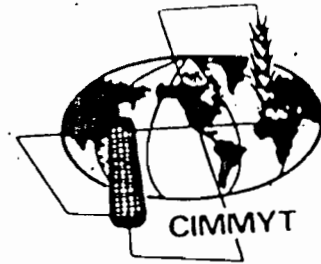




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REPORT OF AN ARPT/CIMMYT NETWORKSHOP ON
THE ROLE OF RURAL SOCIOLOGY AND ANTHROPOLOGY IN
FARMING SYSTEMS RESEARCH AND EXTENSION

LUSAKA, ZAMBIA November 24-27, 1984

Networking Workshop Report No.6

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ABBREVIATIONS

ARPT.....	Adaptive Research Planning Team
CDS.....	Concluding Discussion Session
FSR.....	Farming systems research
FSR & E....	Farming systems research and extension
GRZ.....	Government of the Republic of Zambia
ITK.....	Indigenous technical knowledge
OFR.....	On-farm research
[sp].....	Summary of paper
[gd].....	Summary of group discussion
[pd].....	Summary of plenary discussion

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1.10. INTRODUCTION

This report summarises the proceedings of the ARPT/CIMMYT networkshop on "The Role of Rural Sociology (and Anthropology) in Farming Systems Research". The Workshop was held at the Ridgeway Hotel, Lusaka, Zambia from the 27th to the 29th November, 1984. 23 social scientists, largely sociologists and anthropologists from 10 countries of the Eastern and Southern African Regions attended (see Annex 5.7). All presented papers were based on their experience of working with farming systems research (FSR) and/or small farmer agricultural development (see Annex 5.6). Other participants included several farming systems economists and farming systems agronomists from within the region, and a good number of technical scientists (crop breeders, soil scientists and a weed specialist), working in Zambia. In addition, a small number of interested social scientists working in Zambia also attended (See Annex 5.7 for a full list of participants). The other disciplines were invited in order to try and keep discussions grounded in issues relevant to applied agricultural research, and avoid extended debates centering on definitional problems, and academic issues.

The report has four main objectives:

1. To provide ongoing FSR programmes with ideas and information regarding the contribution which sociologists and anthropologists can make.
2. To provide ideas and guidelines for social scientists, particularly non-economic social scientists, currently working in FSR programmes as to how they might further plan and focus their work in general, and particularly how to sensitise their programmes to important social and cultural issues impinging on technology generation and adoption.
3. To inform planners of agricultural research and development programmes who are in the process of setting up farming systems research programmes, or are thinking of involving sociologists/anthropologists in existing programmes.
4. To make the proceedings available to a wider professional audience with a view to stimulating further discussion and debate.

1.12. ORGANISATION OF THE REPORT

The organisation of the report follows the basic programme of discussion during the workshop and meets the original workshop objectives (see Annex 5.1). Space did not permit publication of each paper in full. Instead, each paper is

summarised, and this summary is followed by a resume of discussions within the small group and plenary sessions. The summaries are organised on a topic basis under three main headings:

- 1). "Contributions of sociology within the CIMMYT sequence for farming systems research",
- 2). "Specialist areas outside of the CIMMYT sequence" and
- 3). "Institutional, organisational and interdisciplinary issues".

Paper summaries are intended to provide an outline of the main themes of each paper (if readers require further information, it is recommended that authors be contacted directly). Discussion summaries vary somewhat in format and in fullness due to differences in the style of group secretaries and the actual amount and quality of discussion which took place.

The summaries are organised on a topic basis in order to make the report more readable and more applicable. Where papers/discussions cover more than one topic, cross references are made. Each topic area is concluded with general remarks and recommendations relating to the contribution of sociology in the region. These are summarised below in the conclusion to the report.

11 of the 24 papers have been revised for publication in African Social Research, 38: Special Issue entitled "African Farming Systems Research; the contributions of Anthropology and Sociology (available from The Publications Office, University of Zambia, P.O. Box 32379, Lusaka, Zambia).

1.20. CONCLUSIONS AND RECOMMENDATIONS.

What follows below is a summary of the main conclusions arising from the papers and discussions during the workshop. The order of topics is the same as in the main report. The relevant section to which readers can refer to for a fuller account of the proceedings relating to a particular topic is indicated in brackets at the end of the heading to each topic. The extent to which an FSR programme is able to implement these recommendations will, of course, depend on their manpower availability and commitment to incorporating a sociological perspective into their programme. Some of the recommendations do not need a fulltime sociologist in order to be implemented, but do require team members with a sensitivity to social and cultural issues and a real commitment to ensuring these are incorporated into the work at an early stage. If a fulltime sociologist is not available, it is very important that team members have access

to an experienced rural sociologist or anthropologist familiar with agricultural development with whom they can easily consult prior to implementing the recommendations.

1.21. CONTRIBUTIONS OF SOCIOLOGY/ANTHROPOLOGY WITHIN THE FSR SEQUENCE [2.0].

This set of recommendations relate to the mainstream FSR methodology, primarily as set out by CIMMYT (see Annex 5.4.).

Target Grouping/Zoning [2.10].

1. Secondary literature (especially anthropological monographs), is a valuable source of data for zoning and should be used by FSR teams more than at present.

2. Agricultural staff and local political figures should never be the only, nor even perhaps the main source of data for target grouping and system description. The local knowledge of farmers and community leaders should be more fully used for deriving descriptions of differences in local farming systems and explanations for these differences.

3. During zoning the sociologist can assist by ensuring that the interests of disadvantaged groups are recognised, especially women and poorer households. This implies that these groups should provide key informants during zoning. In areas where ethnic differences are important, the sociologist can also check to ensure that these are properly considered during zoning.

4. It is also very important that the sociologist check that target groups identified during zoning are properly represented during survey work and on-farm experimentation, and that areas selected for diagnostic survey and on-farm research are representative in terms of community structure and culture.

5. More can be done to integrate zoning methods used for adaptive livestock research with those used for on-farm crop research, especially in relation to wealth differences.

6. When conducting target grouping/zoning exercises without an experienced social scientist, FSR programmes should consider hiring the services of anthropologists with relevant experience in the area on a short term basis when such people are available.

Diagnostic Surveys (informal and formal) [2.20].

1. Sociologists and anthropologists particularly, should be

involved in defining the unit of data collection and analysis because this is very important during diagnostic survey work for FSR. They will be most effective when they have a knowledge of the local culture/social structure.

2. Involvement should extend into giving guidance as to how to identify and analyse situations in which important farming decisions are made at different levels within the local social structure - intra-household, household, homestead, ethnic group etc.

3. Sampling for surveys (informal and formal) is another area in need of attention from sociologists\anthropologists. The need is to identify strategies which reduce or bypass obvious biases from extension workers and local leaders, and which allow a survey to bring out the significance of linkages between households and groupings within a community.

4. Sociologists/anthropologists should be involved in the analysis and interpretation of survey results. The meaningful and sensitive interpretation of survey results depends on a prior understanding of the local social structure. This understanding can be enhanced by consulting anthropological literature on the local area.

5. If suitable local manpower is not available, serious consideration should be given to hiring anthropologists who have prior familiarity with a particular local area/ethnic group, as short term consultants, especially if these have a development orientation.

6. The household, defined as a unit of decision-making relating to production, is the most fundamental unit of data collection and analysis in the region's farming systems.

7. In using secondary survey data, care should be taken in establishing how households were defined before attempting to make comparisons and draw conclusions.

8. Sociologists and/or anthropologists should be involved in the training of enumerators (including professional staff involved in survey work), and in the framing of questions in questionnaires, so that the farmers' view comes across clearly during surveys.

On-farm Experimentation and Technology Adoption. [2.30]

1. During on-farm research, anthropologists can act as a channel of, and a stimulus to, communication between technical scientists and farmers. This is especially important when they are familiar with the local culture and the other team members are not.

2. Anthropologists/sociologists have a definite role to play in the pre-screening of technologies to be tested on farmers fields. Further professional guidance is required as to the best methods for achieving this task, which will be more difficult when the non-economic social scientist is not a full time team member. Of particular concern to participants was a means of assessing the likely social impact of a new technology at a relatively early stage in its testing on farm.

3. Anthropologists/sociologists have a role to play in the selection of cooperating farmers. There is a need to further develop methods which guarantee a cross-section of the target group so that the likelihood of adoption can be more effectively predicted and social impact more easily assessed in advance.

4. The extent to which farmers' reactions to new technologies can be predicted in advance through attitudinal surveys was an unresolved issue. The general feeling was that continuous and open dialogue with farmers in the field was the most effective way of predicting future behaviour.

5. The participatory approach described for Kenyan agroforestry research was well received. Anthropologists and sociologists should give serious attention to developing methodologies for the assessment of on-farm trials which attach more importance to the criteria used by farmers and local communities.

6. The historical experience which local communities have of agricultural/rural development policies and projects can exert a major influence of how they receive FSR. Anthropologists and sociologists can assist FSR teams by carrying out research into this history, preferably at the start of a project.

7. Anthropologists have expertise in building up trusting relationships of the kind essential for an honest dialogue with farmers. They have a role to play in assisting and training other FSR team members in how to cultivate such relationships.

1.22. CONTRIBUTIONS OUTSIDE OF THE CIMMYT OFR SEQUENCE [3.0]

This section of recommendations relates mainly to contributions of sociology and anthropology outside of, or in addition to, the sequence of activities set out in appendix 5.4.. While it is anticipated that some of the points below will be incorporated more fully into the sequence quite easily, others will be more difficult. Participants expressed a firm belief that some types of data which are

important for FSR can only be properly and effectively collected by using more intensive and longer term methods than those of rapid rural appraisal. FSR teams will need to decide for themselves whether these topics are sufficiently important in their areas to merit extra attention, and if so whether they have the manpower and other resources necessary for more intensive investigations. Moreover, it is very possible that topic areas other than those covered here will be important (see Annex 5.1, appendix 1). If this is the case teams should seek advice from experienced social researchers who are familiar with the local area they are dealing with.

Labour Data [3.10].

1. The collection of labour data in subsistence oriented farming systems is a difficult and demanding task which requires in-depth methods to achieve a reliable measure of accuracy and sensitivity.

2. In-depth research into labour is expensive, but the cost is usually justified in systems where labour is identified as the major constraint to increased production.

3. While in-depth studies are costly, findings can usually be generalised over a wider area.

4. In-depth research has revealed that economic treatments of labour in subsistence systems are oversimplistic. Very large differences between households in economic returns to labour are apparent, questioning the validity of making economic calculations when assessing the benefits of new technology. In order for FSR programmes to make better use of labour data in the planning of research programmes there is a need to adopt a more qualitative approach to the analysis and collection of labour data: to look at labour less as a commodity with unit value, and more in relation to the cultural context in which it takes place and the goals and ambitions of individual farmers.

5. Individuals often have difficulty in quantifying their labour input or putting a value on it (often this is culturally inappropriate), but some seem to be more willing or able than others to increase their labour input in order to increase production. This questions the utility of identifying "labour constraints" as a production bottleneck and the use of this notion in explaining the poor timing of key agricultural operations. Further in-depth studies are required to determine the usefulness of the labour constraint concept for FSR.

6. Children's labour is an important but under researched area which is particularly amenable to study using

anthropological methods. Anthropological monographs are an important source of data on child labour for FSR teams.

7. The study of labour can become a moral as well as an economic issue, especially when less privileged groups such as women and children are concerned. The team anthropologist/sociologist has a role to play in ensuring that the interests of such groups are fully considered when new technologies involving increased labour input from women and children are being considered for testing.

Land Tenure Issues

1. Land tenure issues are most important to FSR programmes in areas where population densities are high and land pressures are great.

2. Land tenure is a very important factor to consider in FSR & E when technologies requiring longer than seasonal investments are being introduced.

3. If an FSR programme plans to undertake/test interventions in the farming system involving longer than seasonal investments, and/or cooperation within a community, it should involve a social scientist with a good knowledge of land tenure issues in the planning stage.

4. Because land tenure is both a political and a legal issue, it needs to be analysed in relation to both national legal frameworks and national policies and political ideologies relating to land. FSR programmes need to take account of these national level factors when considering technologies requiring longer than seasonal investments.

5. In the region, land tenure is closely tied in with the local kinship and community organisation. It is a flexible and dynamic system of relationships with a complex and sensitive nature which cannot easily be investigated by means of formal survey methods or rapid appraisal techniques. Land tenure is best dealt with by in-depth studies using classical anthropological methods and a trained professional.

Indigenous Knowledge Bases [3.30].

A general observation during the workshop was that FSR programmes usually underutilise the stock of knowledge held by the farmers they are trying to assist. Often important decisions are taken without properly involving the farmer in the decision process and without making full use of his knowledge of both technical and social relationships which are likely to influence the performance and adoption of new technologies. To increase the use of farmers' technical and social knowledge by FSR programmes in the region it is

suggested that the following recommendations originally formulated for Zambia (3.33) are introduced in the region.

1. Anthropologists and sociologists should assist and guide the formal recording of existing IATK (Indigenous Agricultural Technical Knowledge) at a given point in time. This would include knowledge dealing with production, storage, processing and nutrition.

2. The next step is to assist with describing how this knowledge provides the basis for small farmers' agricultural decision-making strategies.

3. Help to facilitate comparisons by natural scientists of IATK with scientific technical knowledge systems to facilitate FSR understanding of indigenous systems and facilitate their working with and through these systems

4. Help to define how exogenous factors (such as technical innovations, price policy, marketing structures) are perceived by and factor into the small farmers' indigenous decision-making matrix.

5. To use IATK techniques to understand small farmers' perceptions of and responses to extension messages.

7. Anthropologists and sociologists can be used to provide a liaison position and feedback vehicle between small farmers and technical scientists in order to foster 2-way dialogue and interactions.

8. To initiate training in methods for collecting and analysing IATK by:

a) Initial seminars with farming systems teams specialist technical scientists on approaches to formalizing small farmers' IATK and decision-making strategies;

b). To introduce training materials into appropriate syllabi at the university schools of agriculture, the national colleges of agriculture;

c). To establish periodic follow-up afternoon seminars based on formalized IATK findings.

9. To incorporate IATK into the FSR Sequence more completely, the social scientist working with IATK should be involved in an on-going process of facilitating interaction between the FSR team and the small farmer at all stages of the FSR sequence.

Involvement of Women in FSR & E [3.40]

One major workshop has recently published findings relevant to this issue (The Rockefeller Foundation and International Service for Agricultural Research. Women and Agricultural Technology: Relevance for Research. Vols. 1 and 2, 1985. The Hague, Netherlands). Another meeting is shortly to take place (FSSP and Women in Agriculture Conference on "Gender Issues in Farming Systems Research", University of Florida - 26 Feb. to 1 March 1986). Thus plenty of useful information will shortly be available to policy makers and FSR practitioners who are concerned with tackling this important issue. The following points arose from discussion during the workshop.

1. Make efforts to secure participation of more female professionals in FSR.
2. Create a better working climate for the employment of female professionals.
3. Carry out in-service training for both female and male extension workers relating to the importance of involving women farmers, and methodologies for achieving greater participation from females.
4. Use more female household heads as both key informants and as farmer cooperators.
5. Involve wives much more in survey work and on-farm experimentation and trial evaluation.
6. Aim to design more technology specifically addressing women's interests, and covering the full spectrum of women's work (including food shortage, preservation, processing and off-farm work). This requires educating and informing agricultural planners, administrators, and trainers about the importance of training and recruiting scientists to develop and work with this type of technology.
7. Develop more sensitive interview and interaction methods which take into account private "in-the-house" decision making, and accommodate cultural differences in this.
8. To note that in the design of FSR projects/institutions women's interests should be integrated creatively - but there may still be a need to contact women separately.
9. In training of national professionals, more attention should be paid to training in the local context, rather than imposing ideas about women's development learned overseas.
10. Training in agricultural colleges on women's role in agriculture need to be improved in order to make the FSR extension link more effective.

11. Use the forthcoming FAO guidelines (coming out through ICRAF, Nairobi) relating to women's involvement.

The Broader Socio-political and Infrastructural Context [3.50]

1. FSR programmes must take the broader socio-political and infrastructural context of small farmer development into account. Social scientists on teams should be prepared to spend time studying and following up broader issues which are not technical related but are nevertheless vital to agricultural development once technologies have been identified. They should also be prepared to comment to relevant authorities on the equity implications of policies and practices, while being sensitive to the fact that national interests may differ from those of their client group.

2. Relatedly, anthropologists/sociologists have a role to play in studying the larger institutional context of agricultural development with a view to making it more effective in meeting the needs of the small farmer (as well as national interests). Research is required into both the internal functioning of inefficient support institutions and linkages between institutions serving the small farmer.

3. FSR programmes often tend to be production oriented and pay little attention to the social impact of technical innovation, and its impact on larger organisational forms. Sociologists/anthropologists can be used to assess social impact, both at the individual farmer/household level and at the level of larger community agricultural support services operating at the local level.

4. Sociologists have a role to play in the evaluation of projects and support programmes to ensure that national interests and manpower development are at the forefront of activities and short-term visible effects (measured as a simple increase in output or agricultural activity) are placed in their proper perspective. In looking at the larger context, there is clearly a difference of perspective between FSR projects of a limited lifespan and programmes for institutionalising FSR into the national agricultural research and extension structure. FSR projects tend to have a more holistic view of development and so run the risk of undertaking support activities which are the responsibility of other government departments for the sake of "project success"; government employees may be used to further project objectives, rather than to increase the effectiveness of the government department from which they are seconded. Programmes of FSR institutionalisation attempt to build up the national capability to carry out on-farm research and

extension which will, in the longer term, lead to improved smallholder productivity.

1.23. INSTITUTIONALISATION OF SOCIOLOGY INTO FSR AND INTERDISCIPLINARY RELATIONSHIPS [4.00].

Institutionalisation is clearly a critical issue when developing guidelines for the incorporation of sociology and anthropology into farming systems research. Policymakers in each country will be faced with the choice as how to incorporate. Some may consider it is better to set up a separate sociology unit, others to incorporate social scientists as members of existing specialist research teams. Yet others with more restriction on resources may choose to forge closer links with sociologists working in allied departments or related institutions. If resources permit, the likely best option may be to employ a small number of sociologists and use these both in training non-social scientists and in carrying out special research tasks which cannot easily be delegated because they demand professional expertise. Such people must be properly qualified and above all have the relevant experience and approach to the job. While the choice of precisely how to institutionalise and incorporate a sociological perspective rests with individual countries, several relevant points arise from the papers and discussions on this issue.

1. It is very important, where ever possible, to involve sociologists at the planning stage of FSR projects, to help get the team on the right track. This will avoid the sociologist who joins later being regarded by other team members as a "problem solver" or "trouble shooter".

2. In situations where economists and sociologists are working together in the same team, while a rigid division of tasks should be avoided, the economists should concentrate more on the quantitative aspects and the sociologist more on the qualitative aspects of data collection and analysis.

3. Of great importance is the training of graduates in national universities. Agricultural graduates require a sociological perspective, while sociology graduates require more background in technical subjects relating to rural development and agriculture.

4. The creation of a career structure with incentives is necessary to retain good people in post.

5. Sociologists or anthropologists employed fulltime in FSR should have a training role in sensitising other scientists to social and cultural issues and improving communication between scientists and farmers.

6. Sociologists or anthropologists who are thinking of working in FSR need to have a good record of, and attitude to, teamwork.

2.00. CONTRIBUTIONS OF SOCIOLOGY WITHIN THE CIMMYT FSR SEQUENCE

Papers discussed in this section all address issues which fall within the mainstream of FSR methodology. Most of the authors are (or have been) engaged fulltime on FSR programmes. While the approaches described and sometimes advocated are often not those of CIMMYT, most of the papers and ensuing discussions do take the CIMMYT approach as their basic reference point for FSR methods (see Collinson, Annex 5.4).

