment and have socio-political aspirations. He suggests that having discovered the ITK of these people it is now a much easier task to develop cost-effective development and training programs to build upon it.

Sharland (1989) agrees that the studying of ITK can increase the effectiveness of communication within projects by targeting the right section of the population. For example

groups which are the sources of ITK can form the basis of participation in local-level development. Maccuci (1990 warns:

"Data on farmers' local knowledge should not be construed as de facto farmer participation. Researchers should regard local knowledge as a necessary vocabulary for communication with farmers. Likewise, if farmer participation is to be realised, then researchers must examine their procedures to ensure that they effectively explain research needs and development aims to farmers".

6.3 Participatory Rapid Appraisal Tools

Participatory rapid appraisal tools are designed for use with standard RRA tools as outlined in chapter 5. They should be used by the farmers themselves, either in dialogue with outsiders or among their communities. The object is to permit them to better record, count, measure, problem pose, discuss and analyse their existing situation with the aim of:

1. Building on what people already know;
2. Using and developing people's abilities and skills to analyse and evaluate their surroundings;
3. Reveal whether human and material resources are being used efficiently and effectively;
4. Help people to analyse their individual situations and see how their activities may be altered in a beneficial manner, thus setting local priority needs;
5. Enable people to study their own methods of organisation and management;
6. Provide good information for making decisions about planning and programme direction;
7. Increase the sense of collective responsibility for programme development, implementation, monitoring and evaluation;
8. Identify indicators for monitoring and evaluation to be recorded. Pietro (1984) states that rigourous planning involves the incorporation of an evaluation component that will provide information to be used on a continuous basis to monitor progress of the program's effectiveness.

Generally it is best to use a combination of participatory rapid appraisal tools, as different tools yield different types of information. Each tool is discussed in turn.

6.3.1 Informal interviewing

Because interviewing is the oldest and most respected manner of information gathering and the foundation for many other tools, it deserves initial discussion. Interviewing can provide a rich source of information in a short time. It discovers questions, builds on observations, brings out deviations from usual responses. Its reliability is high because of the face to face interplay that occurs.

Its frequent drawback is cost, the time involved and the difficulty of recording information in a systematic fashion. It is a skill that should not be taken for granted. Training at least in the basics is essential for many people. Lone (1982) goes straight to the point with his comment:

"Villagers live in communion, their life is characterised by intense communication and interaction... In village communities the researcher has to prove his worth on a purely

human basis".

Mitchell and Slim (1990) warn that short, seemingly evasive, answers (`non-answers') should be noted for they could signal enormous complexity in the question and the impossibility of a quick answer. Mitchell and Slim (1991) also state that interviews may include structural bias in that they rely on western ideas about `answerability' and brevity. They assert that certain cultures are such that:

"Answers and understanding are not expected to come quickly and are not always assumed to be `knowable' and `speakable'. The wise person is often the silent person. `Knowing things is not necessarily equated with speaking them and the existence of the answers is not taken for granted. Mystery, ignorance and the superiority of God's knowledge are acceptable" Mitchell *et al.* (1991).

"In western cultures, a wise person is a person who can talk and answer questions in a brief and concise fashion....this is often alien to people in rural Africa where questions remain open, mystery is acceptable and brevity is not necessarily a virtue" Mitchell *et al* (1991).

The above quotations are all good reasons for the interviewer being an `insider' or at least quite familiar with the culture involved.

Informal interviews should appear conversational, but are actually carefully controlled and structured. Guides or check-lists should be followed (eg. the six helpers and five I's)[1], though new questions may arise during the interview. Molnar (1989) describes the use of minimum data sets for given topics[1]. Check-lists of topics to be covered should ideally be memorised. Rhoades (1982) breaks the informal interview into five stages and these are outlined in appendix 2[1].

Fre (1983) showed that informal interviews with a tape recorder were highly effective at eliciting pastoralists to communicate their knowledge and problems, this was aided by Fre being an Eritrean pastoralist himself. The advantages to be gained from training representatives of the communities to carry out interviews themselves could be substantial, but depends upon the culture involved. Messerschmidt (1991) reports the advantages of having outsiders as interviewers in Nepal because they were perceived as less of a threat in community issues.