2.10. Target grouping and classifying/zoning farming systems

Three papers fall into this topic area which is a critical stage in the FSR diagnostic sequence (see Annex 5.4). Kabagambe proposes the value of a phenomenological approach to target grouping, and Grandin also argues for a similarly emic approach for use in pastoral societies as well as those practising mixed farming. Kerven, while not specifically calling for an emic approach, argues that an anthropological perspective and expertise is the most effective for this stage of FSR. Kerven also discusses anthropological contributions to later phases in the diagnostic sequence. She puts forward an alternative low cost methodology which assumes that target grouping can only be effectively done after intensive survey work. Other papers which make similar points relating to target grouping are those of Hansen (2.32), Sharpe (3.32), and Sutherland (2.23).

2.11. "Using local perceptions in target grouping for farming systems research". By JOHN KABAGAMBE

Summary of Paper

Kabagambe's paper started out by accepting the importance of categorising rural populations into target groups for development purposes. He argued that as development is most effective when the self help element is greatest, a "phenomenological" approach, using farmers' own definitions and classifications, is a worthwhile starting point for target grouping.

Kabagambe provided an example of how he begun to do this in rural Swaziland, arguing that his approach yielded different results from the "positivist" (or etic) approach of an agricultural economist (Testerink), who used objective criteria in his classification of Swazi farmers. While Testerink used such criteria as output and cultivated area of

marketed crops (cotton, tobacco, maize and legumes) in relation to household size, to determine who was a commercial farmer, Kabagambe found Swazi farmers themselves used a greater variety of criteria, and that these varied from area to area. In one area use of improved technologies (hybrid maize and fertilizer) were necessary qualifications for being a "farmer" (umlimi). In another, membership of the farmers association was necessary. In other cases growing enough for subsistence qualified a person as a farmer. In yet other areas such factors as growing a surplus for sale, growing a specific cash crop, attendance at a farmers course, owning a tractor, hiring labour, and having close ties with extension workers or agricultural development projects were factors which local people regarded as important in defining a person as umlimi.

Kabagambe concluded that in local areas, who is or is not perceived as umlimi depends on variations in resource base and opportunities. He feels that the phenomenological approach of the sociologist would be most useful in the exploratory and verification survey stages of FSR.

Small Group Discussion (secretary Margo Russell)

The group discussed the origins of the term "umlimi" which acquired the specific meaning of "farmer" when a "master-farmer" scheme was introduced in colonial times. The term has been used already in Swaziland by a sociologist (Sibisi), as the basis for self selecting a sample of people regarded locally as "farmers". Kabagambe described his method of selecting, somewhat randomly, a list of locally defined "farmers". He said the next stage of his research would be to interview a sample of these to see what they have in common. This would permit him to examine the relationship between subjective perceptions and more objective facts, and perhaps refine or revise classifications based on more conventional criteria.

The group wondered if there could be more than one "farmer" in a homestead and if a farmer's wife could also be a "farmer".

They felt that the study would provide information useful to development planners in Swaziland. In terms of method it was similar to Grandin's (2.12), being based on subjective local perceptions.

Plenary Discussion

The historical origins of the term umlimi in Swaziland was discussed. McPhillips noted that Zambian extension workers make a similar distinction; seeing their work as being with

"farmers" rather than "villagers". The session agreed that such local distinctions should be included in the diagnostic survey phase of FSR, and also in the selection of cooperators for on-farm trials.

2.12. "Delimiting target populations through informant wealth ranking". By BARBARA E. GRANDIN

Summary of paper

This paper discussed the importance of wealth differences between producers in traditional pastoral production systems. It argued that significant wealth differences exist, and that these have a profound effect on production strategies. For too long these differences have been insufficiently understood as researchers described and developers planned for the "average" pastoralist. Pastoral systems research should specifically focus on differences within communities at all stages of operation from defining target populations to designing and testing interventions. Wealth, as (a proxy for) resource endowment, is the single-most important differentiating factor.

The paper briefly described an inexpensive and rapid technique for determining the wealth status of producers within a given community based on ranking by local informants. The technique stems from anthropological interests and methods. It recognises that the average producer is a statistical artifact, not a real world entity; stressing that wealth varies greatly in traditional production systems despite ideologies of equality and "levelling" mechanisms and that these differences lead to quantitatively different production strategies. The technique relies on indigenous informants, both to explain the nature of "wealth" in their community and to categorize their neighbours accordingly, and it enables the researcher to obtain potentially sensitive information on wealth status in a socially acceptable manner. While the paper focused on the informant ranking of producers according to wealth, the technique could be used for virtually any producer characteristic, such as education, management skills, use of hired labour, etc.

Grandin listed the following points for discussion:-

1. The value of "wealth" as a single stratifying parameter vs. defining target populations according to more specific criteria (e.g. labour supply, number of draft oxen owned).

2. The most appropriate timing in the FSR\PSR process for

using informant wealth ranking. What would be the advantages\disadvantages of ranking before the informal survey; or might it best be used as an aid in choosing a sample for a verification survey.

3. To what extent, at what point, and for what purpose might FSR require absolute wealth calculations vs. relative wealth ranking.

Small Group Discussion (Sec. Mike Warren)

Grandin summarised her paper emphasising that it presents a methodology to deal with the outsider's perception of apparent homogeneity of pastoral groups and other small-scale societies. Grandin explained that she operationalized the method in a mixed farming society of SW Nigeria (the Egun) and among the Kenyan Masai with equal success. The method involves working with key informants to differentiate and categorize members of the community along a wealth or resource base continuum. This method can be used successfully by locally trained investigators, so costs are low.

The group noted that the strategy entails emic or indigenous criteria for categorizing individuals along the resource continuum. Its advantages are that it allows outsiders to understand the heterogeneity within a community, allows for an understanding of the criteria used locally in the decision-making process to categorise individuals, and would allow the FSR team to better establish their recommendation domains or target groups along indigenous dimensions.

Grandin noted that in her SW Nigeria study she found strong correlations between local categories of wealth ranking and such variables as animal assets, house types, number of farms, timing of maize sales, etc. Among the Masai in Kenya indigenous categories correlated with empirical evidence of number of livestock, animal offtake, labour, income, and other variables. Hence emic (local) and etic (universal) categories can be used in a complementary fashion.

Plenary Discussion

In response to a question from Russell on optimum sample size, Grandin noted that the technique was community-based and large communities could be subdivided. When asked by Collinson about "cut-off" points between groups, Grandin noted that informants provide criteria to identify specific groups. It was noted that similar techniques were used in psychological tests and in ranking crop varieties and classifying tropical grasses. Bantje asked if the technique would work better in communities with a uniform wealth base

than those with differential bases for wealth. Grandin replied that the techniques would be appropriate in highly differentiated peasant societies, where sources of wealth are often difficult to conceal. Opiro Odongo followed a similar track by asking if the technique would work in multi-ethnic situations. Grandin noted that in such situations a cross section of informants, should be used and the local language must be used. Another participant asked if the high correlation of results was due to the use of local leaders and extension workers. Grandin replied that her informants represented a wide spectrum of social types. Hansen noted that the simplicity of the technique made it useful for selection of farmers for on-farm trials. Curry noted that a similar method was used by Watts in Hausaland to rank communities and individuals and establish differences in the farming systems from the emic perspective.

2.13. "The family farm and outmigration: some issues for FSR in Africa." By CAROL KERVEN

Summary of paper

Kerven's paper, focussing on the effects of out-migration for small scale farming, put a question mark against popular economic models of African rural economy, particularly those current in farming systems research programmes. She argued that the notion of a "family farm", together with the need for economists to identify discrete social units for statistical modelling, has tended to over-simplify the multi-dimensional economic strategies pursued by African rural dwellers. The paper derived support from other anthropologists, particularly Guyer and Hill, in arguing that household survey type approaches are only effective after in-depth studies revealing the basic principles of how rural families manage their environment and economy have been carried out. Kerven then reviewed literature on the effects of out-migration and off-farm employment on African small farmer agriculture, particularly on production methods, crop preferences, output, division of labour, and involvement by families.

The second and most substantial part of Kerven's paper contained a discussion of how out-migration and off-farm employment in African farming systems can be incorporated into farming systems research. She argued that the existing standard diagnostic survey methods require modification, particularly a re-focus of the analytical framework which does not however, involve greater research expenditure. Kerven set out a four stage programme of diagnostic work, as an alternative to the CIMMYT diagnostic sequence. She suggested an economic anthropologist as the most appropriate

person to carry out such work in conjunction with an agricultural scientist. The first stage consisted of a review of secondary sources, especially available information on out-migration and off-farm employment. The second stage took the form of a more intensive "zoning" exercise, involving compilation of a rough map of land use systems with accompanying farm management systems. The more appropriate systems would then be subjected to short field studies of several days each, covering similar subject matter to the CIMMYT informal survey, but involving more intensive focus on the activities of individual families over a year. Kerven stressed that the second stage differed from CIMMYT "zoning" in two respects. Firstly it involved in-depth interviews with farm families. Secondly, it assumed that the "relevant criteria for grouping farmers into "homogenous groups" cannot be sufficiently known prior to field investigation.

The third stage consisted of the preliminary analysis of the results of the short field studies, followed by a two week field study. The preliminary analysis would allow the researchers to assemble a "preliminary typology of family strategies", which might cross-cut ecological zones and economic spheres, but which would represent different socio-economic strata. The typology would guide the two week field study during which the social researchers would focus on family resource management, income sources, and the distribution of income and farm produce, taking due account of inter-family linkages. The fourth stage would consist of the analysis of all survey results with the CIMMYT objective of preparing a scenario of the local farming system to form the 'basis for hypothesis formation on the constraints in the system'. In addition, the researchers would prepare a typology of family strategies which would replace the recommendation domains, being a typology of families rather than a typology of farming systems.

Kerven concludes that a formal verification survey would not be necessary and that the cost is similar to that of the CIMMYT approach.

Small Group Discussion: (Sec. M. Russell)

Kerven noted that pp 10 - 19 of her paper directly challenges the CIMMYT sequence for FSR in Africa, and on her suggestion the group focussed on this part of the paper rather than the earlier issues of definition of farm family, and migration. Kerven described her plan for a 60 - day involvement of a professionally trained anthropologist as part of the diagnostic team, to collect initial data before any planning for technology generation.

The group expressed reservations about whether an accurate

picture of any community could be obtained within so short a time, by either the CIMMYT or the alternative model. If traditionally anthropologists have taken years to obtain data and write up their accounts, why should they now be able to accomplish this task in 60 days?

In reply Kerven suggested that their previous training, and in particular their immersion in a similar environment (and she would insist on this as a prerequisite for the selection of any particular anthropologist for any particular programme) would enable the anthropologist or sociologist to give a more accurate description in a shorter time. The group wondered if anthropologists would be prepared to compromise their professional standards by preparing an account after only a very brief exposure to a situation or community. Kerven felt that anthropologists were perceived as impractical specialists precisely because they preferred a slower pace of data collection; but that this would have to change if they were to find employment at all in a climate in which cost-effectiveness is a major consideration. If anthropologists could prove their ability in a short time, their value might be recognised, and opportunities for more thorough study be offered to them.

The group also wondered what the essence of anthropological method was - noting that Collinson himself recommended an "almost anthropological approach". Kerven argued that the anthropological approach required an anthropologist. An economist could adopt an anthropological technique (as an anthropologist can adopt an economic technique) but not an anthropological approach, which requires years of training (and vice versa).

Somebody suggested that a traditional social survey with in depth unstructured interviews would be as effective, and questioned Kerven's proposal to select informants "opportunistically" (p.12).

The question was raised as to the "accuracy" of an anthropological (or any other) study. The group noted accuracy is very difficult to define. How would such a claim be verified? Kerven argued that an anthropologist is likely to present more accurate data than is possible by conventional survey methods because of anthropological training noting that "we must put more trust in the trained observer and less in the calculator". Anthropologists would present relevant data; accurate but irrelevant data is ultimately very costly.

A fundamental weakness of the FSR method, the group noted, was its reliance on local agricultural field staff whose stake in the research could not be discounted. The agronomist in the group saw a greater need for anthropological skills later in the programme, in analysing

why recommendations were not adopted.

Plenary Discussion

In reaction to this account of the group discussion Kerven said she was playing devil's advocate, overstating the case in order to make the case. Disciplinary arguments were counter productive. The important questions were what kind of information do we want, and who is best trained to get it. The stereotype of anthropologists as people interested in rituals and beliefs must be dispelled. Economic anthropologists are as interested in economics as any economist.

Francis commented that the narrow specifications for this anthropologist (local knowledge, interest in economics and agriculture) made it unlikely that one would be available.

Kerven replied that detailed local knowledge was not essential: rather that one had worked in a similar culture, and this greatly increased the probability of finding such a person. Francis also noted he found Kerven's proposals rather close to CIMMYT's.

Kerven said zoning was a quick strategy: given time constraints, an anthropologist would start with land as a resource and hence zone.

Hansen said if anthropologists conducted their diagnostic survey in isolation from natural scientists, their emerging research priorities would not be accepted by some team members. The political dynamics of the team had to be taken into account. Kerven noted that she intended the anthropological survey to be concurrent with the diagnostic survey of other natural scientists.

Collinson ended the discussion by congratulating Kerven on having spelled out a proposal for incorporating anthropologists into the FSR team. Economists had been early integrated because of their willingness to talk to the technical scientists in their own terms. They had created a bridge. In the same way anthropologists needed to show how they could contribute -- though clearly not all the profession would want to participate in FSR.

2.14. Observations and Recommendations: Target Grouping and Zoning/classifying Farming Systems

1. Secondary literature (especially anthropological monographs), is a valuable source of data for zoning and should be used by FSR teams more than it is at present (see

Hansen[2.32 sp and annex 5.3] and Kerven [2.13 sp]).

2. The local knowledge of farmers and community leaders can be more effectively used for deriving descriptions of differences in local farming systems and explanations for these differences. Agricultural staff and local political figures should never be the only, nor even perhaps the main source of data for target grouping and system description (see Sharpe [3.32 ps and gd], Kabagambe [2.11 ps and gd], Sutherland [2.23 ps and pd] and Kerven [2.13 ps]).

3. Zoning is a continuous process, but given its importance in targeting research efforts it might merit more attention than it is often given. The sociologist can assist by ensuring that the interests of disadvantaged groups are recognised in the zoning process, especially women and poorer households. This implies that these groups should provide key informants during zoning. The sociologist can also check to ensure that in areas where ethnic differences are important these are properly considered during zoning (see Sharpe [3.32 ps and pd]). It is also very important that the sociologist check that target groups identified during zoning are properly represented during survey work and on-farm experimentation, and that areas selected for diagnostic survey and on-farm research are representative in terms of community structure and culture.

4. More needs to be done to integrate zoning methods used for adaptive livestock research with those used for on-farm crop research, especially in relation to wealth differences (see Grandin, [2.12 ps,gd,and pd]).

5. When conducting target grouping/zoning exercises FSR programmes should consider hiring the services of anthropologists with relevant experience in the area on a short term basis when such people are available (see Hansen [2.32 ps and annex 5.3] and Kerven [2.13 pd] Baker and Lesotho [22.22 ps]).

2.20. Survey Work for Problem Identification and Diagnosis

This topic area attracted the largest number of contributions from participants. Five papers and one discussion session are summarised in this section. Other papers, notably those of Kerven(above), Hansen, Bantje, Tripp, Opio-Odongo, Curry, Francis and Sharpe (all below), had important points to make in relation to this stage of FSR. These are incorporated in discussion and recommendations (below 2.27).

2.21. "Improving farmer participation in on-farm experimentation" By GRASIANO BULLA

Summary of Paper

Bulla's paper argued that because farming system research (FSR) is directed at the problems of smallholder farmers, there is a need to improve their participation in on-farm experimentation so that the technology generated is appropriate to their circumstances. It stated that the Department of Agriculture Research in Malawi has developed many technically sound technologies, but uptake has, however, come up against unanticipated social problems because of very little farmer involvement in their generation: "technological change cannot be realised in a socio-cultural vacuum".

The technical scientists did their research without considering the human element involved in the introduction of the innovation. High yielding varieties (HYV) had been developed with good results at the research station. The assumption was that the HYV would make an impact on the farmers such that local varieties which were low yielding would automatically disappear from the farming system. This however was not the case at present because HYV have been adopted by a limited number of farmers only. Most of the farmers still prefer to grow the local variety because it stores well in local storage structures and has good pounding qualities.

Following the CIMMYT sequence, Two types of survey were carried out, namely informal and formal. In these surveys the FSR team relied on local leaders to make the initial contact with the farmers. Farmers were usually suspicious of outsiders if the outsiders were not in the company of some local resident, preferably the local leaders. Sometimes extension agents were used to make the contact. These local experts at times took the FSR team to better than average farmers. In the informal interviews, respondents were not chosen in advance.

Group interviews were found useful. They gave a general picture of farming in the area. Later, individuals were interviewed. In group interviews, it was noted that women didn't participate fully. Men dominated the interviews. The FSR team therefore found the individual interviews a useful tool that would allow full participation from both sexes. The need for a woman member on the team was also noted.

The formal interview met with some problems. Some of the selected farmers were too old and some were not found at home because the survey was carried out during the off-season when some of the farmers were not involved in off-farm activities. Bulla noted two important social related issues which came out of the surveys:-

1. Hybrid maize was adopted by a limited number of farmers

because it had poor pounding quality and was difficult to store in local grain stores.

2. Farmers used low rates of fertiliser on the hybrid because some of the fertilizer was diverted to local maize, a variety that is grown to meet the farmers' priority number one of food security.

Summary of Small Group Discussion and Plenary Discussion Combined (Secretary: P. Chipulu)

A number of questions were raised. One was how much of the technologies have been adopted by farmers? The group noted that it was generally difficult to establish the extent or level to which technologies had been adopted.

Another question was on the criteria used to determine which farmers should carry out the trials. It was observed by the group that trials should be done on a range of farms, that is, both better and poorly managed farms.

It was observed that the small farmers' primary objective is to produce sufficient food using local materials under local conditions. Some argued that with the right improved technology this can lead to a reduction of land under food crops, thereby releasing the land for the cultivation of other crops. This may probably result in more efficient utilization of resources (land, labour and capital).

2.22. "A methodology for farm management research in Botswana" By DOYLE BAKER and JOHN LESOTHLLO

Summary of paper

The paper, presented by Lesothlo, summarised the socio-economic research approach of the Mahalapye team of a farming systems research programme in eastern Botswana, known as the Agricultural Technology Improvement Project (ATIP). The authors argued in favour of a multi-disciplinary approach to farm management research, emphasising the common ground of rural sociology and agricultural economics, rather than specialist contributions. They further argued that a systems perspective on farm management provides a foundation for inter-disciplinary cooperation.

After an overview of ATIP research activities, the paper highlighted three surveys which illustrate attempts by the authors to draw on both rural sociology and agricultural economics perspectives in designing a FSR and E "socio-economic" research programme. One survey, a multiple-visit

farm management survey, showed how rural sociology methodology could improve the effectiveness of economic research. The other two surveys illustrate the specialist contributions of rural sociology in FSR. A draft power arrangements survey, focussing on inter-household connections, was used to evaluate social institutions affecting timely access to ploughing resources. A more recent "decision unit-management information" study was carried out to look at the way social institutions influence decisions relating to agricultural production.

Throughout the paper, the importance of "non-economic" objectives and constraints faced by farming households is stressed, along with the need for whole household and supra-household perspectives in farm management research. However, when discussing guidelines for incorporating social science issues into FSR and E, the authors note that both sociologists and economists must be able to demonstrate that investments in social science research are translated into higher adoption rates and improved farmer productivity.

The paper concluded by cautioning against arguments over "disciplinary perspective". The underlying conclusion was that agricultural economists and rural sociologists can cooperate effectively in conducting farm management research for Botswana's small farmers, each usefully applying their perspective to the situation at hand rather than engaging in arguments about which perspective is the most appropriate.

Small Group Discussion (secretary Irene Whalen)

John Lesothlo answered questions relating to the paper and the sociological contribution to the ATIP FSR project. He noted that the dominance of a qualified agricultural economist in the programme limited his impact as an unqualified rural sociologist, especially as he was newly recruited. It was noted that the political pressure for quick results may jeopardise an FSR approach which incorporates a long-term investment of socio-economic research. The technical scientist in the group (Ken McPhilips) noted that technical scientists often pursue their disciplines in isolation and emphasised the importance of familiarising them with small farmer practice. This implied cooperation with social scientists familiar with local conditions. McPhilips felt the language used in the paper was too obtuse and that the flow charts tended to obscure the linkages. He also stressed the need for scientists to become less concerned with measurement and data collection for its own sake, and more concerned with defining problems and developing methods of analysis.

The group felt that the paper suggested rural sociology had a more important role in subsistence agriculture than in

commercial agriculture, and particularly with target grouping in heterogeneous farming populations. There was disagreement about whether the focus of FSR should be to look at ways of releasing labour from subsistence crops in order to increase cash crop production. Whalen felt this was the kind of top-down perspective FSR was trying to avoid.

Plenary Discussion

Discussion was brief as Lesothlo noted his newness to the project. Lesothlo noted the importance of kinship networks and interhousehold processes for draft power arrangements, and that recommendation domains were based on access to traction and type of traction used. Kerven, who was familiar with the survey on draught power and the delineation of recommendation domains, noted that this was completed in three months which was consistent with the suggestion in her paper for establishing recommendation domains.

2.23. "Rural sociology and technology generation for subsistence farming systems: A Zambian example." by ALISTAIR SUTHERLAND

Summary of Paper

Sutherland's paper used a case study approach to argue for the special relevance of rural sociology (including anthropology) in subsistence farming systems. The paper began by describing typical features of a subsistence farming system, highlighting those aspects which do not lend themselves easily to conventional economic analysis. Above all else, the paper argued for the introduction of a community perspective into FSR in Zambia, especially in food deficit areas. It pointed to the goals which characterise subsistence based communities:- physical survival, self sufficiency, fulfilment of local community and kinship obligations, adherence to a pattern of seasonal activity and a set of traditional values, and the use of surplus production for increasing local status rather than productive capacity. These characteristics were then related to the kinds of technology more likely to be favourably received in this kind of community.

Using case material collected in a food deficit area in the Western Province of Zambia, Sutherland described a method of rapid survey which took in a community perspective and had several other advantages over conventional FSR survey methods. The method allowed for the comparison of ethnic groups and different types of household and community

structures in an ecologically diverse area with a subsistence economy based on mix of livestock, cultivation, hunting, fishing, and gathering. Household types and ethnic groups were compared in relation to a selection of key variables in the farming system including access to different types of land, access to draught oxen and ploughs, and planting priorities for maize, sorghum and bulrush millet. By applying this comparative method, technical options for improving the cropping system, and thus addressing the problem of food shortage, were identified. In identifying appropriate technologies the emphasis was on technical improvements which benefitted the community as a whole, rather than different groups within it. Thus, while significant differences between ethnic groups and households were identified, limited national research resources currently precluded considering technical options specific to each group. Given this limitation, together with the high degree of interdependence between different household types and ethnic groups, and communities, Sutherland advocated an approach which looks at the needs of the whole community against a background understanding of the differences within it. He argued that this compromise made on-farm research and resulting extension easier to administer and more cost effective, especially in areas which are ecologically and culturally diverse.

Summary of group discussion (secretary Carol Kerven)

The group felt that the methodology could be equally applicable to semi-commercialised or commercial farming systems, although the author maintained that it was particularly appropriate for studying subsistence agricultural systems. It was agreed in any case that an absolute distinction between "pure subsistence" and "commercial farming" often would not hold. Members of the group noted that cash was used for transactions in the study area. Asked what the main sources of cash were the author listed sale of cattle, migrant labour, illegal hunting, local salaries, and sales of beer, milk, fish and handicrafts.

This provoked a discussion on the difficulty of obtaining information about cash flows into households. Most investment of cash by farmers in the study area was for purchasing draught oxen and ploughs. The agronomist asked why farmers needed to use ploughs on the sandy soils in part of the study area. It was thought that this was due to a labour constraint; since 40% of the households were female headed, ploughing was more attractive than hand-hoe cultivation.

Questions were raised about the methodology used; it was felt that insufficient time was allocated to interviewing a large number of households. The author replied that with previous

experience in a similar cultural and ecological area he was able to study the interdependences between households. The actual study was a little short on an interdisciplinary component, largely because the project agronomist and economists were busy with research trials at the time. However, consultation took place before implementation, and other team members contributed feedback, helped with data collection and would have participated more fully if time had been available.

It was agreed that the study was low cost. On the question of training required, it was the author's opinion that enumerators could not be used, at least in the early stages, because a knowledge of how the social structure would influence the design of data collection required professional

expertise, and could not be easily delegated. However, it was agreed that a senior social scientist could design a small study to be done under supervision by graduate students.

It was agreed that the methodology used for survey differed from that normally used by the Zambian FSR programme. The latter's diagnostic studies are carried out using extension workers (who lack experience) under the supervision of agronomists and economists who have not been trained in the incorporation of the community perspective into diagnostic work.

There was a discussion of the problems of interviewing women in a group situation. The author stressed that generally the style of interviewing would have to vary according to the local gender roles and related kinship system and customary norms relating to public discussion.

In summary, the author noted the advantages of his method. The main advantage was that the researcher can focus on how the community handles problems in its farming system. By looking at this one can see how a community is sub-divided into relevant decision making units. Whether these units are households or larger units does not matter in itself. What is important is to identify units and then focus on key decisions. The agronomist found the results of the study useful, as the technical scientists could now proceed to test out new varieties in the area.

Plenary discussion

A question was asked about how the author's methodology corrected biases in other FSR surveys. There was a query on whether recommending a single technical solution to a common community problem might end up serving no one. Another participant queried the cost effectiveness of the method.

Collinson noted that the study's costs were within budgetary limits and were reasonable.

It was pointed out that where a community has unequal access to draft power, there are research implications for different kinds of producers. For example, it might be that reduced tillage would be more cost effective than hiring draft power for producers without their own draught power.

In response to some of the above points the author noted that the national research station had limited resources and could not be expected to provide technical solutions to each and every problem. In the subsistence system described, food sharing is the norm and oxen are freely loaned and so the question of unequal ownership of oxen is less critical than in situations where cash cropping is important and oxen are hired.

The question of the feasibility of interviewing 19 households in a day was asked, in view of the fact that an anthropologist's strong point was getting to know farmers in a deeper way. The author replied that the speed was possible due to the nature of the local social structure and his ability to interpret results on the basis of experience in a similar cultural area.

2.24. "Closer focus: a plea for more small-scale face-to-face interviewing in contemporary African social research" by MARGO RUSSELL

Summary of paper

Russell argued that data collection has become an undervalued task in African social research which has been too often delegated to juniors. This, she claimed, has resulted in an unnecessary distance between the analyst and subjects of research, thus increasing the probability of misunderstandings and misinterpretations. Using the work of two economists from Swaziland as a means of illustrating her case, Russell suggested that face-to-face interviewing by professionally skilled observers was an essential complement to the mass data routinely collected in surveys.

While Russell used the work of economists to make her case, she took care to point out that her comments apply equally to sociologists and other social scientists who rely heavily on large scale survey methods and spend little time in the field. No matter how much data was collected, sensitive and meaningful interpretation of social survey data required a proper understanding of the situation which the data

reflects. This was often hampered by a lack of understanding of the language when research was carried out by outsiders.

Russell criticised her economist colleague, de Vletter, for failing to properly understand the mechanisms which prevail in Swazi homesteads for managing income from the migrant labour process. She argued that he imposed a western notion of a "regular income" on Swazi homesteads, and derived correlates of inequality on the basis of an incomplete understanding of the Swazi system of kinship obligations relating to the distribution of income. Russell then turned to Low's work, particularly to his use of an "as if" model of

economic behaviour in Swazi households, which she argued ignored local indigenous explanations of involvement in migrant labour. Russell asserted that Low's model served to distort Swazi economic behaviour and did not take account of the strength of the kinship system and rural culture in which men retire early from wage labour on the basis of support from kin in order to participate more fully in the local political system. Russell also criticised Low for treating the Swazi household as a decision-making unit, rather than as "a collection of individuals differentially bound to each other in a variety of sets of rights and obligations each seeking to protect individual interests within a set of cultural constraints". She suggested that in situations where the household is characterised by a latent conflict of interests, decisions are not always cost minimising. She further criticised Low for applying a household model of decision making to a "homestead" which was "multi-household in structure" and which consequently comprised several decision-making units. Russell concluded that a proper understanding of indigenous social structures, through sensitive small-scale face-to-face research, is an essential prerequisite to a proper interpretation of national statistics, a factor particularly salient when the interpreter of these was an alien.

Summary of group discussion (secretary Carol Kerven)

After Russell had outlined the main points in her paper the group began by discussing the training and use of enumerators in survey work. A group member pointed out that many senior researchers never set foot in a village, and asked why they bother to come to Africa if they never leave their offices and only supervise questionnaires. Another member felt that there was an anti-fieldwork bias among many researchers, and suggested that often such people feel uncomfortable actually talking to people from other cultures. This was particularly true of economists who rarely carried out fieldwork. It was also suggested that many aspects of the rural economy could not easily be studied by means of a questionnaire survey; for example cash flows, remittances from urban migrants, and

livestock distribution.

The author felt that one needed professional training in order to know why certain questions are being asked. A group member noted that lowly paid enumerators have no motivation to understand the complexity of the questions and answers in a survey.

Russell's critique of Low's work on Swazi rural family decision making was felt to be weakly grounded. Her explanation of household labour allocation was a cultural tautology; she tried to explain labour allocation in terms of a culturally accepted norm, but in fact used many of the economic explanations used by Low.

The author noted that Low did not do any fieldwork, and therefore misunderstood the difference between a household and a homestead in Swaziland. Low also misconstrued the nature of the family developmental cycle, and was not able to analyse female headed households as a result.

The group concluded that Russell's paper was relevant to FSR because she stressed the need to understand family and domestic economies.

Plenary Discussion

Questions were general in nature and centred around the methodological problems of identifying the appropriate unit when sampling rural populations, and on the effectiveness of questionnaire based surveys.

2.25. "Is it the household or the homestead that is the basic unit for research?: some considerations on data collection methodology in rural Swaziland." by FUNEKILE SIMELANE

Summary of paper

Simelane's paper was about selecting the most appropriate social unit for collecting and analysing data relating to farming systems research in Swaziland. She questioned the current practice of interviewing the homestead head, especially in the very common event of a homestead being made up of more than one household. The paper argued that the household is a more appropriate unit of observation and analysis than the homestead.

Simelane went on to differentiate between "single" and "multi-household" homesteads, and to further differentiate different types of household within each type of homestead.

The paper pointed out that inequalities among households existed, and that these limited a household's ability to follow extension service advice. The process of decision-making varied according to the type of household and homestead, with the main implication that "one individual cannot be held spokesman for the whole homestead on cropping matters because each household may operate in a semi-independent manner." Simelane's suggestion was that during formal surveys each household should be interviewed separately. This would ensure that the main target group of FSR, the small resource limited farmers, were more effectively catered for in Swaziland.

Summary of group discussion (secretary Art Hansen)

The group was excited about the paper as it related to the issue of defining the unit of analysis which was felt to be an important contribution of social science to FSR. The major thrusts of the discussion were: 1) using the household vs using the homestead as the unit of production; 2) clarifying the use of the homestead in Swaziland as the unit of analysis and 3) congruence of units of production and consumption.

Discussion revealed that in previous studies the homestead has been considered the unit of production in rural Swaziland. All fields and cattle are assumed to fall under the control of the homestead head who is the one interviewed in surveys, contacted by extension workers, and used as the unit of analysis.

Further discussion revealed that the Swazi homestead is a basic kinship unit of structural equivalence to the "matri-village" in Zambia and Malawi. The homestead head is the head of the co-residential family or lineage unit, comprised of one or more households; seven households being the largest. In polygynous homesteads the wives usually lived and cooked separately as in Zambia and Malawi, and could be considered as a separate household. Further discussion revealed that the household in Swaziland was both a production and a consumption unit. Production was the starting point for FSR in the region, but often the issue was confused when official definitions were based on consumption.

Further discussion focused on the specifics of a polygynous situation with two wives in Swaziland. It transpired that each wife had her own field and food store and in addition the homestead had a field and store which was used for food when household stores were exhausted - or the contents could be sold. In relation to production on household fields the husband played a major role if present, and in their absence wives had more independence. The same applied to distribution and storage. Women and other decision makers at

the household level were subject to the authority of the homestead head in matters relating to land allocation, and also usually in relation to credit and ox power. Married brothers and sons have limited autonomy as household heads in relation to the above. If such individuals wish to commercialise their production then a division of the homestead usually takes place.

Further comparisons were made between Swaziland and Malawi in relation to the relative autonomy of husbands and wives. It was noted that in Malawi the system of matrilineal residence allowed a man to marry and farm land in different villages if he had more than one wife. In both countries, women could hold small plots of land separately from their husbands, but it was noted that Malawi husbands had more claim to their wife's earnings than did Swazi husbands.

Further points relating to the comparison between Swaziland, Malawi and Zambia revealed that intra-household production units are not very important as separate fields for husbands and wives are not common. Households are the most important production and consumption units in all three countries. The Swazi homestead is also a production unit and the head has varying influence on household production. Assuming that the homestead is the only, or the most important, production unit leads to mistakes in policies and recommendations. For example destocking was tried on this assumption but was unsuccessful.

The homestead head is an important 'gatekeeper' and should be first consulted before talking to household heads.

A question was raised as to whether it would be possible to extend credit to a homestead as a unit. Would the Zambian LIMA credit programme which enabled credit for quarter of a hectare or more on the basis of groups of ten farmers be suitable?

Zoning in Swaziland was also discussed; there did not seem to be a strong correlation between wealth and geographical location.

Plenary discussion

Regarding destocking, it was asked if this programme failed because of different types of ownership, or because the homestead head did not own all the cattle. Both reasons were true. It was pointed out that in relation to cultivation, control of draught power is important, which supports the idea of using the homestead as a unit, as the order in which fields are cultivated is determined by the homestead head. Moreover, all homesteads do not have sufficient draught power and may hire oxen or tractors from neighbours.

Simelane noted that the timing of inputs is determined by diverse authority within the homestead, and that the cropping systems programme is aware of this complexity in production units.

Grandin noted that the notion of "nested spheres" of production and decision-making come out of the paper. She raised two questions. How do we train people to handle these complex units? Are we able to work out a simple sampling frame for this to be used by less well trained staff?

2.26. "Sampling and the unit of production" by CONCLUDING SMALL GROUP DISCUSSION SESSION (secretary Barbara Grandin)

The main points agreed by the group were:-

1). The need for a practical view in terms of CIMMYT's sequence, training requirements, and constraints due to manpower limitations - especially trained social scientists.

2). In the long term (or perhaps sooner with outside funding) the objective would be to have, depending on the size and complexity of the country, at least one permanent full-time senior non-economic social scientist in FSR programmes. He or she should have significant rural and inter-disciplinary experience. This person would serve primarily as a resource person and trainer for field teams involved in FSR. Such a person could help conduct informal short surveys for diagnosis including choosing the unit of sampling, advising generally on data collection techniques (e.g. mix of formal and informal methods), and assist in setting up/carrying out intensive investigations into sociological concerns that arise.

3). In the short-term, CIMMYT's current training programme should try to sensitise FSR trainees to various areas of sociological concern. The area discussed in some detail was the unit of production. The group felt that trainees need to be sensitised to the fact that social reality is complex, but that they don't need to be overwhelmed by that. Categorisation was felt to be essential, but one had to be careful not to take those categories, which are heuristic devices, as REAL. It was generally agreed that there is no such thing as a "unit of production", but that there are "nested spheres": basically the individual, the sub-household, the household, the homestead, etc. At each level different resources/assets are controlled, and different types of production decisions are made. A unit needs to be identified for sampling, but not all analysis can or should be done on this level. Something akin to a "household" is

probably the simplest/best (Grandin preferred it for wealth ranking). A question raised was, 'depending on the nature of the problem, what level of the nested sphere is the locus of control/decision making for it?' The group concluded that the researcher would have to either look within the unit (e.g. individual wives' control of fields, goats etc.), or to the links of that unit to other units (e.g. for marshalling draught power). The group felt that a look at current training materials used in FSR programmes would be necessary before it could be more specific.

2.27. Observations and Recommendations: Diagnostic Survey Work

1. Defining the unit of data collection and analysis is very important during diagnostic survey work for FSR. Sociologists and anthropologists particularly, should be involved in this, and will be most effective when they have a knowledge of the local culture/social structure (Kerven [2.13], Onyango [2.34], Russell [2.24], Simelane [2.25] Curry [3.53], CDS [2.26]).

2. Involvement should not stop at definitions, but should extend into giving guidance as to how to identify and analyse situations in which important farming decisions are made at different levels within the local social structure - intra-household, household, homestead, ethnic group etc. (Curry [3.53], Baker and Lesothlo [2.22], CDS [2.26], Kerven [2.13] Simelane [2.25], Sutherland [2.23], Sharpe [3.32]).

3. Sampling for surveys is an area within FSR in need of attention from sociologists/anthropologists. This applies to both informal and formal surveys. The need is to identify strategies which reduce or bypass obvious biases from extension workers and local leaders, and which allow a survey to bring out the significance of linkages between households and groupings within a community (Baker and Lesothlo [2.22], Bulla [2.21] Kabagambe [2.11] Grandin [2.12] Sutherland [2.23], Simelane [2.25], Sharpe [3.32], CDS [2.26]).

4. Sociologists/anthropologists should be involved in the analysis and interpretation of survey results. The meaningful and sensitive interpretation of survey results depends on a prior understanding of the local social structure (Chilivumbo [3.52], Curry [3.53], Kerven [2.13], Francis [3.11], Russell [2.24], Sutherland [2.23]). This understanding can often be obtained by consulting anthropological literature on the local area if nobody on the team has this understanding (Hansen [2.32] and Annex 5.3).

6. The extent of sociological/anthropological involvement in diagnostic survey work will depend on local manpower availability. The input is most important during the

planning and interpretation of surveys, but involvement during data collection will enhance the quality of the survey and should be encouraged if resources permit (CDS 2.26).

7. If suitable local manpower is not available, consideration should be given to hiring short-term consultants who have prior familiarity with a particular local area/ethnic group, especially if these have a development orientation (Kerven [2.13], Hansen [2.32]).

8. The household, defined as a unit of decision-making relating to production, is the most fundamental unit of data collection and analysis in the regions farming systems. In using secondary survey data, care should be taken in establishing how households were defined before attempting to make comparisons and draw conclusions (Simelane [2.25], CDS [2.26]).

9. Perhaps as important as methods of sampling and definition of units of data collection, are methods of interviewing and recording of data. Sociologists and/or anthropologists should be involved in the training of enumerators (including professional staff involved in survey work), and in the framing of questions in questionnaires, so that the farmers' view comes across clearly (CDS [2.26], Tripp [2.31]).

2.30. ON FARM RESEARCH AND TECHNOLOGY ADOPTION

This stage in the FSR sequence attracted fewer papers than that of diagnostic survey work. Tripp's paper argued that the anthropological contribution to FSR is more valuable, but less used, during on-farm research than during diagnostic surveys. Hansen, an anthropologist with experience of managing on-farm experiments in Malawi, noted that his input into the planning and design of experiments was crucial, and an anthropological approach enabled the identification of potential recommendation domains based on the analysis of on-farm experiments. Rocheleau, also points to the clear need for social science skills during the planning and evaluation of agro-forestry on-site experiments involving participation of the local community. Onyango's paper was the only one to address the final stage of technology adoption, which he did from the point of view of measuring farmers' attitudes and values in order to anticipate their likely response to innovation.