[1] The six helpers: who, what, where, when, how, why; The five I's (for farming): incentives, inputs, innovations, information, interventions.

[1] Minimum data sets are frameworks used for information gathering, each area of investigation is broken down into components to ask about and a toolkit for investigation. They developed in response to a recognition that RRA fails most often due to the fact that important aspects of a particular issue are not covered. Their use is controversial, as they detract from the openness of informal interview, but for the inexperienced RRA practitioner they could usefully be used as a guide and check-list (Molnar 1989).

[1] Norem (1986) also gives a valuable guide to basic interviewing skills for an informal survey.

6.3.2 Diagrams[1]

Diagrams are any simple schematic device which presents information in a readily understandable form (Conway, 1987). They can capture and present information which would be less precise, less clear, and much less succinct if expressed in words. They are constructed using shared information which can be checked, discussed, and amended and thus creates a consensus and facilitates communication between different people[1]. Diagrams should be constructed by different interest groups within the community, as these will represent their particular interests, eg. men and women, old and young, poor and wealthy. Diversity will enrich subsequent discussion. Diagrams are best drawn on the ground as this is a familiar medium to nearly all people, it also encourages wider discussion, the diagram remains for future reference and further groups may later change it (Mascarenhas and Prem Kumar, 1991). Pretty (*pers. comm.* 1991) encourages the idea that the person who holds the drawing stick should talk about what is most important to them, before handing it on. The process of construction may lead to new discoveries and the product can be referred to in the future (Pietro, 1984). McCracken (1989) notes that care should be taken to keep diagrams simple and with a minimum of writing. Diagrams include:

a. Maps

Maps are useful in communicating the location of different grazing areas, watering points etc. The point of the map is not to produce a nice diagram but to act as a focus for discussion. They should be bold and simple in design. The concept of north at the top of the map is not universal therefore the map should begin with two reference points. It is possible to create a series of maps in an historical sense ("historical profiles" and predictions) and of different types of information ("thematic maps"). The results may then be overlaid to demonstrate changes in and different linkages between land uses and land condition (Molnar, 1990).

b. Transects

Transects are sketches in the form of a matrix table with the relief of the transect walked along/studied[1] forming the top of the table, and studied criteria, e.g. soil, ground vegetation, livestock, tree cover, problems, etc. listed in the left hand column. Field notes and farmers' comments are entered in the appropriate box (figure 2). Conway (1987) considers transects to be of more use than maps because they give an overview and focus attention on the different zones or micro-environments in the area. A transect may also be used historically (Molnar 1990).

c. Models

Models are similar to maps but three dimensional. They tend to promote greater discussion. Ideally they should be made from local materials and use different colours e.g. black soil, ash, crushed brick etc. as a key to the various features (Mascarenhas and Prem Kumar, 1991). Some models may even be moved from village to village (Pretty *pers. comm.* 1991).

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[1] Also known as `mapping'.

[1] Between different disciplines, people with different sectoral responsibilities, between farmers and development specialists or among farmers.

[1] Transects are ideally walked along with key informants, observing, asking, listening, looking, identifying different zones, seeking problems and possible solutions. The findings are then recorded and discussed.

d. Seasonal Calendars

Seasonal Calendars are simple diagrams to indicate seasonal features and changes. They are composed of the months of the year, according to the local seasons along the top, the starting and ceasing of activities are portrayed below (figure 3). A 12 or 18 month linear or circular pattern may be used. They reveal surprising detail that can be used to explore constraints and opportunities e.g. labour demands on different household members in varying seasons, fodder used during various months.

e. Flow Diagrams

Flow diagrams are useful in describing the cycle of production and marketing. They lay out the sequential steps on any operation and if costs (including monetary and labour costs and returns) are noted alongside, the diagrams become simple production accounts (Conway, 1987), eg. the flow diagram of a vaccination and anthelmintic treatment schedule.

f. Decision Trees

Decision trees can be simple profile diagrams, they are useful for discussing the range of strategies available and the potential of new strategies.

g. Venn Diagrams

Venn diagrams use touching or overlapping circles of various sizes to indicate the degree of contact or overlap in terms of decision making. Each circle represents an individual or institution and the size of the circle indicates importance (figure 5). An alternative method is to draw lines between circles and the village circle, with thickness of the line representing strength of relationship; or representing strength by distance from the centre (Pretty *pers. comm.* 1991). Grady (1991) makes use of a `mobility map' for local women to describe their daily movements and the reasons for the journeys, using circles and lines; such a diagram could be useful in a pastoralist setting.

h. Time Lines

Time lines show the history of major recollected events in a community with approximate dates. It is a good icebreaker for group discussions.