2.31. "Anthropology and on-farm research" by ROB TRIPP

Summary of paper

Tripp's paper presented his perspective on the role of anthropology in FSR, with particular emphasis on on-farm

experimentation. The paper pointed to the many similarities between anthropology and FSR with their holistic approaches and common concerns with the impact of agricultural development on gender differences, equity, and ecological balance.

Addressing the issue of the specific contribution of anthropology vis a vis economics, Tripp argued that "complexity of reality" severely limits the ability of both disciplines to devise models that accurately predict farmer behaviour and argued instead for an "iterative" approach involving researchers in the field in a constant dialogue with farmers, just as an anthropologist is in constant contact with the subjects of his or her study. The paper then uses case material from Ecuador to illustrate this point, and to suggest the most appropriate role for anthropologists in FSR.

It is argued that often too many social scientists are involved in the diagnostic phase of FSR and too few are involved in on-farm experimentation. An account of five years of on-farm research in Ecuador illustrated that diagnostic surveys are only a starting point and that further formal surveys and a continuous dialogue with local farmers based on the establishment of trusting relationships were essential for the programme to deliver what the farmers needed. Tripp argued further that good interdisciplinary cooperation is essential if anthropologists are to play a useful role in FSR programmes, and that they need to be aware of their poor reputation in this respect. The paper cautioned that sophisticated anthropological approaches are no more necessary than sophisticated economic ones and that research must be based on solid field experience. The need for specialised anthropological studies for particular problems was recognised. But the major need identified was an anthropological contribution to development of better diagnostic experimental and analytical research tools for national researchers involved in FSR. Tripp concluded with a plea for on-farm research to become "what anthropology does best - the careful, iterative examination of selected research themes through participant observation". (A revised version of Tripp's paper is published in Human Organisation, 1985).

Summary of group discussion (secretary John Curry)

The paper invoked a long discussion, the first part being taken up with a summary of Tripp's paper by Collinson as Tripp was absent. Collinson noted that Tripp regarded anthropological involvement in FSR as a "natural" pursuit since anthropologists have long been describing farming systems as a component of their ethnographic field studies. However such ethnographic descriptions are not usually

related to a plan of action and this lack of purpose is a serious short coming in such description. If FSR does not deliver the goods it will not survive and as participants anthropologists must be prepared to make their contribution purposive.

The group discussed the role of the anthropologist in FSR. They agreed with Tripp that the anthropologist, given his or her often long-term familiarity with local groups can act as the conscience of the FSR team by representing the local cultural or "emic" viewpoint to team members. In addition, the anthropologist possesses the analytical expertise which further contributes to the research effort. This can include a specialised knowledge of such topics as: patterns of land use; the local labour allocation system; and the impact of off-farm employment on the farming system. Often the anthropologist can tell the economist how to qualify economic models to fit local reality. A melding of both the anthropological and economic perspectives is essential for a better understanding of the local farming system and the constraints under which it operates.

The group then discussed the anthropologists' role in relation to the FSR sequence. It was noted that formal research instruments are incapable of providing the local or emic perspective. Anthropologists who are sometimes asked to administer such surveys can be saddled with the blame of being superficial when the surveys do not provide the necessary information. This leads to a caricature of social science as "soft and flakey" by technical scientists, thus undermining effectiveness. However, Collinson noted that anthropological criteria contribute significantly to the formulation of recommendations. Rocheleau stated that Tripp's example from Ecuador demonstrated the importance of exploratory surveys for trial design: she felt Tripp was over-optimistic on an anthropologist's ability to specify values on important socio-economic variables as economists and technical scientists would wish. She felt the strength of anthropological expertise lay in the identification of sources of constraints, particularly non-market factors, the understanding of which is crucial for experimental evaluation by the FS agronomist.

Eyland stated that anthropologists perform great service to farming systems research teams in the key roles of trial assesment and of sensitising biological scientists to the economic and cultural dimensions of the farm. Anthropologists, he claimed, are even more valuable in assessing the economic and cultural reasons why technical recommendations are not adopted by farmers. In addition Eyland felt that an agronomist's skills and effectiveness are heightened through collaboration with social scienists in field or on-farm survey work.

The final comments initiated a discussion of the place of the multidisciplinary perspective in FSR. It was generally agreed that multi-disciplinary sensitivity rests with the individual. Ideally, FSR teams would consist of individuals who, although grounded in their own discipline, possessed adequate familiarity with other disciplines to enable them to collaborate in the field. Thus agronomists would, for example, include social and economic information as part of their field work and analysis. At present, this is difficult to achieve, due in part to lack of adequate cross-disciplinary training for FSR staff.

Other issues discussed included problems of assesment, identification of recomendation domains and participant farmers. To date, no guidelines exist for on-farm programmes of social assesment. A manual outlining assesment techniques should be designed to alleviate this problem.

The identification of recommendation domains, it was pointed out, is an iterative process, with recommendation domains undergoing re-definition as research and assesment continues.

Several suggestions were made for greater farmer involvement in on-farm research. Farmers should be brought to trials and allowed to discuss the merits and shortcomings of the trials openly in a group session. Having a critical mass of participant farmers in a locality not only permits the FSR team to evaluate social interactions connected with the trial, but also provides a more open and honest assesment of the trials. Paul Kishindo offered an example from Malawi where farmer selection for trials was changed from using individual farmers to using farmers' clubs. This change promoted greater farmer participation and closer cooperation with extension workers.

Plenary discussion

Collinson presented a summary of Tripp's paper and Curry summarised the discussion in the small group. Several issues were raised in the ensuing discussion.

Bulla questioned the notion of long-term familiarity of anthropologists with the local area, suggesting resident researchers are more often in a position to provide such expertise than anthropologists on short contracts. Bulla also advocated the need to involve policy makers in FSR and wondered how anthropological contributions would be evaluated. Francis responded to this last point by stating that social scientists would be judged as part of a team and not as individual researchers.

McPhilips stressed the need for social scientists to be sure of their objectives, since the goal of FSR is to participate

in change, a process which itself precipitates problems.

Rocheleau added that the role of the social scientist is to point out areas most amenable to change, and to concentrate on those aspects of the system where change is possible. The problem for the anthropologist is getting an agronomist who will listen to their recommendations.

Whalen addressed the problem of the anthropologists' long-term familiarity with the system. The point at which the social scientist joins the project will affect the role he or she plays on the FSR team. Also, the position of the social scientist in the hierarchy is critical. Young, inexperienced and junior social scientists are often at a disadvantage in representing their views to senior researchers, thereby limiting their effectiveness. Curry called into question the whole notion of "long-term familiarity" with the local area in view of the previous discussion. Rocheleau saw the role of the social scientist as one of facilitating communication between the agronomist and those with long-term local familiarity through imparting analytical listening skills. Whalen concluded the discussion by emphasising the need to understand the varying perceptions of local people as well as those of the various members of the team as well.

Curry and Rocheleau emphasised the need for guidelines for assessment procedures for trials, especially procedures which use informal or ethnographic methods.

2.32. "Anthropology contributions, recognitions and analysis in farming systems research" by ART HANSEN

Summary of paper

Hansen's paper discussed approaches to the incorporation of anthropology into FSR. The first was a low cost approach which involved FSR team members making full use of anthropological knowledge of a local area. This implied reading anthropological monographs and papers, corresponding with anthropologists, and inviting anthropologists on short consultancies to discuss problems, the latter being the more expensive but the most productive option of the low cost approach. In support of his argument, Hansen cited examples from Zambia and elsewhere in Africa of anthropological monographs which were invaluable to FSR teams, and also of examples of proto-FSR work in Zambia dating back to the 1930s. Hansen argued that this low cost approach was cost effective because it greatly reduced the chance of making costly mistakes at the planning stage of agricultural research and development programmes.

The second approach discussed by Hansen was the more expensive one of hiring an anthropologist to work full time on an FSR team. Hansen gave a first hand account of this approach as implemented in Malawi from 1981 to 1983, where he initiated and supervised an FSR programme. The anthropological contribution, in that instance, consisted of organising informal survey work. This work brought together agricultural administrators and scientists from different, but connected, institutions, and generated a common recognition of small farmers problems, and highlighted discrepancies between research recommendations, extension workers' recommendations, and farmers' practice. With his anthropological inclination of sympathy towards local practises, Hansen describes how he went against the advice of the maize breeders, and included local varieties in an on-farm trial programme which compared maize recommendations with farmer practice. He further exercised anthropological initiative by purposely selecting farmer cooperators who represented both female farmers and small farmers (previously on-farm research had been carried out only on the fields of more progressive farmers who were usually men).

An anthropological approach was also applied in the analysis of trial results, which showed no significant advantage of using the improved open pollinated maize recommended by research. Going beyond aggregates to individual cases, the trial showed that the recommended package was only profitable for the 20% or so of 'good farmers' who obtained high yields. Hansen concluded that his approach revealed two recommendation domains for maize in the area; one for improved varieties plus fertilizer and one for improved management of local varieties. Hansen's final point is that

'if two disciplines agree all the time, one is redundant', and noted that argument between himself and the maize breeder produced positive communication and programme changes.

Summary of group discussions: (Secretary, B. Grandin)

Questions were asked about the organisation of the informal survey in Malawi. Hansen noted that the surveys were brief, 3 or 4 days, that extension worker bias was reduced by selecting farmers opportunistically, and the team of 10-15 people divided into teams of three to cover different villages in an area. Hansen noted that the use of a broadly based diagnostic team and use of secondary data were methods with wide applicability.

Grandin raised the question of anthropologists taking a more active, advocacy role to ensure the use of anthropological literature. Hansen felt that this was an important issue to be addressed by anthropologists as a professional body, and

the role should extend to face to face interaction with agricultural extension and research staff.

Chipulu queried the outcome of a dialogue between specialists of different disciplines. Hansen noted that this is productive if the specialists have a common goal. Chipulu wondered if the dialogue and common goal carried on into field work, and Simelane noted that due to university training, where cooperation between disciplines is not emphasised, each specialist tends to go his or her own way once in the field.

Hansen pointed out that FSR tries to prevent this by focusing on what producers are actually doing, and his approach forced agricultural officers to recognise the importance of local maize. Masi confirmed that agronomists are trained to think of local varieties as low-yielding and tend to push hybrids or composites. Grandin raised the issue of the specifically anthropological contribution to the Malawi project. Hansen replied that he felt the anthropological perspective was a crucial addition to FSR, noting that as an anthropologist he went in more open-minded, not having the same assumptions as other disciplines, and not being judgemental of local practices before trying to understand them. Hansen emphasised that the strength of anthropology was its inductive nature, while a weakness was assuming that the local system is good/natural; ignoring its problems. On the other hand the technical researchers tend to assume the local system is not good, and believe they can dramatically change it. What is required is dialogue and marriage of the two distinct world views.

Grandin noted that differences of world views are probably greater among highly trained expatriate scientists, than among national researchers. She noted that an important topic for discussion was the advantages/disadvantages of training FSR researchers strongly on a disciplinary basis, and the related issue of the hierarchical organisation of FSR within a country or region. Hansen agreed, and expressed a need for training researchers to see broader connections.

Grandin noted that by looking at differences within communities, Hansen had demonstrated more of an anthropological/case study approach less likely to be used by an economist.

Plenary discussion

Warren responded to the report of the small group discussion by noting that the need for inter-disciplinarity is increasingly accepted, pointing to masters level courses in the U.S.A. specially designed for training in interdisciplinary work. Bantje noted that problems often

arise because governments ask for highly specialised people whose expertise can't be used, and asked Hansen if there was a common theme to cross-disciplinary arguments. Hansen gave examples of common themes: agronomists saying "if we can grow it "why can't you sell it?; economists responding "why bother to grow things you can't sell". Between agronomists and anthropologists; "you anthropologists don't want change" versus "you agronomists don't pay attention to people".

Rocheleau wondered how far interdisciplinary training abroad was transferable to Africa.

Kean noted that in the School of Agriculture at the University of Zambia, students now do both an extra year of specialisation after a general training, and a compulsory course on inter-disciplinary work modelled on the FSR approach.

2.33. "Land use planning with farm families and communities: participatory agroforestry research" by DIANNE E. ROCHELEAU

Summary of paper

Rocheleau's paper presents a Kenya case study of "diagnosis and design" (D and D), a participatory approach used to involve farmers and farm communities in agroforestry research. The paper described how the approach used by ICRAF (International Council for Research in Agroforestry) was first modelled on FSR approaches based on arable crops, in which the farm household is identified as the basic unit of analysis. Experience of applying such an approach in Kenyan agroforestry had shown that this approach needed broadening to include issues relating to intra-household processes, community and ecosystem. A combined farm and community approach was being developed as a cost effective way to include these important issues into agroforestry research in a way that would yield results for rural people.

Rocheleau presented a case study of agroforestry in Machakos district to illustrate the importance of taking into account social factors when designing agroforestry technology. Monitoring ten farm trials revealed that ownership of, and access to, water was a major factor constraining propagation of trees by farmers, and that failure to account for intra-household division of labour (e.g. women's responsibility for collecting water) resulted in poor planning of individual nurseries and loss of seedlings by men participants. Problems with pests, browsing of domestic livestock, and the need for protected fodder reserves highlighted the importance of understanding local land tenure and land use arrangements

when planning experiments and technical interventions. It became clear that many of the technical improvements planned such as fodder tree protection and enrichment planting in both private and public lands, would require community decisions rather than decisions taken at the household level.

In a second phase of the project, watershed units were the major foci of diagnosis and experimental design. In this case, a number of leverage points were identified involving water and soil conservation measures and planting of improved tree species for fodder and firewood. These improvements involved cooperation at the community level, and at the same time a household survey revealed a differentiated local community with a dominance of households headed or managed by women with varying degrees of male decision-making in the latter. The finding was that different household types "imply distinct sets of technology designs and landscape niches at the farm level, and their separate treatment can set the context for reconciliation of conflicting interests at the community level".

An important outcome of the participatory approach was the integration of group and individual farm trials in response to farmers suggestions, which also resulted in modifications of, and alternatives to, previously proposed alley cropping technology.

Important lessons learned from the participatory approach included: the need to mobilise group labour, the need to address agroforestry to take account of different types of households and labour availability as it was affected by household and community development cycles.

Summary of group discussion (secretary Paul Kishindo)

The group felt the type of approach to community problems adopted in the case study was very useful in that:

(a) it allowed the active participation of the village community as experimenters with technology, rather than as recipients of it;

(b) it allowed information feedback which enabled the researchers to modify the design of the research project, and

(c) it allowed the community to feel the project was their own baby and motivated them to ensure its success.

It was also felt that the method could be adopted by agricultural extension service, but that the agricultural extension agent would require a high level of training in the use of the method.

The group also felt the method could be used by non-governmental organisations interested in rural development. The author felt that in such a situation a technical specialist should be included to deal with the technical problems.

Finally, the group felt that a researcher needed to bear in mind the critical social and cultural values at work when attempting to use the D & D method discussed in the case study in a new social environment.

Plenary discussion

1. The question was asked regarding the level of professional input required if the process followed in the case study was to be institutionalised.

The author felt a BSc. degree with a special diploma in the method would be adequate.

2. As to whether it was possible to do field trials in combination with the method, the author said qualified people would have to be used as in any other agricultural research situation.

3. There was a general feeling that an agricultural extension agent or anybody attempting to use the D & D method would need guidelines and a manual to be able to use it effectively.

2.34. "Extracting and measuring farmer's values and attitudes to agricultural technology" By CHRISTOPHER A. ONYANGO

Summary of paper

Onyango's paper set out to "highlight value and attitudinal factors which influence farmers in adoption of new technology" and to discuss "how research can be conducted to document these factors". The discussion in the paper focused largely on research methods. In addition, some general attitudinal factors such as local values relating to land, family labour, income for purchased inputs, extension workers, consumption, marketing and pricing were listed, and the paper gave an example of how beer preferences hindered the adoption of high yielding disease resistant sorghum in western Kenya.

The discussion of methods appropriate to collecting data on key values and attitudes related to both quantitative/measurement, and qualitative/interpretative

aspects . Onyango asserted that research using standard instruments has, over time, established a direct relationship between attitudes and behaviour, raising the possibility of using attitudinal surveys to predict future behaviour. He also noted that quite sophisticated research instruments, such as Likert Scales, have been found reliable and used for measuring attitudes to farming. Onyango went on to caution that these research instruments must be used carefully; that closed questions can pre-direct outcomes, while open questions can create problems of data analysis and quantification. By touching on examples from his experience, Onyango's paper illustrated the importance of getting the interview situation correct, and having a prior knowledge of the language and culture of the society where values and activities are being measured. For example, he found it was almost futile to ask Durumona people in the Samburu Area of Kenya how many cattle they had. This example also showed that responses to questions were influenced strongly by situational factors, (such as who else was present from the household during the interview) and by seasonal factors (such as the transhumance of livestock).

Onyango recognised that one way to avoid obvious error and distortion in measurement was to use participant observation. While this method was 'likely to produce good data', it was also a more expensive method if quantification was required.

He noted further that the biggest difficulty in this area of research is reliability and validity due to the value judgements associated with responses. Other such methods as case studies, infrequent surveys and multiple visit surveys can increase reliability, especially if used in conjunction with such safeguards as small samples, reliance on major decision makers, and pre-surveys followed by post-surveys to test validity of data.

Onyango concluded that the costs of this type of research can be kept down by using students as enumerators, and that its effectiveness can be maintained by designing survey instruments to fit specific cases where attitude and values are closely tied in with technology adoption among small scale farmers.

Small Group Discussions (Secretary J.M. Opiyo-Odongo)

The small group discussion raised certain issues which were not recorded as being resolved during the discussion, but which are clearly relevant to the whole issue of the place of attitudinal research within FSR.

1. In situations where effective demonstration of a technological package have been made, to what extent would

the measurement of values and attitudes be useful?

2. In terms of reliability, would it not be better to have an anthropologist conduct a long term study in the area on attitudes and values, rather than do a one-shot survey, given the belief that the relationship between word and deed is in most cases uncertain?

3. What sampling procedures would be most appropriate in measuring attitudes and values?

4. What do attitude scales actually reflect?

5. If attitudes change all the time, what practical benefits are there in measuring them?

6. While it has been well documented that factors such as profitability of an innovation and cash flow problems tend to result in non-adoption behaviour, what specific attitudes and values would have a similar effect?

Plenary Discussion.

The discussion was short, concentrating on the effect of long-standing colonial agricultural policies on farmers' attitudes since independence. It was noted that situational factors outside of the farmers' local culture frequently conditioned his attitudes to agricultural change, especially the local history of agricultural policy.

2.35. Observations and Recommendations: On-farm Research and Technology Adoption

Some of the points which emerge from these papers and discussions relating to on-farm research and technology adoption are listed below:

1. During on farm research good interdisciplinary teamwork is very important. Anthropologists in particular have a major role to play provided that they are able to work effectively as team members. They should make a conscious effort to improve their reputations in this respect. They need to sustain a dialogue with economists and technical scientists and avoid the temptation to go off and 'do their own thing' (Tripp [2.31]).

2. During the on-farm research process, anthropologists need to act as a channel of communication between technical scientists and farmers, especially when they are familiar with the local culture and the other team members are not (Tripp [2.31], CDS [3.34]).

3. Anthropologists/sociologists have a definite role to play in the pre-screening of technologies to be tested on farmers fields (Hansen [2.32], Rocheleau [2.33], Sutherland [2.23]). Some professional guidance is required as to the best methods for achieving this, especially when the non-economic social scientist is not a full time team member. Of particular concern to participants was a means of assessing the likely social impact of a new technology at a relatively early stage in its testing on farm.

4. Anthropologists/sociologists have a role to play in the selection of cooperating farmers. They need to develop methods which take in a cross-section of the target group so that likelihood of adoption can be more effectively predicted and social impact more easily assessed in advance.