6.3.3 Wealth ranking

This tool uses the perceptions of informants to rank `households'[1] within a village or part of a village (community) according to overall wealth. Researchers very often feel reticent before embarking upon wealth ranking as wealth can be a very sensitive topic. This is especially so for pastoralist societies where wealth may be in the form of numbers of animals kept, lent, borrowed or inherited and counting of animals may be difficult for a number of cultural and practical reasons (Grandin, 1983). By using the wealth ranking approach, the risk of upsetting people is reduced, as it ensures that any discussion of wealth does not take place with reference to specific households, these are only compared with each other, and the discussion remains solely of relative wealth/poverty.

The tool requires careful preparation, to make sure the community to be ranked is

[1] A household is defined as a group of people (normally related) who live together and `eat from the same pot'. The implication being that members of the household share resources, tasks and consumption within the household (Grandin 1988).

representative of the wider community, the number of households will determine whether the community needs to be devided into sub-areas. A list of household heads is obtained from the most reliable source eg. census list verified by elder. The names of each house hold head is written on individually numbered cards. Now an informant is identified who knows most of the households; first the informant reveals the criteria they use to rank wealth; before being asked to sort the cards (read out if illiterate) into piles of wealth classes. The number of piles being determined by the informant. At the end of the sort the informant should be asked to confirm his/her choices. Now is a good time to discuss further the characteristics of and the differences between piles. Once the discussions have finished and the informant thanked the household numbers can be recorded and analysed statistically (Grandin, 1988). This process is repeated with at least three independent informants.

Wealth rankings are useful for:

1. Leading into other discussions on livelihoods and vulnerability and provides indicators of how to one wealth grouping might move to another;
2. Providing a baseline against which future intervention impact can be measured;
3. Providing a sample frame to cross-check the relative wealth of informants who have been or will be interviewed or asked to diagram. Biases against the poor can therefore be considered;
4. Producing key local indicators of welfare and well being.

Wealth ranking is particularly useful in livestock situations, as households with few or no livestock have different perspectives and different problems to those with many animals. Development priorities will be different: for example, a restocking program may be a priority for households with few animals, better marketing facilities for those with many animals (Swift 1991; Grandin et al.,1991). An alternative method that might be used once some understanding of wealth criteria has been obtained is to wealth rank directly onto community maps.

Wealth ranking should not be rushed and carried out with care. Hubbard *et al.* (1989) report problems of households sharing the same surname, informants being unwilling to rank the very poor for fear of causing offence, heirs to wealth and difficulty in contacting women informants. Pretty (*pers. comm.* 1991) reports that wealth ranking is very difficult to do with pastoralists who are continually nomadic and in situations of conflict. Wellborn (*pers. comm.* 1991) reports that ranking may best be carried out in private and in confidence if informants are sensitive to giving wealth information.

6.3.4 Pair-wise preference ranking and direct matrix ranking

These versatile tools are best used after wealth ranking has been completed. They are used to learn local peoples' categories, criteria, choices and priorities.

For pair wise ranking, the items of interest are compared, pair by pair. Informants being asked which is preferred of the two and why? Scoones and McCracken (1989) used a form of pairwise ranking to compare the positive and negative characteristics of various livestock species as given by cooperative farmers and individual farmers (Tables 2 and 3).