5. The extent to which farmers reactions can be predicted in advance through attitudinal surveys was an unresolved issue (Onyango [2.34 gd]). The general feeling was that continuous dialogue with farmers in the field was the most effective way of predicting future behaviour and that anthropologists or sociologists on a team should strive to find ways of optimising such dialogue (Tripp [2.31], Rocheleau [2.33]).

6. The participatory approach described for Kenyan agroforestry research was well received. Anthropologists and sociologists might give serious thought to assisting with the development of methodologies for trial assessment which attach less importance to the criteria used by technical scientists on research stations and more to those used by farmers and local communities.

7. The historical experience of agricultural/rural development policies and projects by local communities can exert a major influence of how they receive FSR. Anthropologists and sociologists could assist by carrying out research into this history, preferably at the start of a project (Reynolds [3.12], Bantje [3.51], Chilivumbo [3.52], Onyango [2.34 pd]).

8. Anthropologists have expertise in building up trusting relationships of the kind essential for an honest dialogue with farmers. They have a role to play in assisting and training other FSR team members in how to cultivate such relationships (Tripp [2.31]).

3.00. CONTRIBUTIONS OUTSIDE OF THE CIMMYT SEQUENCE

This section looks at the contribution of anthropology and sociology to FSR programmes outside of the sequence of activities outlined by Collinson in Appendix 5.4. While the topic areas covered in this section are either not included or receive minimal attention in the current training manual, it is hoped that they will be more fully incorporated into future manuals and training programmes.

3.10. Labour Data Collection and Analysis

This topic attracted two papers. Francis provides an analysis of labour allocation in Northern Zambia based on a detailed and in-depth labour study. Reynolds gives an account of her ongoing study of children's labour among the Tonga of Zimbabwe in an FSR project area.

3.11. "Factor allocation and technology adoption in small scale agriculture." By PAUL FRANCIS

Summary of paper

This paper considers the technological transformation and expansion in agriculture occurring in much of Zambia's Northern Province, where shifting cultivation is giving way to semi-permanent agriculture centred on hybrid maize cultivation. A case study, drawing on material from Mpika District, describes the exogenous factors encouraging the adoption of new technology (price, infrastructure, marketing services, and extension), and the transformation engendered in the farming system in response to these factors.

Four categories of households are distinguished according to their level of technology adoption and commercialisation. Comparative analysis of resource allocation by these households show a consistent set of changes accompanying commercialisation, particularly with regard to agronomic practices and the availability, use and efficiency of labour. Changing patterns of labour allocation recorded raised questions about the nature of this factor as a "constraint".

While the high cost of multiple visit farm surveys is conceded, it is argued that intensive methods are necessary for the collection of reliable data on labour allocation and use of these may be justified where labour is the critical factor of production.

At the same time, the case study illustrates the importance of a knowledge of the social and cultural context of agriculture for understanding of the farm-household system.

Attention is given to a number of factors in this regard including the social composition of the household, the role of off-farm economic activities, the nature of farmers' technical concepts, and attitudes to work. It is argued that a holistic perspective is best suited to the understanding of the behaviour of these farmers. While aspects of this perspective are distinctly sociological, these complement and deepen - rather than substitute for - an approach centred on households' varying access to, and allocation of, resources.

Summary of group and plenary discussion (Secretary Han Bantje)

The discussion session was very intensive, with many constructive comments coming especially from the agronomists. This showed that the participants found the approach important, and the results useful. One of the agronomists called the study fundamental, and wished to put on record his respect for social scientists who spend long periods in villages in order to come up with the right answers.

Thanks to its very detailed approach, with thrice weekly recordings over two agricultural seasons, the study shows what is really happening in peasant households under changing conditions, in terms of agronomic practices, economic decision making, and labour inputs. Recording techniques are never perfect, as it is not feasible to have every household under constant observation. There is a tendency to routinise among the enumerators, copying figures rather than asking the questions each time. Nevertheless, this is probably the best one can expect to get. The area, which some years ago was considered unsuitable for commercial maize production, has seen dramatic increases in production over the last few years. This is due to the combined use of chemical fertilizers and hybrid seed. It is most important to stress that this has not been at the expense of food crop production. Households selling more maize also grow more food crops.

The greater efficiency of the larger producers shows that something important is happening in the organisation of the production units. One aspect is better timing of the agricultural operations. The activities during planting time (mid-November till end December) are crucial for the success of the crop year. Among the most productive (group 4) farmers, ox cultivation enables the advance preparation of fields, hence a better spread of labour over the season. But both men and women in these households work more days per year, and more hours per day. This shows that the norms about what is a reasonable working day are changing. Given the right conditions, peasants can, and do increase their labour efforts. A similar observation has been made about Tanzania in the 1950's (Coulson, 1983).

A point of concern raised was that the returns to fertilizer inputs are in fact too low, so that the operations are economically less rewarding than they should be. Partly this was blamed on the weakness of farmers' quantitative knowledge regarding field size, method of fertilizer application, and plant spacing. In this context the effectiveness of extension workers was questioned.

As land is not a constraint in this area, the expression of yields and inputs per unit of land was felt to be less relevant than their expression per unit of labour. Hours of labour per bag of maize produced show great differences between groups of households.

Although this study was expensive and time consuming, it was felt to be an essential complement to "quick and dirty" methods of rapid rural appraisal. In particular it has a bearing on the identification of labour saving techniques and although expensive, it is very cost effective.

Once the principles involved have been described in a few places, it will not be necessary to do similar studies in all farming systems; only in those which are totally different would it be necessary to replicate the study. It was thought similar findings would probably be obtained over most of Eastern Zambia. Findings from Mbozi, Tanzania by Bantje indicate that similar principles operate also in systems with different labour peaks.

The author remarked that, in retrospect, the sample could have been better focussed, and the amount of data collection reduced. Combination with other methodologies, notably participant observation, is essential, for the interpretation of quantitative data.

There was a long discussion about the ways of sampling and stratifying, as well as the accuracy and precise meaning of the figures produced. Some points deserve further scrutiny e.g. the lower production per hectare by group 4 farmers (in spite of their overall high levels of production). Group 1 only puts on slightly less fertilizer than group 4, and about 20% more labour, yet has much lower maize yields. Is this only caused by different timing, or are there other reasons such as attitudes, or lack of knowledge? There are no answers to this yet.

In a rapidly changing system it may be difficult to stratify farmers with accuracy. Moreover, farmers' statements are always subject to certain errors and distortions. It was suggested to do analyses of variance and significance in view of the range of observations on each group. Nevertheless, it was felt that the high degree of internal consistency of the data suggests that the overall pattern is basically correct. One participant emphasised the rapid increase of labour input

by women which went with increased maize production, and raised questions on the implications of this for child care and family feeding. There was no doubt that women and girls put in a lot of work, while the resulting income is controlled by the head of the household. This was thought more surprising as the initial capital for buying fertilizer is mainly generated by the women through beer brewing and collecting caterpillars for sale.

3.12. "Children's Labour in a subsistence economy" by PAMELA REYNOLDS

Summary of paper

Reynold's paper described her research on children's labour among the Tonga speaking people living on the southern bank of Lake Kariba in Zimbabwe. Starting with a description of the Omay Communal Area in Sebungwe region, the paper pointed to the underdevelopment and poor agricultural potential of the region which has a history of negligence from the central government. Reynolds sketches the Tonga social structure and history of contact, before outlining areas in need of intervention such as food shortages, malnutrition, and the poor functioning of government officials in the agricultural extension and wildlife departments. Constraints to intervention are listed as "poor soils, lack of water, frequent droughts, damage to crops by animals, costly and infrequent transport", a lack of infrastructure, and a lack of appropriate knowledge among extension workers. Other constraints relate to government policies on tourism and game management which seem to overlook the interests of local people.

Reynolds pinpointed the key constraint to agricultural production as "labour at certain crucial times in the agricultural cycle". She discussed the division of labour in crop production, explaining that women take primary responsibility for this, and that due to being over burdened they sometimes resort to tactics of avoidance, which further compounds food and nutrition problems.

The research method of participant observation (every second month in 12), following twelve families through the year and concentrating on children aged 10 to 14, was described. Details of daily activities are recorded through full-day observations and weekly time records. Also, labour sharing between households, consumption, diet, health, production and cash earning studies are included in this in-depth approach to labour. This classically anthropological approach is justified, Reynolds argued, because it avoids the pitfalls of making "grand assumptions about child labour" and allows the

systematic study of an otherwise obscure (yet very important) aspect of labour in subsistence economies.

The paper stressed both the moral and the economic implications of child labour and used case material and studies by other anthropologists to show how these relate to social norms and expectations (e.g. inheritance and marriage) as well as economic opportunities among Tonga in Zimbabwe and Zambia. Reynolds stressed that anthropologists working in development should "attempt to anticipate the impact (of development initiatives and programmes relating to increasing cash earnings) on current social norms". She raised the question as to whether the economic and social autonomy of women and children will be affected by cash cropping in Omay, and cautioned that social scientists need to reconsider the categorisation of labour. Reynolds concluded that the anthropological contribution to the study of child labour was mainly through the "tracing of connections".

Summary of group and plenary discussion (Secretary: C. Onyango)

The small group discussed the contents of the paper in relation to Reynold's description of her research in Omay. Issues emerging from this discussion were problems in the area, especially shortages of food and labour, the burdens facing women, and the impact of a new settler population exploiting resources of the area. It was noted that the individual anthropological approach of Reynolds was quite different from the team approach of CIMMYT, and that the inbuilt mistrust of outsiders in the study area made the use of rapid appraisal techniques problematic. Moreover, it was noted that an anthropological approach was necessary due to the limited recall capacity of children. Further discussion concurred that the subject of family labour, especially childrens' labour did require an anthropological and qualitative approach because the subjects of study lack notions of the costs and value of their labour, making quantification difficult and an approach which looked at 'strategies' for income generation and survival more appropriate. In depth study of one village enabled the study of inter-household linkages, while less intensive coverage of other villages allowed for comparison and more generalisation of results.

General comments on the study related to its methodological value and on the moral issue of child labour. On methodology it was felt the study could be intensified in order to cover a wider area and perhaps lead to a new methodology. Due to the wide scope of research and development possibilities, it was considered necessary to determine key aspects amenable to short-term as well as long time investigation. It was also felt that more use could be made of ethnographic data

available in the region on child labour. The role of women as providers and controllers of labour, especially that of their children, was identified as a topic generally in need of further study in the south east Africa region.

From the moral point of view, it was felt that children in the study area need the opportunity to have access to modern education and development, and that alternative labour sources should be investigated even in a decade when an emphasis on population control, might make it difficult to eliminate children from providing family labour.

3.13. Observations and recommendations

1. The collection of labour data in subsistence oriented farming systems is a difficult and demanding task which requires in-depth methods to achieve a reliable measure of accuracy and sensitivity.

2. In depth research is expensive, but the cost is usually justified, especially in systems where labour is identified as the major constraint to increased production.

3. While in-depth studies are costly, findings can usually be generalised over a wider area.

4. In-depth research has revealed that economic treatments of labour in subsistence systems are often oversimplistic. Very large differences between households in economic returns to labour are apparent, questioning the validity of making economic calculations when assessing the benefits of new technology. In order for FSR programmes to make better use of labour data in the planning of research programmes there is a need to adopt a more qualitative approach to the analysis and collection of labour data: to look at labour less as a commodity with unit value, and more in relation to the cultural context in which it take place and the goals and ambitions of individual farmers.

5. Individuals often have difficulty in quantifying their labour input (often this is culturally inappropriate), but some seem to be more willing/able than others to increase their labour input in order to increase production. This raises the whole question of the identification of labour "constraints" and the use of this notion in explaining the poor timing of key agricultural operations. Further in-depth studies are required to determine the usefulness of the labour constraint concept for FSR.

6. Children's labour is an important but under researched area which is particularly amenable to study using anthropological methods. Anthropological monographs are an

important source of data for FSR teams on childrens labour.

7. The study of labour can become a moral as well as an economic issue, especially when less privileged groups such as women and children are concerned. The team anthropologist/sociologist has a role to play in ensuring that the interests of such groups are fully considered when new technologies involving increased labour input from women and children are being considered for testing (Rocheleau).

3.20. LAND TENURE ISSUES

Like labour, this topic attracted two papers. Kishindo analyses the relationship between land tenure, technology adoption, and the matrilineal kinship in Malawi. Whalen describes her work on land tenure in the Ethiopian Highlands in relation to land reform and the ILCA pastoral systems research programme.

3.21. "Customary land and agricultural investment" by PAUL KISHINDO

Summary of paper

Kishindo's study was concerned with investigating whether or not uxori-locality was inimical to smallholders' adoption of new technologies to improve their agricultural productivity. It was prompted by the writings of some students of Malawi land tenure and agriculture who had presented the matrilineal system, especially its associated system of uxori-local marriages, as a major obstacle to smallholder agricultural advancement. The argument is that matrilineal systems, because of the absence of lobola or (bride payment) have high divorce rates. This, combined with the fact that a man cultivates land which does not belong to him but to his wife and her kinsmen makes it unlikely for a man to be motivated to improve his agriculture since any resulting benefits would have to be left behind in the event of a divorce or the death of the wife when the husband has to return to his own village. A man's interest in the land it is argued, is unlikely to go beyond mere subsistence production using the technology that is already available.

The study was carried out in an area inhabited by the Yao and Chewa tribes who are matrilineal. Observations revealed that the matrilineal system is not as rigid as it is made out to be; a man is in fact allowed to take away his wife from her village to settle in a different place of their choice after token payment to her uncles. The situation, therefore, is that in the Yao and Chewa villages that came under this study

uxorilocally coexisted with virilocal and neolocal residence.

The adoption of new seed varieties such as Malawi Hybrid 12 (MH12), Chitedze Composite A (CCA) and Ukiriguru Composite A (UCA) that were being promoted by agricultural extension staff was not hampered by uxorilocality nor were the application of chemical fertilizers and the production of cotton as a cash crop.

However, none of the larger farmers who owned such equipment as ploughs, ridgers, cultivators and oxen, worked land that belonged to a wife's lineage or had been obtained from a different village headman and located in a village which was neither the man's nor the wife's. Where a man had not opted for chitengwa rights (right of 'bride' removal) at the beginning, the decision to go into farming on a larger scale generally prompted the decision to move away from the wife's village.

Summary of group and plenary discussion (Secretary John Curry)

Due to the complexity of the case study material contained in the paper, the group devoted much of its discussion to gaining an understanding of the matrilineal\uxorilocal system under investigation. Kishindo's data clearly showed, it was felt, that contrary to the conclusions of the technical and social scientists on the project, matrilineal kinship and inheritance does not constitute sui generis a barrier to development. Rather, the group concluded that matriliney, in combination with uxorilocality, in this instance offered a barrier to capital accumulation for male farmers. It was those male farmers who abandoned uxorilocal residence who tended towards commercial farming, and consequently were more receptive to recommended practices. As these "renegade" farmers' comprised a minority of farmers in the project area, adoption rates were low. Furthermore, farmers refused to adopt the proposed technologies, on non-social criteria such as credit constraints, and due to taste preferences (a cultural factor).

The paper identified five categories of farmer. These categories ranged from close to total subsistence farming to commercial cropping. Since the majority of farmers - male and female - could be assigned to the non-commercial categories, the group felt that the project had targeted the wrong group of farmers for recommendations. This error was compounded by the project's pre-occupation with male farmers. Control over productive resources and management decision was specialized: males controlled cash crops, females the subsistence crops. As the farm enterprise moved from a subsistence orientation (type 1) to commercial farming (type 5) increasing control over resources by males was observed. In these circumstances, women became labour for cash

cropping, while having managerial responsibility for subsistence.

This case then provided an excellent example of the consequences of development efforts in the absence of sound social science analysis. The project bias in favour of male farmers was consistent with an ideology which apparently sought to approach the matrilineal situation as though it were patrilineal and male dominated.

Thus, when farmers failed to adopt recommended practices for technical reasons, the matrilineal kinship system received blame. Kishindo's work demonstrates the important role the sociologist often must play on projects by debunking the post-hoc rationalisations often invoked by project members to account for "project failure".

3.22. "Land Tenure and Technological Innovations in the Ethiopian Highlands" by IRENE WHALEN

Summary of paper

Whalen's paper looked at her ongoing work into the effects of land tenure on technology design and adoption in the Ethiopian Highlands. Focusing primarily on the introduction of forage crops as a way of improving livestock productivity, Whalen described how the new forage crops developed through the International Livestock Centre for Africa (ILCA) programme (on which she is engaged as a rural sociologist) require changes in land use patterns.

The paper began by looking at the changes in the formal land tenure system since 1975; from a basically feudal system to one based on socialist principles through peasant associations and cooperatives. This change had taken place along side the continuation of traditional practices for securing access to labour, draught power and credit. The ILCA programme of research was next described and assessed in relation to the influence of land tenure on technology design and adoption.

The impermanence of land rights over particular plots pointed to the relevance of forage crops which give returns within a season, rather than over several seasons. Some of the promising technologies which required two or more seasons were thought to be less likely to be adopted. Moreover, it was felt that the different kinds of land tenure relating to pasture and arable land, and the competition for land between cropping and livestock implied in some of the new technical possibilities, were important factors which would affect adoption. A related set of social factors were the inter-

and intra-household processes relating to land use and land allocation. These processes influence the attractiveness of new technical solutions, and may favour a non-formal resolution of land problems relating to the adoption of innovations. A further factor discussed was the increasing importance of livestock as a store of wealth following changes in land tenure, and also the possible conflict between using land for food crops as opposed to using it for livestock increase (i.e. survival versus increase of wealth).

The above issues, the author pointed out, raise further questions about the best methods of obtaining relevant and accurate socio-economic data. Whalen concluded that while "formal interviews and surveys are important tools for collecting data, informal interactions with farmers is also highly useful in not only collecting data, but also in interpreting and elaborating on quantitative data, and providing knowledge on social and cultural factors important to farmer acceptance of technology".

Summary of group and plenary discussion (secretary, John Lesotho)

The discussion for the small group and plenary session was combined into one report. Whalen discussed her involvement in the ILCA programme with the group in order to clarify the argument in her paper. The group felt the proposed methodology of informal interviewing and analysis of the current data available was cost effective and noted that since Whalen is working alone there is need for assistance.

In this context it was felt that more continuous contact with farmers would be necessary in order for the researcher to collect enough information. It was further noted that more social science was required on the programme, and that this calls for a fuller interdisciplinary approach.

On the question of applicability of the methodology employed, the group felt that the methodology is quite broad and this means that the person using it will first need a knowledge of the social structure of the society under study.

The group also felt that there is a need to establish a permanent post for the job (i.e. rural sociologist). Whalen pointed out that a lot of quantitative data had been collected but needed qualitative interpretations. It was also felt that programmes of this type should formalise team building seminars utilizing techniques that have been designed by social and management science. The natural scientist pointed out that there is a concern about long term environmental problems in the area.

The group noted that under such a situation, increasingly

technology will emphasise improvements in yield per unit area which requires changes in land use through irrigation or land shaping, the acceptability of which will be related to current land tenure and land use arrangements. Finally it was pointed out that there appears to be insufficient attention given to the breeding and selection programmes of the more important crops in that area.

3.23. Observations and recommendations: Land Tenure

1. Land tenure issues are particularly important to FSR programmes in areas where population densities are high and land pressures are great.

2. Land tenure is a very important factor to consider in FSR & E when technologies requiring longer than seasonal investments are being introduced (Whalen [3.22], Rocheleau [2.33], Kishindo [3.21]).

3. If an FSR programme plans to undertake/test interventions in the farming system involving longer term investments and/or cooperation within a community it should involve a social scientist with a good knowledge of land tenure issues in the planning stage.

4. Land tenure is both a political and a legal issue, and needs to be analysed in relation to both national legal frameworks and national policies and political ideologies relating to land. FSR programmes need to take account of these national level factors when considering technologies requiring longer than seasonal investments.