Type of Livestock	Positive Characteristics	Negative characteristics
Cattle	Used for draft purposes Means of income Used for home consumption Generally used for multipurposes	Shortage of grazing land
Equines	Used for transport Used for threshing	Shortage of grazing land
Bees	Generates good income Never requires feeding or care	Scarcity of bee colony in the area
Sheep	Source of income Used for consumption Grow fast Easy to feed and rear	Shortage of grazing land
Hens	Need small area for breeding A good source of income	Provides little income compared to other types
Goats	--	Land which individual farmers own is not suitable for breeding

Table 2
Ranking of livestock by individual farmers (Scoones and McCracken, 1989)

TYPE OF LIVESTOCK	POSITVE CHARACTERISTICS	NEGATIVE CHARACTERISTICS
Cattle	Used for draft animals Generate income Used for food Used for threshing purposes	Need too much grazing area
Goats	Reproduce fast Grow fast Produce more than two offspring at a time	Consume much foliage destructing plants Need wide area Cannot breed in highland
Sheep	Reproduce fast Good means of income	Susceptible to diseases Grazing land shortage
Equines	Used for transport Used for threshing	Shortage of grazing land
Hens	Need less area for breeding Generate fast income	Susceptible to diseases Vulnerable to rodents
Bees	Need less labour for rearing and production Generate a good income	Bees are not available in the area

Table 3
Ranking of Livestock by Producer Cooperative Members (Scoones and McCracken 1989)

Matrix ranking and scoring takes local criteria eg. drought resistance, milking ability, for the rows of a matrix and local items eg. livestock, fodder, for the columns, and people fill the in boxes for each row (Table 4). The items may be ordered for each of the criteria ie. best to worst; or participants may put piles of stones, seeds etc. into the boxes for semi-quantitative scoring (Molnar 1989).

RANKING OF ANIMALS						
CRITERIA	**CATTLE**	**MULE**	**HORSE**	**DONKEY**	**GOAT**	**SHEEP**
Source of food	4	-	-	-	3	2
Does work	1	2	4	3	-	--
Income generation	7	5	4	6	2	1
Needs care	1	2	2	4	7	6
Social status	1	2	5	5	4	3

Table 4
Direct Matrix Ranking the Criteria for Keeping Livestock by Species (Guijt and Scoones, 1991)

Swift (1991) uses matrix ranking in the form of a game to rank problems and solutions:

"The researcher scoops six holes in the ground, in two parallel rows of three, and sits to one side. The community sits near to the holes and elects a representative. The researcher explains that each hole is a major community problem, and that the group must decide, through it's representative, what each hole represents... The researcher notes the discussion... each hole is labelled with a problem, and the community are asked why these have been chosen. The researcher then produces some coins and the community is asked to rank the problems in order of importance, by putting coins into the holes... the discussion is noted... the final order has to be explained to the researcher."

The game can now be replayed maybe concentrating on the biggest problem or solution. Swift found this game preferable to public meetings to discuss problems, because meetings were usually dominated by one or two people. Swift recorded ranks on score sheets with comments so that areas and wealth strata could be compared.

6.3.5 Creative expression

Creative expression as a participatory rapid appraisal tool involves the use of art forms as a means for individuals and groups to represent their ideas and/or feelings. Artistic forms that are commonly used include drawing, drama, role plays, music, and collages. It is important that the participants use the art form with which they are familiar, for example folk dramas which may be part of people's lives already. The art form should revolve around a theme the usual ones are:

1. Optimal, how participants would like something to be;
2. Actual, what they see as happening at the present time;
3. Problem, descriptive/analytical: critical issues, why they exist, what to do about them;

4. Comparative, how participants see two different periods of time, two different projects etc.

Creative expression is particularly noted for emphasising collective analysis and planning but it takes time and is be biased against those who are inhibited in expressing themselves through art (Pietro, 1984).

CHAPTER 7 DISCUSSION

7.1 The Nature of Participatory Rapid Appraisal Tools

What is different about participatory rapid appraisal tools? Are they just another survey methodology? Why should these uses be expounded?

Farming systems research developed in the 1970's from analysis of the failure of conventional agricultural research and development (Kearl, 1976). FSR had noble aims, to understand and provide applied research for the poorer farmers who had not previously benefited. The introduction of the concept was heralded with some excitement in the research establishments (particularly those with a high expatriate input) around the world. FSR is not however without flaws. Projects tended to be run rather autocratically and often proved to be quite inflexible (Biggs *et al.,* 1986). There appears to be some agreement in the literature that the main failing of FSR, stemmed from the methods used during the descriptive phase of FSR projects (Harwood 1982; Biggs *et al.,* 1986; Rhoades 1985; Biggs and Farrington, 1990b). This descriptive phase mainly used formal survey techniques of reconnaissance, exploratory survey and questionnaire survey that yielded data that could be statistically managed, but which was often unreliable, and largely neglected the social-cultural parameters which have a critical influence on farmer decision making.

These problems were recognised in several different areas of the world in the early 1980's. Hence there were several different names for the survey methodology which was to help solve FSR survey problems. These methodologies are now well established within FSR and recognised under the term rapid rural appraisal (RRA). RRA tool kits consist of various informal techniques which emphasise the collection of qualitative data. They were used initially as a preliminary reconnaissance to a formal questionnaire survey but as RRA techniques have developed, they are being acknowledged as sufficient in themselves to produce the necessary information, and the need to carry out formal surveys less critical.

The question must be asked again what is different about participatory rapid appraisal tools? Are they not just simplistic qualitative survey tools?

They help overcome many of the problems that RRAs are susceptible to, such as development tourism, dependency upon the surveyor's expertise and the interpretation of local issues through outsider's eyes. They do this by encouraging the local people to identify the criteria with which they view their world and impart their indigenous cultural and technical knowledge. The answer to the above question has to be, yes, but they can be used for more. Participatory rapid appraisal tools have been adapted from anthropology where they were designed for information collection. Most of the individuals describing participatory rapid appraisal are Westerners i.e. outsiders who are reliant upon such tools to gain an overview and understand the intricacies of farming communities. The extent to which they are being used in developing countries to encourage active participation cannot at present be quantified. But it is likely that their use will increase as the concept becomes acknowledged.

The common problems development projects encounter, that is: poor implementation, inability to reach the poor, inability to increase the problem solving-capacity of the poor and poor long-term perspectives were discussed in chapter 4. The proposition was put that many

of the problems projects face could be eased if they are based upon:

1. Indigenous knowledge;
2. Benefits desired by the local population;
3. Organisation which understands and takes into account possible conflict of interests within societies;
4. Simple techniques of calculation and control.

The active participation of the population from project outset would appear to be the most reliable method by which the above criteria can be identified. Discussion of the problems associated with participation revealed that though genuine, such problems are not insurmountable and certainly do not justify decreased participation in at least project appraisal.

The idea of people's involvement in development planning is by no means new. Indeed the guiding principles were articulated in the 1920's by James Y. C. Yen, founder of the Rural Reconstruction Movement of China and are summarized in the following credo of the Movement:

Go to the people
Live among the people
Learn from the people
Plan with the people
Work with the people
Start with what the people know
Build on what the people have
Teach by showing; learn by doing
Not a showcase but a pattern
Not odds and ends but a system
Not piecemeal but integrated approach
Not to confirm but to transform
Not relief but release.

(Korten 1985)

The above credo incorporates all three interpretations of participation: contributory, organisation, and empowerment.

What participatory appraisal tools do is provide a mechanism through which active participation can be achieved within agricultural development. The main point to be made about participatory rapid appraisal tools is that they can act as a catalyst to increase active participation which in turn leads to productive, sustainable, stable and equitable development. The catalyst is merely a tool! The vital components are:

1. The local people;
2. The facilitator, surveyor;
3. The politicians and planners.

7.2 Facilitating Participation and Education

Having described the various participatory rapid appraisal tools available for use, the component that this dissertation is aimed at is the facilitator. Participatory rapid appraisal tools will originate from the facilitator. The facilitator might be a local farmer, a government extension officer, social scientist or natural scientist; provided they have the necessary training. Who facilitates will depend upon the nature of the organisation involved in rural development. If government, it is likely to be a multi-disciplinary RRA team (at the present time). If an NGO, it might be local extension staff or farmers.