5. In the region land tenure is closely tied in with the local kinship and community organisation. It is a flexible and dynamic system of relationships. Because of its complex and sensitive nature, land tenure is not a subject area which can be easily investigated by means of formal survey methods or rapid appraisal techniques and is best dealt with by in-depth studies using classical anthropological methods. It is an area of study requiring a trained professional.

3.30. INDIGENOUS KNOWLEDGE BASES

This topic was addressed specifically by two papers. Warren provides a literature review and many examples of the value of indigenous technical knowledge to FSR. Sharpe, looking at "indigenous social knowledge", illustrates the value of using local knowledge in building up a regional model of farming systems in Nigeria.

3.31. "Cost-effective methods for obtaining indigenous

agricultural technical knowledge" by MIKE WARREN

Summary of paper

Warren's paper related to the contribution of ITK (Indigenous Technical Knowledge) to FSR. He began by arguing that interactions between scientists and African farmers have increased in recent years, and that in part this has been because FSR methods require the active participation of the farmer in on-farm trials. The paper documented the recent literature advocating the value of strong scientist-farmer linkages, and the positive impact of these linkages in improving understanding of the indigenous agronomic practices of small farmers by agricultural scientists. The point was made that research methods developed in anthropology to facilitate the formal recording of indigenous agricultural technical knowledge components could be added to FSR programmes at minimum cost, and that the results would greatly enhance communications, linkage strategies, and understanding between the FSR staff and their client group, the small scale producers. Examples of the application of this approach were provided, including farmers decision making in Punjab, training of indigenous healers in primary health measures in West Africa, taxation policies in Ghana, and risk taking decisions in technology adoption and soil classifications in Zambia.

Summary of group and plenary discussion (secretary Charles Chileya)

During the discussion, much time was spent summarising the paper for the benefit of members who had not read it before hand. In the short discussion that followed, the natural scientists in particular felt that biological scientists would benefit greatly from a deeper understanding of traditional farming practices and the indigenous concepts used to describe these.

The group agreed on the need for a move away from the "classical" top-down strategy in defining research problems and organising agricultural research and extension. They agreed that taking into account farmers ideas would assist agricultural research in a fundamental way, and that most agricultural researchers do not look closely enough at the farmers' circumstances before releasing recommendations. They also welcomed Warren's proposal for the setting up of an indigenous agricultural technical knowledge group within the Ministry of Agriculture and Water Development in Zambia. Members felt that ARPT sociology section should liaise with Warren to organise a workshop on this subject. The discussion continued into a concluding discussion session reported below (3.33).

3.32. "Social knowledge and farming systems research: ethnicity, power and the invisible farmers of North Central Nigeria" by BARRIE SHARPE

Summary of paper

Sharpe's paper made a critique of farming systems research from an anthropological point of view which put indigenous knowledge, whether technical or social, to the forefront. Implicit in his argument was a questioning of the validity of models of development, including farming systems research, which are imposed from the top. Sharpe did not put forward an alternative model of development to FSR, but he did present a methodology for utilising local indigenous knowledge in the planning of agricultural development. Using a case example based on his own fieldwork in Nigeria, carried out in the same region as Norman's pioneering work on farming systems, Sharpe demonstrated how a large amount of descriptive information on variation in regional farming systems could be collected in a short time using local knowledge and anthropological techniques. The paper's principal argument was that by using local knowledge, a detailed and very useful picture of the inter-linkages between different farming systems in the region which took account of trade networks, migrant labour, urban links, and ethnic variation could be obtained.

Sharpe developed his argument as part of a critique of the village approach used by Norman in the same region of Nigeria, which had an ethnic bias and missed out on the importance of linkages between farming systems and communities. The method presented in the paper was one in which informal discussion was used to identify "threads of linkage" between communities. The threads were followed and informal discussions in each community revealed and elaborated further linkages. This method enabled 50 communities to be covered in 20 days, and resulted in the building of a network which could be easily re-activated to ask further questions. In a second stage of the study the network was used to collect data through self reporting techniques which were low in cost and yielded valuable data.

Sharpe's paper concluded with a commentary on agricultural development in the region in which his study was carried out. It pointed to the unintended consequence of Norman's study which was used for planning agricultural development policies which have resulted in the degradation of traditional farming systems and the emergence of ethnic and religious biases in agricultural programmes. Because agricultural policy makers in the region have relied mainly on Norman's study of Hausa villages, Sharpe argued that the other farming systems in the

region have remained invisible to the policy makers, with potentially disastrous consequences for the intensification of agricultural production within the framework of indigenous agriculture.

Summary of group discussion (secretary G. Geisler)

The discussion took place in the absence of the author who was unable to attend. Most participants had not read the paper carefully but it was generally concluded that the style was dense in places. A point which the group felt needed clarification, was the link between the initial covering of communities by the network approach using local social knowledge and the following step of narrowing down this sample of 50 or so communities to the 17 selected for more in-depth study.

The group felt the criteria used for the selection of these communities did not emerge very clearly and needed further elaboration, as it was not evident where the criteria for Sharpe's categorisation were derived from. It was suspected that the strong emic approach advocated was, at this point, broken by a deliberate choice of the author. This question, as with others, could not be resolved due to the absence of the author.

All members felt, though, attracted to the central approach of the utilization of local knowledge about social networks to cover a big area in a short time with the hope to arrive at a fairly accurate description of variation in a particular area. It was felt that the approach did indeed allow for a better coverage of variation. These could further be narrowed down to homogenous factors, rather than the differences, to allow for recommendations about innovations in the farming systems which would cover the greatest possible number of people in the project area. Variations in farming systems conceived of through local social knowledge had the potential of determining the feasibility and potential impact of new technology and technical recommendations which had to be flexible enough to take account of differences in farmers' circumstances.

It was pointed out that the approach seemed new in so far as the basis for target grouping was not, as usual, the visible differences in farming systems (as discerned by the farming systems expert) but rather the approach started with looking at the causes of variation (presumably before going on to identify target groups for FSR).

The discussion then considered if local social knowledge could really supply the researchers with causes, rather than just with mere statements of custom. Could the providers of the knowledge also analyse the causes of variation? The

"emic" approach advocated. was regarded as a very anthropological notion and the paper represented a widening of the indigenous technical knowledge approach.

It was noted that the approach is rather sophisticated as compared to the community approaches advocated by Sutherland and Kerven, but that it would be applicable to other parts of Africa. However, it was also noted that West Africa has a particularly broad spectrum of ethnic and religious variations and that in West Africa these factors seem to be more important in relation to access to resources, markets and political power. Thus it was concluded that the approach would be very useful in regions where ethnic variation and other kinds of variation were prominent.

Plenary discussion

In the plenary session similar comments were made as in the small group discussion regarding the dense style of the paper and the need for some clarification on the second stage of the methodology involving a narrowing down onto a few communities. Warren noted that the approach was reminiscent of the Mary Douglas school of thought who used to teach at University College London where the author is currently engaged.

It was generally stressed that the covering of linkages between systems and communities was a useful tool which needed to be considered more closely by FSR. Collinson noted that the paper's attack on Norman illustrated the importance and value of rapid appraisal techniques for coverage of a wider area. Use of these techniques would help to avoid the kind of trap policy makers had fallen into by using Norman's data as the only set around.

3.33. "The role of indigenous knowledge in FSR" by CONCLUDING DISCUSSION SESSION (Group Members: Watts, Curry, McPhillips, Prior, Kabagambe, Chiley, Warren [secretary])

Summary of discussion

After discussion the group agreed on the need to recognise the unifying objective across disciplines involved in FSR; improving the productivity of small scale farmers in order to improve the quality of life in rural communities. It was then agreed that social scientists in Zambia can contribute by providing the following:

1. Formal recording of existing IATK (Indigenous Agricultural Technical Knowledge) at a given point in time.

This would include knowledge dealing with production, storage, processing and nutrition.

2. Describing how this knowledge provides the basis for small farmers' agricultural decision-making strategies.

3. Comparing IATK with scientific technical knowledge systems to facilitate FSR understanding of indigenous systems and facilitate their working with and through these systems

4. Define how exogenous factors (such as technical innovations, price policy, marketing structures) are perceived by and factor into the small farmers' indigenous decision-making matrix.

5. To identify small farmers' priority problems and constraints to facilitate the active participation by the small farmer in FSR.

6. To understand small farmers' perceptions and responses to extension messages (e.g. lima programme recommendations, radio forum, etc).

7. To provide a liaison position and feedback vehicle between small farmers and technical scientists to foster 2-way dialogue and interactions.

8. To initiate training in IATK in Zambia:

a). Initial seminars with ARPT, and technical scientists on approaches to formalizing small farmers' IATK and decision-making strategies;

b). To introduce training materials into appropriate syllabi at the University of Zambia School of Agriculture, the Natural Resources Development College and the Colleges of Agriculture;

c). To establish periodic follow-up afternoon seminars based on formalized IATK findings.

9. To incorporate IATK into the FSR sequence more completely. The social scientist working with IATK should be involved in an on-going process of facilitating interaction between the FSR team and the small farmer at all stages of the FSR sequence.

3.34. Observations and recommendations: Indigenous Technical Knowledge

A general observation is that FSR programmes often underutilise the stock of knowledge held by the farmers they are trying to assist. Often important decisions are taken

without properly involving the farmer in the decision process and without making full use of his knowledge of both technical and social relationships which are likely to influence the performance and adoption of new technologies. To increase the use of farmers technical and social knowledge by FSR programmes in the region it is suggested that most of the recommendations formulated for Zambia (3.33) are introduced in other countries.

3.40. INVOLVEMENT OF WOMEN IN FSR & E

The involvement of women was a topic listed on the preliminary programme, but it did not attract specific papers, although some papers did touch on the topic. However, the topic was discussed during a small group concluding discussion session which is reported below.

3.41. "Involving women in agricultural research" by CONCLUDING SMALL GROUP DISCUSSION SESSION (Group members: B. Habowa, K. Munyinda, P. Kishindo, D. Rocheleau, P. Hachongela, A. Sutherland [secretary]).

The group discussion ranged over a number of topics with female members providing first hand examples of some of the difficulties professional women face in agricultural research and development. Three main topics were covered during the discussion

1. How to involve female farmers more in the research and extension process, 2) how to improve training for women in colleges and departments of agriculture, and 3) how to better improve the working environment for women in research and extension programmes.

1. In order to involve women farmers more in research and extension some suggestions were made. Generally, it was agreed that both agricultural researchers and extension staff need to be sensitive to the importance of women in agriculture. This could be through the in-service training and by modifying the course content in agricultural colleges and universities. At the field level, the possibility of working thorough women's groups during the survey and on-farm research stages was also raised. It was agreed that on the spot education of male farmers and extension workers on the relevance of conducting diagnosis and on-farm research on problems facing women would help. On the selection of women farmer cooperators the group discussed the merits of choosing prominent women in the community who are often not typical of most rural women. Habowa felt such women can set a good example as they are usually less home bound and less likely to spend time drinking. Rocheleau noted however, that wives

should also be included, and that DFR programmes need to take account of the complexities of decision making where both husband and wife are involved. In order to address this issue Sutherland felt that techniques for interviewing spouses needed to be further developed. He suggested that a strategy of posing a set of questions to both spouses and coming back later to get a response after the spouses had discussed the matter in private. Rocheleau endorsed this idea and emphasised the importance of using such a strategy when working with a group of farmers or a community in evaluating an on-farm experiment. It was noted that married couples tend to interact in exchanging ideas related to the household economy, and that giving farmers time to think and discuss the questions could reveal a lot about decision making at the community and household levels. The group agreed that there was a serious danger of making generalisations about farming systems based on information provided by men only in their role as spokesmen for the household and community. A further point agreed was that male members of some farming communities required education so that they would accept the practice of their womenfolk talking directly to male extension workers.

The issue of employing more female extension staff was discussed. It was agreed that this would not, in itself, solve the problem, and would only help if those recruited were appropriately trained and properly motivated. It was perhaps more important to train existing staff in extension and research to be more sensitive to the importance of females in farming. Rocheleau suggested that FSR programmes should employ a professional, such as a sociologist, to ensure that the interests of women farmers were being catered for in technology generation. Sutherland noted that this was being done in Zambia's northern region.

2. On improvement of training for women agriculturists, the group noted the need to pay more attention to technical subjects for women and to disregard the current practice in the region emphasising home economics in the training of female extension. Similarly, it was suggested that females should not be accepted into agricultural colleges if they lacked the appropriate entrance qualifications to take courses in technical subjects.

3. In order to improve the working environment for women, the group felt that professional men needed to be educated further regarding sexual equality. There was need to attract more women to work in the agriculture sector: the greater the number of women the better their working environment would become. The responsibility of campaigning for a better environment should lie primarily with women employed in senior professional positions. Nabowa and Rocheleau noted that in research work professional women needed to be physically tough and employ strategies to obtain the respect

of men. Habowa said she did this by working alongside manual workers and staying out in the field longer than her male counterparts.

Guidelines for CIMMYT

The following suggestions were agreed on in order to strengthen the CIMMYT approach to FSR:

- a) Use the forthcoming FAO guidelines (coming out through ICRAF, Nairobi)
- b) Make efforts to secure participation of more female professionals in FSR.
- c) Create a better working climate for the employment of female professionals.
- d) Carry out in-service training for both female and male extension workers relating to the importance of involving women farmers and methodologies for achieving greater participation from females.
- e) Use more female household heads as both key informants and as farmer cooperators.
- f) Aim to design more technology specifically addressing women's interests, and covering the full spectrum of women's work (including food shortage, preservation, processing and off-farm work).
- g) Develop more sensitive interview and interaction methods which take into account private "in-the-house" decision making, and cultural differences in this.
- h) To note that in the design of FSR projects\institutions women's interests should be integrated creatively - but there may still be a need to contact women separately.
- i) In training of national professionals, more attention should be paid to training in the local context, rather than imposing ideas about women's development learned overseas.
- j) Training in agricultural colleges on women's role in agriculture need to be improved in order to make the FSR extension link more effective.

3.42. Observations and Recommendations

The guidelines presented above provide some suggestions as to how to tackle this important issue. As one major workshop has published findings relevant to this issue (The Rockefeller Foundation and International Service for Agricultural Research. Women and Agricultural Technology:

Relevance for Research. Vols. 1 and 2, 1985. The Hague, Netherlands) - and another is shortly to take place (FSSP and Women in Agriculture Conference on "Gender Issues in Farming Systems Research", University of Florida - 26 Feb. to 1 March 1986) plenty of useful information will shortly be available to policy makers and FSR practitioners.

3.50. THE BROADER CONTEXT OF SOCIO-POLITICAL ENVIRONMENT AND INFRASTRUCTURAL SUPPORTS

While the workshop aimed to attract papers which focused on FSR and technology generation, three participants presented papers which took in the larger context of small farmer development. While provoking discussion relevant to the topics discussed above, these papers also made important points relating to the relationship between FSR programmes and the larger political and organisational context, and the resulting role of anthropologists/sociologists.

3.51. "Household differentiation and macro factors in farming systems research". by HAN BANTJE

Summary of paper

Bantje put forward the case for a more complete incorporation of a sociological perspective into farming systems research. Criticising conventional FSR for concentrating too much on micro-level economic and agro-technical factors and paying too little attention to micro-level social factors, and macro-level socio-economic and political factors, Bantje presented case material from the Mbozi Plateau in Tanzania to argue his case. Peasant production was seen as contingent on the micro systems of social relations in the household and community on the one hand, and on national policies and budgetary priorities on the other. Bantje argued that a social factor, the domestic development cycle, was the major basis for differentiations between Mbozi small farmers. Differential control over resources led to different income levels, which in turn determined the ability to respond to economic opportunities. The poorer households had to supplement their income from farming with wage labour and trades. Macro-level infrastructural inadequacies, in particular shortage of fertilizers, farm equipment, and credit, were the major constraints to agricultural production in Mbozi.

Bantje concluded by arguing that "efforts to tinker with the local system without taking into account the macro settings are essentially fruitless". He argued that high quality applied research should be based on a broad sociological perspective. Thus he suggests that "quick and reliable assessments of social situations are highly contingent on

prior familiarity with the area and its social systems, knowledge of the local language, etc." Bantje's final suggestion is that the expense of high quality social research can be recuperated by avoiding "costly mistakes in the implementation phase".

Summary of group discussion (Secretary C. Kerven)

Kean pointed out that the CIMMYT methodology criticised by Bantje does recognise differentiation among farmers, both in relation to natural factors and hierarchical (socio-economic) structures. However, he also noted that the four broad groupings in the Zambian classification need to be further refined. Kean also pointed out that the CIMMYT methodology incorporates the means to identify external constraints, such as infrastructure and budget allocations, and stressed the need to persuade policy makers to make decisions where possible.

Definition of target groups was also discussed. It was recognised that a farmer may change his or her group over seasons and there was a need to retain a dynamic view of target groups. It was felt that a social scientist should be involved in farmer selection in order to identify and correct bias.

One discussant felt that FSR offered a genuine opportunity for both presenting options to policy makers and simultaneously serving the needs of farmers within a particular area.

The two natural scientists, Shumba and McPhillips, made the following comments:-

1. To be of use to an agronomist, the table showing characteristics of Mbozi farmers must give more details on the proportions in each group, and it was suggested (and agreed by the author) that age is an unreliable variable.
2. The ownership and control of cattle needs to be teased out to be of use to scientists.
3. Natural scientists should seek from social scientists information on the social impact of the natural scientists' innovations, especially the possible impact on equality of technological innovations.

Plenary Discussion

The discussion focused on the relationship of social scientists in FSR to policy makers. Sutherland responded to Bantje's criticism of the micro focus of Zambian FSR by

pointing out that part of the current practice is to report infrastructural constraints facing farmers back to policy makers. Kerven wondered if social scientists might sometimes annoy or challenge policy makers by stressing concerns of interest to themselves. Collinson responded that often social scientists emphasised the need to help the poor without reference to national economic objectives and policies for production and export. Grandin concurred but added that social scientists were obliged to inform policy makers to make them aware of the long term ill effects of ignoring the poor. Whalen noted that international organisations operate in a "socio-political context" and on requests to secure production increases based on limited resources, and are under pressure to place resources where results are most likely to be forthcoming.

Shumba, bringing the discussion back to farming systems, noted that Bantje's base for defining target groups was somewhat fluid. He suggested that agronomists are sometimes sceptical of the value of reliance on sociological base data. Bantje admitted that households move between groups, and this fluidity was inherent to the Mbozi system. Rocheleau said that FSR must be a part of applied research system, in which resources also go into large scale production in order to feed the nation and minimise poverty.

3.52. "Small scale farmers' resource endowment and research and development issues" by ALUFEYO CHILIVUMBO

Summary of paper

Chilivumbo's paper, like Bantje's, steered clear of the discussion of sociology's role in the generation of more appropriate technology. The paper started with the assumption that appropriate agricultural technology (such as hybrid seed, fertilizer and ox implements), is in existence, and the argument focused instead on the poor performance of infrastructural support services supporting the Zambian small farm sector. Using the findings of his field research in Zambia to support his argument, Chilivumbo called for more research into the operations of agricultural support organisations. He argued that these organisations and related agricultural development and support projects are often set up and evaluated by experts from outside of Zambia who have a poor understanding of the needs of the small-scale farmer. Chilivumbo stressed the need for a researcher "able to understand the needs of the small-scale farmer and translate the needs of the farmer to the planner". Relatedly, he suggested rural development programmes should be more "human oriented", and that an area requiring research "is the problem of communication between researchers, planners and donors". Thus while data relating to small farmers' needs

and perceptions in Zambia was plentiful, in some cases it was poorly analysed, and often the implications of analysed data were ignored in agricultural planning. The needs of the small farmer were neglected most when plans were based on 'quick and dirty' research by international consultants, and Chilivumbo called for "greater use of local social researchers able to carry out more intensive and higher quality research".

Two specific areas requiring sociological research and relating to the small-farm sector were mentioned. One was "Research into the attitude, ability, skills, manpower and recruitment of the personnel as well as the whole functioning of the cooperative unions". The other was "The major values, attitudes, social organisation and concerns of the recipients of change" especially in relation to technology and institutions which "make rural life more attractive and indirectly contribute to productivity".