It is tempting to debate about what type of character would suit a successful facilitator. But it is very difficult to generalise, the characteristics which may be successful in one culture might be unsuccessful in another, as was noted in the section on informal interviewing. From a western point of view, an outgoing nature, the ability to strike a rapport with people, the maturity of experience (not necessarily with farming), the ability to listen and patience would all be sought after characteristics.

Howes (1980) agrees with Mao (1971) that the ability to facilitate increased participation will depend upon his/her:

"Determination to direct one's eye downwards", and ability to "shed the ugly mantle of pretentiousness and become a willing pupil" (Mao, 1971).

Such strong words are repeated in other texts, Friere's (1972) agent of `conscientization' requires the ability to strike a balance between leading and following, to intervene without dominating, to discover but still to guide, to structure without closing off, such qualities on top of the patience and the career sacrifices required at the present time, are not often the qualities of the average low paid development agent.

The point to be made about participatory rapid appraisal tools is that they place less stress on the above values/qualities of the facilitator and more on the techniques involved, which are deliberately kept as simple as possible. Training in how to carry out participatory rapid appraisal techniques is not by itself enough. Hubbard *et al.* (1989) report on the training of the heads of local government departments of agriculture and of community development in Nigeria. They found that many of the government officers saw their role as to `enlighten' villagers and that it could not be assumed that any individual had grasped the social processes involved in development. They quote one participant, described as genuinely perplexed, asking,

"This wealth ranking is very interesting but why are we trying to identify the poorest?"

Facilitators must be given an overview, through education, of the historical perspectives of development, an understanding of the reasons for past failure and why greater active participation is more likely to lead to success.

On top of this the problems encountered during facilitation of participation must also be learnt, for example we saw in chapter 4 that the participatory process is susceptible to conflict. What are the methods for understanding and resolving conflict? The Group de Recherche et d'Appui pour l'automation Paysanne (GRAAP) based in Burkino Faso has

developed a methodology which is aimed at situations of crisis where there is rapid change and crises of relations, and where there is a need for conflict resolution (Roche, 1991)[1]. Another problem that has to be tackled is the fact that in a rapidly changing world the community's indigenous knowledge may not be enough for it to deal with the as yet inexperienced problems of, for example, external inputs, over population and over grazing. In such situations the knowledge and experience of an outside facilitator(s) could be crucial.

Education though is politically influenced and it may not be government policy to promote participation which may lead to empowerment. Such attitudes are beyond the scope of this dissertation. Without education of the facilitators as outlined above, the participatory survey tools become just another survey method.

[1] See appendix 3 for details.

CHAPTER 8 CONCLUSIONS

This dissertation has described the development and the nature of both farming systems research and rapid rural appraisal. The aim of doing this was to demonstrate that development methods are continually being evaluated and improved. Part of this evaluation process has seen calls for greater participation of local people in development planning. The concept of participation has therefore been analysed, with respect to the variable success of development projects of the past. It has to be concluded that participation is a valuable concept and one which needs greater attention if development projects are to become more sustainable, productive, stable and equitable. Participation at the appraisal stage of projects is particularly important, because this is the time when the nature of the organisation of any development should be planned. Such organisation could include varying degrees of participation of the local population depending upon the culture and the development authorities involved.

The shortcomings of formal survey techniques and the relative advantages of informal techniques were discussed. There appears to be a drift away from diagnosis through quantification to diagnosis and planning through interaction of facilitators and farmers and the subsequent increased understanding. The tool kits available for promoting such interaction, understanding and local level planning come under the term participatory rapid appraisal. Such tools have been described with respect to complexities specific to livestock projects. It was hoped at the outset that certain participatory tools could be recommended as of particular use in livestock systems. However, because of the great range of different livestock systems, it must be concluded that all the participatory rapid appraisal tools described are equally suitable for livestock projects.

What is more vital than the tools themselves, is that if they are to be used to promote participation, the facilitators of the tools **understand** the concept of participation and that the facilitators are well versed in the problems they will encounter. This will require further education for many development workers and government officers, promoting such educating should be a priority in livestock development.

The participation of people in local level planning will be the motivating force to stimulate such education.

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APPENDIX 1

Fundamental design choices which reflect a detailed knowledge of local circumstances can improve the chances of preventing a project from being manipulated, to the benefit of the relatively well off local elite.

Johnston and Clark (1982) outline the following choices:

1. Passive Exclusion
By defining the function of an organisation in such a way that the local elite do not want to participate. For example, the Bangladesh Rural Advancement Committee found that by defining their organisation's function in a manner that simultaneously required inputs of manual labour from participants and eliminated handouts to them. The organisers discovered that they could lose the interest of the relatively well off villagers and restrict willingness to invest active participation in their target group who were the very poor (Korten 1980).

This approach has several potential disadvantages. Restricting an organisation to functions which are not attractive to the local elite means foregoing a large number of functions that are needed by the poor. Local skills of leadership and management tend to reside disproportionately with the elite members of the community.

However by restricting functions to begin with you keep the organisation simple and with the potential to grow later.

2. Active Exclusion
To explicitly exclude the elite from membership in an organisation is a risky choice. This approach is rarely successful and requires a competent, committed external organisation to support and protect the poor people's organisation.

3. Willingly-shared Benefits
This organisational design pursues benefits that the elite desire for themselves but cannot, or do not want, to keep the poor from sharing with them. For example immunization, sanitation and family planning programmes or road building programmes.

4. Zero-sum Contests
This type of organisation is more complex and could work in situations where an organisation can provide one type of attractive benefit to the local elite, thus moving them out of competition with the poor; whilst providing another organisational benefit for the poor.

APPENDIX 2

Rhoades' (1982) five stage guide-line for carrying out an informal interview.

1. The Approach
Keep a low profile, walk, not in a large group, two people is optimum, approach people directly, don't immediately bring out a note book! Be sensitive to the fact that people are often suspicious of outsiders. Be aware of daily work schedules, seasonal activity, work habits, climate, and how these affect the farmers willingness to talk. Lend a hand, take an interest.

2. The Warm-Up
Greet according to local custom, remember respect and courtesy, introduce yourself and explain why you're there, begin generally, make sure its convenient for him/her to talk.

3. The Dialogue
Let the discussion flow, mix up your questions, remain relaxed and attentive, intersperse the conversation with your own comments (compare notes) and allow stories and examples to be told. Re-phrase questions if an answer is not forthcoming, use plain understandable terms. Preferably work in pairs, make sure questions are culturally sensitive. Don't use leading questions eg. "Are their times during the year when you need to hire labour?" Keep the questions open eg. "How do you manage when work piles up?" or even better indirect and open eg. "There must be times when it is difficult to get everything done. I wonder how your family manages during those times?" Probe when necessary.

4. The Departure Politely bring the conversation to an end, be aware of signs of impatience and don't unduly delay the farmer if s/he appears pressed for time.

5. Recording of information Take mental notes during the interview or memory jarring written notes if appropriate. Always record information thoroughly whilst it's still fresh in the mind, compare notes with other team members as soon as possible.

APPENDIX 3

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The (GRAAP) community-based development method which promotes the initiative of the peasantry in West Africa to develop actions for its own self-reliant development.

The researcher acts as a facilitator, encouraging the village community to elaborate, reflect and analyse their situation, develop solutions to their problems, reach consensus on the solutions and implement a plan of action. The first stage of research consists of determining the main categories of people in the village, the main constraints in production, and the areas of conflicts between groups. Meetings are held with sub-groups to develop analysis of there specific problems. These are then addressed to the community meeting by sub-group representatives. The method encourages areas of conflicts and problems within the community to be aired. The facilitator acts as a mirror, posing questions to encourage the villagers to reflect and develop their analysis. Intergroup conflicts are related to constraints in the process of production. Solutions focus on resolving conflicts within the community and promoting developments which are in the interests of the whole community. The facilitator also makes interventions to help the community develop it's agenda for action. This includes suggesting technical possibilities, explaining technical and scientific problems, drawing from the experiences of other areas, and making training facilities available to the community. Visual aids are used at group meetings. Problems with developing visual aid methods consonant with the culture of the people, and utilising cultural forms of the people (such as proverbs) to heighten awareness, are used. **The facilitator requires a considerable knowledge of the local culture of the people**.

GRAAP (1987)