Summary of group discussion (secretary J. C. Kabagambe)

The group noted that while Chilivumbo's paper did not strictly conform to the format recommended in the guidelines it fell within the broader issues raised by the CIMMYT methodology. Much of the discussion centred on the issue of how planners use social research. It was noted that planners do not often treat research done by local people seriously, but prefer "flying researchers" from outside who confirm what the donors want to hear. It was also noted that the work of the outside 'experts' is never evaluated, and that FSR is best carried out by researchers with local background knowledge. A suggestion was made that donors should consider drawing on a pool of experts with local knowledge in their programmes.

The discussion group supported Chilivumbo's plea for more social research into the functioning of institutions supporting small-scale agriculture, particularly the uncaring attitudes of bureaucrats commonly found in the institutions. The discussion moved on to look at the relationship between the small-scale farmer and the institutions. It was noted that if FSR addressed itself primarily to increasing commercialisation of small farmers, it should do so with caution. The argument was that, due to the importance of kinship structures and obligations in small farming communities, increased production might be used to service dependency (by some members of the community on others) rather than raise the level of production by the local population as a whole. Sociology can contribute by examining the social consequences of increased production, and the social changes necessary for a small farmer to move from subsistence production into permanent surplus production.

Plenary discussion

Discussion followed the same lines as in the small group, covering the same points. It was noted that FSR should not look at increased production in isolation from increasing the small farmers' welfare. Chilivumbo noted that for most small farmers, welfare is provided by kinship and village ties, the second and less important (for most) being that provided by organisations supporting agriculture. Farmers who were more commercially successful had often broken off dependence from kin and village. The session endorsed the need for more utilization by donors supporting FSR programmes of social scientists with local expertise and knowledge, and that more donor resources should be used for analysing existing data rather than sending in experts to do rapid surveys.

3.53. "Anthropological contributions to systems-oriented research in pastoral development; the case of the Niger range and livestock development project" by JOHN CURRY

Summary of paper

Curry's paper looked at the contribution an anthropological approach can make to livestock research and development with a farming systems perspective. Using case material from the livestock project (CRED) in the Niger Republic, Curry demonstrated the relative advantages of an in-depth anthropological approach, over the more conventional economic approach of a 'cost-route' survey involving frequent visits to sampled households over a season. Given the need for low-cost socio-economic research which provided quick answers for planners and technical scientists, Curry suggested that informal anthropological methods are superior to those of formal pastoral economics in providing quick answers to questions, and on-going advice on general issues which may not have been included in the design of formal surveys.

Summary of group discussion (secretary Dianne Rocheleau).

It was noted that the project was not an FSR project as such, but a livestock project with an FSR orientation. Findings based on ethnographic research had been used to design a credit programme for herders based on indigenous credit systems. Anthropologists on the project were regarded as credible informants and had a considerable input in planning the second phase of the project. Group members noted that often anthropologists are valued for their ethnographic expertise and their opinions are highly respected during the interpretation of quantitative socio-economic data. The

basic units of analysis used in the collection of socio-economic data were discussed. It was noted that different residential units were used for different ethnic groups, but a common feature was a distinction between smaller units (such as a household or tent) and larger units (such as groups of tents), and attention was paid to differentiation within and between units. Discussion revealed that a household and community focus was complemented by the incorporation of a 'political-economy' perspective which was critical to planning.

The cost-effectiveness of a conventional ethnographic approach was discussed, along with the willingness of donors to fund long-term in depth studies. It was noted that the support by donors of anthropologists in this instance was somewhat untypical. Other less costly ways of providing an anthropological input were discussed, including hiring an ethnographer already familiar with an area, or using local people who have a good knowledge of local conditions even though they may be less trained professionally. A further point was that now that the background ethnographic work was complete, rapid appraisal methods could be effectively used by a "well read pastoral anthro-expert".

Discussion also touched on interaction between social scientists and technical scientists in the project. It was noted that some of the anthropologists worked in relative isolation while others were in close cooperation. However, one important aspect was that technical scientists were trained to work with local groups, and in designing the second phase of the projects the anthropologist was able to build in a strong three-way interaction component between technical scientists and social scientists and 'client groups'.

Plenary discussion:

Curry was asked how the project anthropologists responded to requests for quantitative economic data. He replied that it gave them entry into the field situation and also permitted them to raise social equity issues with project administrators based on hard data. Another question related to project continuity. Curry noted that he helped the new team to plan phase two of the project. Collinson noted that a change of administration can dramatically interrupt programmes. Sampling methods were discussed, and Curry noted that the new development groups were used as a basis for sampling. In response to a question on anthropological attitudes to quantification, Curry noted that numbers can only be given a meaningful interpretation by someone familiar with the local language and social institutions, such as anthropologists. It was also noted that the use of anthropologists with a qualitative orientation allowed the

quantitative data collection to change focus as the project evolved, and include larger inter-household processes .

3.54. Observations and recommendations: the Broader Socio-political Context

1. FSR programmes need to take the broader socio-political context of small farmer development into account. Team social scientists should be prepared to spend time studying issues which are not technical related but are nevertheless vital to agricultural development once technologies have been identified. They should be prepared to comment to relevant authorities on the equity implications of policies and practices, while being sensitive to the fact that national interests may differ from their client group (Bantje [3.51 sp], Chilivumbo [[3.52 sp], Curry [3.53 sp], Merafe [4.30 sp]).

2. Relatedly, anthropologists/sociologists have a role to play in studying the larger institutional context of agricultural development with a view to making it more effective in meeting the needs of the small farmer (as well as national interests). Research is required into both the internal functioning of inefficient support institutions and linkages between institutions serving a common national goal (Chilivumbo [3.52, sp. gd.], Bantje [3.51 sp]).

3. FSR programmes often tend to be production oriented and pay little attention to the social impact of technical innovation, and its impact on larger organisational forms. Sociologists/anthropologists can be used to assess social impact, both at the individual farmer/household level and at the level of larger community agricultural support services operating at the local level (Bantje [3.51 gd] Curry [3.53 sp], Merafe [4.30 gd]).

4. In looking at the larger environment there is clearly a difference of perspective between FSR projects of a limited lifespan and programmes for institutionalising FSR into the national agricultural research and extension structure. FSR projects tend to have a more holistic view of development and may run the risk of undertaking support activities which are the responsibility of other government departments for the sake of "project success"; government employees may be used to further project objectives, rather than to increase the effectiveness of the government department from which they are seconded. Programmes of FSR institutionalisation attempt to build up the national capability to carry out on-farm research and extension which will, in the longer term, lead to improved smallholder productivity. Sociologists have a role to play in the evaluation of projects and support programmes to ensure that national interests and manpower

development are at the forefront, of activities and short-term visible effects (measured as a simple increase in output or agricultural activity) are placed in their proper perspective.

4.00. INSTITUTIONALISATION AND INTER-DISCIPLINARY COOPERATION

This topic attracted three papers and was discussed in a concluding session as well. Opio-Odongo presents a general discussion of the role of rural sociology in FSR, including ways of increasing its involvement. Kean and Sutherland provide an account of the Zambian programme for institutionalising rural sociology into the national FSR team. Merafe gives a summary of the operations of Botswana's Ministry of Agriculture's Rural Sociology Unit in relation to FSR type issues. Coming at the end of the final day, discussion of the papers was less full than for previous topics.

4.10. "Contribution of rural sociology to technology generation in the context of farming systems research" by J. M. OPIO-ODONGO

Summary of paper

Opio-Odongo's paper tackled four main issues relating to the contribution of rural sociology to technology generation. The first was to understand the factors leading to the belated recognition that rural sociology has a role to play in agricultural technology generation. The author identified three factors which have contributed to this. Firstly, the emphasis placed by American rural sociology on social welfare issues and on technology adoption has steered the discipline away from the issue of appropriate technology generation. Secondly, in Africa while rural sociology research has been tried out in a few instances where there has been an American influence in institution building, the strong British agricultural research tradition has largely precluded the posting of social scientists to research stations. The third factor he identified was the earlier recognition of the importance of agricultural economics, deriving initially from farm management research and later extending into farming systems research, which has resulted in economists taking on some research tasks better left to sociologists or anthropologists.

The second issue discussed was how rural sociologists can contribute to the better understanding of farmers' circumstances. Opio-Odongo emphasised the problem diagnosis phase

rather than experimentation and extension phases. He suggested that sociologists could usefully contribute by identifying recommendation domains (using aerial photography and secondary sources), master decision process in target groups, informal survey techniques, paradigm clashes as they affect both group interviews and cooperation between FSR team members, and farmer decision making. Opio-Odongo argued further that the contribution of rural sociologists could be advanced by developing theoretical perspectives which include explanations for small farmer poverty and the influence of different modes of production on farmers' circumstances and technology options.

The third issue was factors which inhibit the contribution of rural sociologists, pointing to certain weaknesses in disciplinary training and development. The lack of training in biological sciences, and, sometimes economics also and the possibility of applying political economy models of development at the neglect of technology ones, reflected weakness in professional training and rendered rural sociologists open to accusations of radicalism and trespassing on the ground of other disciplines. Another factor was the "poor visibility" of sociologists, but it was noted that visibility was improving with greater sociological involvement in project feasibility and evaluation studies. The other constraining factor Opio-Odongo discussed was the academic inclinations of many sociologists which may divert them away from a "community service" attitude to work.

The final topic was ways of improving rural sociology's contribution to FSR. The three remedies proposed were: 1) to gain official recognition of the importance of FSR by the Rural Sociology Society and the International Rural Sociological Association; 2) to persuade Ministries of Agriculture and Rural Development in the region to provide an institutional base for practising rural sociology, and 3) to create more opportunities for rural sociologists to participate in regional training workshops on FSR, (eg. CIMMYT workshops).

Summary of group discussion (secretary B. Grandin)

The paper was felt to be rather theoretical, which Dr. Opio-Odongo explained was due to the fact that he is just now embarking on an FSR project and can't be considered a practitioner as yet. However, being the only rural sociologist in the Faculty of Agriculture (Department of Agricultural Economics) has given him an exposure to interdisciplinary work and its problems. This has given him critical insights into the problems of a social scientist in a non-social sciences world.

There was some discussion of the traditional rural sociology

work on adoption of innovations - its emphasis on purely sociological variables (i.e. progressive, educated, young etc) in explaining adoption, was felt to be a major limitation. It was felt that a major contribution to these studies would be to look at sociological, economic and agronomic variables together. "Progressive" was like the residual term in a linear regression: its dimensions needed to be teased out. This could be an important contribution of a social scientist willing\able to look beyond purely sociological variables.

In terms of the low utilization of rural sociology, in addition to other points mentioned on the paper, questions arose as to the extent to which rural sociologists are trained in specific skills for cross-cultural work. It was considered that the urban-rural dichotomy can be so great that even indigenous researchers working in their own ethnic group would benefit from these skills. Dr. Opio-Odongo agreed this would be useful; it was not traditionally done in rural sociology, but was beginning to be done.

The group then focussed on the marginal position of social scientists working in agricultural development - which has both structural\institutional and personal dimensions - both of which are brought out beautifully in Opio-Odongo's paper. The group spent some time on this emotive issue. Emerging conclusion's were that that for social science to become well integrated into agricultural research and development, several things are necessary or desirable (some of which have been touched on in one fashion or another heretofore):-

1. Convince both bio-physical scientists, and ministry administrators that we have something to contribute;

2. Then hopefully they will begin to build in career structures and rewards for social scientists. As things are now, as far as our experience goes, there are limited or no career structures for social scientists in agricultural ministries in the region. This presumably would only come after we have proven our importance. But it will be necessary to supply the security\rewards necessary to keep good people in the job;

3. Regarding role of our discipline, professional bodies and journals. The group agreed applied anthropologists and rural sociologists are frequently isolated; outcasted in their larger professions. Feelings of marginalization are strong, with personal implications. The value of this sort of workshop for alleviating this isolation was noted. There is no easy solution. Although Opio-Odongo has called for professional society support, it is not clear how we practitioners can foster this.

Plenary discussion:

1. In response to the paper it was pointed out by Ron Watts that unit farms were started in Uganda in the late 1960's and a faculty member in rural sociology and extension worked with this. The suggestion was that unit farms were a form of FSR. Current models of FSR involve a lot of travelling, which is expensive and cannot be supported without foreign aid, and it was suggested that these petrol-expensive forms of FSR would die without foreign aid. If so, then cheaper forms like unit farms might be the solution.

2. The question of training in rural sociology was addressed in Zambia, where students are not very much trained with skills that are useful in development situations. The rural sociology courses do not provide all the needed skills.

4.20. "Institutionalising rural sociology into agricultural research: the Zambian example" by S.A. KEAN and A.J. SUTHERLAND

Summary of paper

Kean and Sutherland's paper provided a case example of the institutionalisation of rural sociology into the Zambian farming systems research programme ARPT (Adaptive Research Planning Team). Beginning with the assumption that "sociology has an important contribution to make in helping to plan the technology generation and adoption process", the paper firstly considered general factors influencing the incorporation of sociology into agricultural research organisations. It argued that the existing structure of these organisations, the state of knowledge from past sociological research, the extent of geographical and cultural variation, manpower availability, financial constraints, and the sensitivity of policy makers to social issues are all important factors. The paper then outlined four basic options for institutionalising a sociological input: fulltime incorporation into local level research teams; fulltime incorporation on a national or larger regional basis; use of undergraduate and higher degree students to undertake specific sociological studies, and close cooperation between natural scientists in agricultural research with sociologists working in other organisations in the country and abroad also.

The paper next gave a background to farming systems research in Zambia, before discussing specific aspects of institutionalising sociology. It discussed conceptual and specialist areas where sociology can contribute, further

broadening the inter-disciplinary focus provided by the combination of agronomy and economics. The paper then described specific sociological inputs within the framework of the CIMMYT sequence for on-farm research, as applied in Zambia, identifying a role for the sociologists at each point in the sequence. Finally, the organisational plan for institutionalising sociology into Zambia was discussed. An elaboration of specialist subject areas and a summary of specific studies carried out to date were provided in appendices.

Summary of group and plenary discussion combined (secretary H. Bantje).

A number of comments focussed on the practicalities of incorporating a sociological approach in FSR. For example, how can one overcome the natural sciences bias of agricultural research, and how can one bring together research institutions, parastatal organisations, universities, that each tend to consider their activities as autonomous.

It was pointed out that such issues may be very sensitive. One has to be very watchful of creating impressions of loss of status or power. An example was given how 4 years of progress were destroyed by the appointment of a new director of research with different interests. One should identify, and work on, points of leverage in the related organisations, identifying influential people who happen to be sympathetic to the cause - and stress complementarity of approaches rather than competition. Persuasion will finally be possible when the benefits of a sociological component will be clear from successful demonstrations. In the meantime interdisciplinary approaches should be built into training, so that new graduates are sensitive to the requirements of interdisciplinary research.

Regarding the latter point it was questioned whether young graduates were really interested to work in the rural areas. This appears to be more so in Zambia than in some other countries. Currently the A.R.P.T. teams typically consist of young graduates. On the one hand this may make interdisciplinary communication easier. On the other hand fears were expressed that between scientists with a low level of training, there would be a very low level of interaction. The maturity needed to step over disciplinary boundaries only comes with experience. In the Zambian case there is a commitment to a long term nationalisation programme, through in-service training and counterparting. One participant remarked on the difficulties of counterpart training when there is insufficient commitment from trainees.

A second area of general interest was the question of how far

the interdisciplinary approach described really works, or works better than conventional approaches, and what results can be shown. In this context one participant remarked that the results to be expected have not been specified. Is the aim increase of production, or improvement in standards of living? Obviously the incorporation of social science approaches is a means to an end rather than a goal in itself.

Some positive results can be indicated. Sociologists are now involved in A.R.P.T., so it is possible to pay attention to socio-cultural factors. Sociologists take part in the formulation of research programmes, and the importance of the human factors is being recognised. Some results are coming out of the trial programme. An example was given where sociology served to narrow down the seemingly wide range of technical solutions to problems in a farming system. Crop scientists need sociologists to develop a broader systems perspective.

Nevertheless some doubt was expressed whether the social scientists should purely serve to sell the packages developed by natural scientists, or whether they should instead more precisely question the soundness of particular technological approaches. To really make an improvement over the conventional "adoption of innovations" approach, adaptive research by incorporating sociology could more firmly base itself on the perspective of the small farmer.

The point was raised that conditions in other countries may differ from those prevailing in Zambia, making the incorporation of sociology perhaps less easy.

A participant noted that more attention might be given to the impact of the institutional and policy environment of the smallholders, e.g. in terms of pricing policies, input supply, and marketing structure. If adaptive research limits its perspective only to the community itself, important parameters of farmer's responses will be missed out. A Zambian participant noted that the existing FSR methodology incorporates analysis of the effects of national policies and institutions; A.R.P.T. passes on its findings on this, but it is up to the institutions to make the necessary changes and improvements.

4.30. "The role of rural sociology in planning for livestock development in Botswana" by YVONNE MERAPE

Summary of paper

Merafe's paper documented one of the earliest

recognitions of the importance of sociology by a Ministry of Agriculture in Southern Africa. She described how Botswana's Rural Sociology Unit has responsibilities to provide a broad socio-economic impact on agricultural planning and in the monitoring and evaluation of on-going programmes and projects. This includes the responsibility to identify constraint problems to the adoption of innovations introduced through rural development programmes\projects, and to make recommendations to relevant departments. The paper described how the work of the Unit is carried out within a broader inter-disciplinary context, so that it can "complement and reinforce technical investigations in both crop and livestock production", emphasising the integration of arable and livestock sectors within a wider framework of a policy of "Commercial Area Planning and Development".

Merafe's paper then described some of the agricultural and livestock projects in which the Rural Sociology Unit has been involved, detailing some of the rural sociology input. Her case studies suggested that the original ideas of agricultural planners had to undergo considerable modification following implementation, and that the sociology unit has played a role in the revision and adjustment of livestock projects arising out of Botswana's "Tribal Grazing Land Policy" (TGLP). The Unit has also been able to point out many of the equality implications of the increasing commercialisation of livestock, and has been involved in the planning and evaluation of programmes (e.g. communal service centres) designed as part of the setting up of commercial ranches.

While Merafe's paper did not focus on technology *per se*, it did address some of the socio-cultural constraints to the adoption of improved livestock management practices, and showed how the successful implementation of projects, such as the Village Area Development Programme, benefited greatly from the broad view of sociologists involved in the planning team. This enabled the team to go beyond the narrow technical focus of an improved package of livestock management, to involve the local population in developing a broad based plan which included the whole farming system in the area. In part, this was necessitated by socio-cultural factors: the idea of cooperative ranching as part of the technical package being incompatible with local social arrangements and priorities. Merafe provided other examples of the Sociology Unit's involvement in the planning, monitoring and evaluation of livestock projects, including grazing land reform programmes and commercial ranches, noting that in earlier livestock projects, "Planners seem not to have been aware that among traditional farmers socio-cultural factors very often play an equal if not more significant role in decision making than economic considerations". Her overall conclusion, based on 10 years of practice in Botswana, was that the inclusion of the Rural Sociology Unit

in both project planning and monitoring had significantly increased the relevance of projects to local needs and also reduced the level of project failure.

Summary of group discussion

The group felt that the strength of the study lay in the broad view which it took of the policy context of agricultural decision making, in particular of the framework given by the national land use policy. Specific sociological insights of relevance to farming systems research included:-

a) the relationship between livestock, subsistence, and off-farm economic activities,

b) the importance of differential access to resources as indicated by the skewed distribution of cattle ownership,

c) the significance of kinship based institutions for the sharing of draught power - in particular for female headed households and the role of these institutions in risk aversion, and

d) the significance of ethnicity in determining access to resources, especially land.

The group felt that findings given at pp. 15 - 16 could be elaborated so as to establish the basis of agricultural decision making with regard to :-

a) the overstocking which seems to be widespread;

b) the rationale for the continued employment of herdboys rather than managers and the failure of the farmers to take advantage of training programmes;

c) the delay on the part of ranches in putting up perimeter fences and the probable lack of incentives which explains this

It was noted that the disciplinary distinction between sociologists and economists was often overlaid by a distinction in working environments, the former being predominantly field-based and the latter office-based. Furthermore, the failure to involve sociologists in the design and planning stages of programme formulation frequently led to their being regarded as 'problem solvers' after the event, while questions as to the target orientations of these programmes were not formulated.

It was noted that closer interdisciplinary cooperation would have led to the investigation and quantification of stocking rates and herd off-take rates which are clearly

critical to the continued viability of the systems in question.

Plenary discussion

Dr. Kerven noted that a farm management unit had been present in the Ministry of Agriculture for seven years and could have provided information on stocking rates etc. She noted that they were perhaps inhibited by their reliance on excessively formal survey and analysis techniques.

Dr. Grandin asked how the strength of the staff complement in rural sociology compared with that of other disciplines represented in the Ministry. Ms. Merafe replied that the Rural Sociology Unit tended to be regarded as a service unit within the Ministry rather than being given an opportunity to develop its own priorities and terms of reference.

Dr. Kerven asked the extent to which the Unit had been involved in the on-going farming systems research programme in Botswana. Ms. Merafe replied that there had been very little involvement, in part because of a shortage of qualified manpower, but she was optimistic about the potential role of the Rural Sociology Unit in such programmes.

4.40. "Interdisciplinary Workshop Relationships" by CONCLUDING SMALL GROUP DISCUSSION SESSION (Secretary S. Kean)

1. Specialist areas where sociologists can make specific contributions were identified as follows:-

- Specification of the production unit.
- Decision making affecting behaviour e.g. the allocation of labour.
- Farmer selection for surveys and trials
- Farmer assessment

2. Economists should collect more quantitative data. Sociologists would add a wider breadth to the data because they approach rural households with broader perspective of farmer values and attitudes.

3. Sociologists should be involved throughout the sequence of CIMMYT dependent on each specific organisation. The sociologist has a critical role to play in the diagnostic survey stage (and target grouping) to set the team on the

right track at the start, and an important role in monitoring output.

4. Sociologists can play an important role in target grouping; stratifying the population looking at ethnic and cultural factors. The socio-economist could collect data for target grouping once the sociologist has given the criteria for stratification.

5. The sociologist has a role to play in training. Training should aim to give scientists from different disciplines an appreciation of the contribution one another can make. Courses at university incorporating an interdisciplinary approach are important for undergraduates who have specialised. Similarly agriculture students should take some sociology courses and vice-versa.

Short duration in country/regional FSR training workshops are also useful in helping scientists from different disciplines to interact, especially if they are obliged to do field work. Universities could run multidisciplinary research projects in specific farming systems e.g. Sebungwe in Zimbabwe. There is a role for management training in team work to assist new teams being set up.

4.50. Observations and recommendations: Institutionalisation and Interdisciplinary Relationships

Institutionalisation is clearly a critical issue when developing guidelines for the incorporation of sociology and anthropology into farming systems research. Policymakers in each country will be faced with the decision of how to incorporate sociology. Some may consider it is better to set up a separate sociology unit, others to incorporate social scientists as members of existing specialist research teams. Yet others with more restriction on resources may choose to forge closer links with sociologists working in allied departments or related institutions. If resources permit, the likely best option may be to employ a small number of sociologists and use these both in training non-social scientists and in carrying out special research tasks which cannot easily be delegated because they demand professional expertise. Such people must be properly qualified and above all have the relevant experience and approach to the job. Given that the choice of how to institutionalise rests with individual countries, several important points arise from the papers and discussions on this issue.

1. It is very important, where ever possible, to involve sociologists at the planning stage of FSR projects, to help get the team on the right track. This will avoid the sociologist who joins later being regarded by other team members as a problem solver or trouble shooter (Merafe [4.30

pd], Bantje [3.51], CDS [4.40]).

2. In situations where economists and sociologists are working together in the same team, avoiding a rigid division of tasks, the economists should concentrate on the quantitative aspects and the sociologist the qualitative aspects of data collection and analysis (CDS [4.40], Kean and Sutherland [4.20 ps]).

3. Of great importance is the training of graduates. Agricultural graduates require a sociological perspective, while sociology graduates require more background in technical subjects relating to rural development and agriculture (Opio-Odongo [4.10 pd]).

4. The creation of a career structure with incentives is necessary to retain good people in post (Opio-Odongo [4.10 ps], Kean and Sutherland [4.20 ps]).

5. Sociologists or anthropologists employed fulltime in FSR should have a training role in sensitising other scientists to social and cultural issues and improving communication between scientists and farmers (CDS [4.40.], Curry [3.53 gd], Opio-Odongo [4.10 gd], Warren [3.31 gd]).

6. Sociologists or anthropologists who are thinking of working in FSR need to have a good record of, and attitude to, teamwork (Tripp [2.31], Opio-Odongo [4.10 gd] CDS [4.40]).

5.00. RURAL SOCIOLOGY WORKSHOP ANNEXES

5.10. PROVISIONAL WORKSHOP OBJECTIVES AND PROGRAMME

Title "The role of rural sociology (including anthropology) in farming systems research and technology generation and adoption".

Venue Ridgeway Hotel, Lusaka; Zambia.

Date: 26 - 28 November, 1984.

Learning

Objectives: 'What do participants gain from the workshop?

1. Expand Knowledge: increase their knowledge of the role rural sociology currently plays in agricultural research and in technology generation and adoption in Africa.

2. Share Ideas The opportunity to put forward and listen to ideas about the role that rural sociology ought to play in agricultural research and technology generation and adoption.

3. Identify Specific Subject Areas To learn about and discuss through case study material subject areas where rural sociology can make a special contribution to farming systems research and development.

4. Discuss Methodological Issues To learn how colleagues decide which methods of data collection to use, to discuss the potential for methodological standardisation in relation to farming systems, to discuss low-cost methodologies, and to identify methodological differences between rural sociology and agricultural economics.

5. Discuss Organisational Issues To discuss how rural sociologists do and ought to work with other social and natural scientists in:-

- a) Interdisciplinary agricultural research teams, and
- b) In the context of 'departmental' structures, and
- c) To discuss improvements in a and b

Workshop Output Possibilities

1. Summary of workshop proceedings in order to inform a wider body of interested professionals.

2. Edited collection of workshop papers.

3. Preliminary set of guidelines for the incorporation of rural sociology into farming systems research.

Discussion Themes: The workshop will discuss three themes relevant to the incorporation of rural sociology into agricultural research and technology generation and adoption:

A: Subject areas not usually covered in the farming systems research approach.

B: Points in the existing FSR approach where rural sociology has a role to play.

C: Procedures and organisational options for incorporating rural sociology into farming systems research.

Themes A and B will be considered in relation to cost effective methodologies appropriate to specific roles. All themes will address the general objective of "making rural sociology more useful and more applicable in problem solving and problem identification". The three themes are elaborated in Appendix 1 below.

Working Papers

Participation in the workshop will involve the presentation of a short working paper. It is intended that participants will contribute by drawing on their experience of technology generation and adoption in countries where they have worked. Papers should use case-study material to address one (or more) of the specific subject areas in theme A (or another subject area not included in theme A) - See Annex I.

The paper ought to focus on the social and cultural factors which influenced the shaping and/or adoption of a particular technology (in the broad sense of the term) or technical package, or the identification of a technical problem. Methodologies used to identify and evaluate the influence of such social and cultural factors should be described. It is considered that specific working papers on themes B and C will be less easy to focus, and unless participants can present case-studies to address particular aspects of these themes, it is intended that they will be discussed by groups during the workshop instead.

Outlines of workshop papers.

A brief outline of intended working papers, including a specific subject area, should arrive by the end of August, after which further arrangements will be made.

Comments.

Comments on the content and direction of the preliminary

programme are most welcome, and can be sent along with working paper outlines.

APPENDIX I

THEME A.: SUBJECT AREAS NOT USUALLY COVERED IN THE FARMING SYSTEMS APPROACH

1. Division of labour by age, sex and marital status within rural households. The extent to which age, sex and marital status regulate labour in agricultural production with particular emphasis on 'peak' labour periods and competition between agricultural and non-agricultural cash earning opportunities: question the simplifying assumption of agricultural economic analysis.

2. Kinship as an institutional factor regulating agricultural labour and access to land, livestock, equipment and markets. The way that ties of marriage, descent and filiation which extend beyond the household intervene, either positively or negatively, in the allocation of labour during peak periods, in the acquisition and extension of rights in land and livestock, in the sharing of agricultural equipment, and the distribution and marketing of agricultural produce; bring in the importance of inter-household processes.

3. Religion\ethnicity in relation to productive specialisation and access to land and equipment. The extent to which religion or ethnicity are a factors which intervene in the organisation of specialist agricultural activities, access to land for cash cropping or pasture, cooperation in the purchase of scarce inputs, sharing of expensive equipments, and the informal marketing of products.

4. Land Tenure and Technological Intervention. The influence of local land tenure systems on technology involving; an expansion of acreage, an extension of the period of cultivation, an improvement or alteration of existing holdings, or a more 'rationalised' pattern of land holding.

5. Settlement Patterns and Local Political Organisation. The way that settlement and local political institutions influence access to land, and the regulation of farming activities, particularly in relation to changes in cropping systems and animal husbandry which imply changes in settlement patterns.

6. Technology Adoption and Cultural Change. Processes of social and cultural change which facilitate or increase the scale of technology adoption: Ways of evaluating the lifespan of a new technology in relation to the time necessary for the cultural adjustments implied in the new technology (assuming

the economic benefits are constant).

7. Local Development Histories. The way local peoples' previous experience of development projects and agricultural programmes is likely to influence response to FSR programmes.

8. The Social Context of Food Processing and Storage. The implications of new varieties or new food crops for food processing within the household: palatability, cooking time, processing requirements, storage requirements.

9. Correcting Male Bias in FSR programmes. Discussion of ways in which a male dominated profession can develop a survey and experimental programme which recognises the importance of women in small-scale agriculture.

10. Rural Urban Migration. Ways of assessing the importance of rural-urban migration for household labour, cash management, and investment patterns.

11. Evaluating and prescreening the social acceptability of new agricultural technology: in relation to equity considerations and long term social and economic implications.

12. Indigenous Technical Knowledge: its place in farming systems research.

THEME B: POINTS IN THE EXISTING FSR APPROACH WHERE RURAL SOCIOLOGY HAS A ROLE TO PLAY

1. Survey Work for diagnosis and problem identification:

a. Recommendation Domain: input into zoning questionnaire, collection of secondary literature and analysis of material, variation in household types, extension worker bias, selection of appropriate community leaders, and farmer classification in relation to land tenure.

b. Informal Survey: entry into a new area: selection of farmer informants, interview approach, content of investigations in relation to local cultural patterns influencing farming and also response to outside officials, more accurate assessment of farmers' goals, and methods of standardising working definitions of sampling units.

c. Formal Survey: sampling methods to counter extension worker bias, organisation and content of questionnaire, analysis of findings, definition of unit of sampling.

d. On Going Data Collection: methods of organising frequent visit surveys and assessment of subject areas likely to be socially sensitive or to influence farmer cooperation

adversely.

2. Trial Design

Sociological pre-screening and planning of experiments: social and cultural factors which will influence possible solutions to identified problems.

3. Trial Management and Evaluation.

Contribution to procedures for: selecting trial farmers, monitoring of farmer response and evaluation, obtaining farmer response to problem diagnosis and on-farm trial proposals, site selection for trials, and organisation of farmer managed trials.

4. Formulation and Delivery of Recommendations.

Contribution to formulation of recommendations in relation to target group specificity, develop procedures for monitoring the delivery of technical recommendations and the adoption of recommended technologies.

C. PROCEDURES AND ORGANISATIONAL OPTIONS FOR INCORPORATING RURAL SOCIOLOGY INTO FARMING SYSTEMS RESEARCH.

1. Rural sociologist as a substitute for an agricultural economist in a locally based FSR team.

2. Rural sociologist as an addition to an economist in a locally based FSR team.

3. Rural sociologist centrally placed working full time and serving several FSR teams.

4. Rural sociologist located in another research institution working part-time on a call basis.

5. Rural sociology in interaction with agricultural economics: disciplinary boundaries and procedures for inter-disciplinary interaction.

6. Role of rural sociology in training agronomists and economists: a) in identifying areas of social sensitivity within the FSR sequence, b) making the most of indigenous knowledge, and c) recognising the roles of the disciplines of fellow team members.

7. Role of rural sociology in building or evaluating linkages between FSR, commodity research, and agricultural extension.

5.20. ANNEX:

OPENING ADDRESS BY THE HON. D. MUNKOBWE, MINISTER OF STATE FOR AGRICULTURE AND WATER DEVELOPMENT, ON THE OCCASION OF THE NET WORKSHOP ON THE ROLE OF RURAL SOCIOLOGY IN FARMING SYSTEMS RESEARCH.

MR. CHAIRMAN, DISTINGUISHED GUESTS, LADIES AND GENTLEMEN.

I whole heartedly welcome all participants especially those who have travelled long distances to attend the workshop. I am told we have representatives from Zambia and neighbouring countries, including Botswana, Kenya, Malawi, Tanzania, Swaziland, Uganda and Zimbabwe and the international organisations operating in the region namely:- the International Livestock Centre for Africa, (ILCA); the International Centre for research in Agro-Forestry (ICRAF); the World Bank and most especially the International Centre for Maize and Wheat Improvement (CENTRO INTERNACION DE MEJORAMIENTO DE MAIZY TRIGO, or CIMMYT) whose economics programme's regional representative, Dr. Collinson, is attending the workshop.

Mr. Chairman, to put the occasion in perspective, I would like to begin by emphasising the high priority which the party and its government attaches to agriculture. The Ministry of Agriculture and Water Development is spearheading the government's "operation food production programme" which places special emphasis on small-scale, agricultural production. A major part of this programme falls under Zambia's Agricultural Research Programme which comes under the umbrella of the Department of Agriculture. For a number of years, the party and its government has recognised the need to give greater attention to research for small scale farmers, as evidenced, for example, by the Lima programme which was initiated in 1978. Of particular relevance to this occasion is the strong link between the Department of Agriculture and CIMMYT's Regional Economics Programme which was formed in 1977.

Mr. Chairman, this was the year when the Department invited CIMMYT's East African Economics Programme to come and demonstrate their farming systems research methodology for planning research programmes to generate technology that is more appropriate for Zambia's small scale farmers. Following these demonstrations the Ministry of Agriculture and Water Development decided to incorporate the CIMMYT methodology into the Research Branch through adaptive research. The Adaptive Research Planning Team was established in order to spearhead and institutionalise this methodology and is now operating in Lusaka Province, Eastern Province, Luapula Province, Western Province, Northern Province, and Central Province, which are six of Zambia's nine provinces.

In each province the Adaptive Research Planning Team has an

agronomist and an agricultural economist who work hand in hand undertaking farmer surveys and on-farm trials.

Mr. Chairman, I would like to point out and emphasize the continuity of the above developments with Zambia's overall development strategy, as outlined in the Third National Development Plan. This plan gives high priority to local problems in the provinces and the 1981 Decentralisation Act states that greater attention should be given to locally identified problems within agricultural research. It is for this reason that adaptive research has been given high priority and is regarded as spearheading the move to 'take research to the people'.

Mr. Chairman, this workshop is addressing a most important topic. It is widely accepted that social and cultural problems rank high among those of the small scale or peasant farmer, and that social and cultural factors exert a major influence on their farming decisions in general and on their adoption of new technology in particular. I should emphasize that this situation is not peculiar to Zambia, but widespread within the region and further afield. It is precisely for this reason that you have all been invited to share experiences gained in your respective countries and organisations, and to discuss and debate methodologies appropriate for tackling problems which are common to the region as a whole. I must emphasize that this is a regional undertaking whereby we are pooling our professional expertise and experience through the assistance of the CIMMYT 'networking' programme, designed to facilitate improved regional cooperation.

Mr. Chairman, I believe that Zambia is an appropriate location for discussing these issues for two reasons. Firstly, Zambia has a long tradition of social research conducted from the University of Zambia's Institute of African Studies and the Rural Development Studies Bureau (formerly the Rhodes-Livingstone Institute) dating from before the second world war. Sociologists and social anthropologists at these institutions have long been involved in the planning and evaluation of rural development and agriculture, including the Kariba Dam re-settlement project and a variety of important land-use and agricultural surveys in different parts of the country. Secondly, Zambia's Adaptive Research Planning Team was perhaps the first farming systems research programme in the region to explicitly recognise that rural sociology had a specific contribution to make, and has begun to institutionalise the sociological component. Zambia welcomes the opportunity this workshop will provide for it to share its experiences with neighbouring countries so that we can learn from each other.

Mr. Chairman, in welcoming participants to the workshop I would like to clearly state the workshop's objectives as

follows:-

1. To achieve an over-view - to see across Africa what has been the usefulness of rural sociology, its contribution to research on farming systems, its importance in appropriate and acceptable technological change;
2. To find the way forward - to share ideas about what ought to be the role of rural sociology in agricultural research;
3. To gain knowledge in depth - to use actual cases to put our discussion on solid ground, with specific data on rural sociology's special contribution;
4. To clarify methods - to examine how decisions are made about methods of data collection; discuss the potential for standard methods in studying farming systems; evaluate low-cost methodologies; compare methods of rural sociology and agricultural economics; and
5. To improve interdisciplinary co-operation - to evaluate how rural sociologists work with other social and natural scientists in interdisciplinary agricultural research teams and in the context of 'departmental structures'; and to put forward suggestions for improved co-operation.

The discussions should address themselves fully to the objectives of the workshop so that at the end of the day we will have achieved the task for which you are meeting to day and the next two (2) days to enable you to go back to your country programmes ready to make positive contributions to the solution of problems for our small scale farmers.

Mr. Chairman, before opening the workshop, I would like to take this opportunity to thank the organisations which have made this occasion possible. Notably, I would like to thank CIMMYT for their support in organising and financing the workshop and for their long term involvement and support of farming systems research in Zambia and within the region. Secondly, I would like to thank all those officers within my Ministry for the extra efforts they have made to assist with the organisation and running of the workshop. Thirdly, and finally, I would like to thank the staff and management of the Ridgeway Hotel for agreeing to host this workshop and look after the participants.

Mr. Chairman, distinguished guests, ladies and gentlemen, I would like now to wish you every success in your deliberations. It is now my honour and privilege to declare this workshop officially open.

Thank you.

5.30. ANNEX:

KEYNOTE SPEECH

by

ART HANSEN: UNIVERSITY OF FLORIDA, U.S.A.

Madame chair, distinguished representatives of the Ministry of Agriculture and Water Development, scientific colleagues from the various disciplines, and observers:

I am honoured to be here at this workshop, and it is certainly a pleasure to be once again in Zambia. My wife and I first came here in 1970 to carry out anthropological research in North Western Province. We were affiliated to the Institute for Social Research, now the Institute for African Studies, of the University of Zambia, a relationship we have maintained over the years whenever we have been fortunate enough to return to this country. We learned about many facets of life in Zambia during our first stay here. Our son grew up and learned to walk and talk in the villages of Zambezi District, and his first language was Chiluvale, one of the many languages of Zambia. When we were ready to return to our university in the U.S.A. our Luvale friends and neighbours understood that we had to leave. They only wished that we leave our son, Chinyama, whom they called a real Muluvale, with them to raise.

Our experiences here make it clear that Zambia is a wealthy country - wealthy in its people, the diversity and complexity of its many cultures, and in the optimism and fortitude of its people and their leaders. At the same time the country faces economic difficulties as do its neighbours and, indeed, most countries in our world. Increasingly Zambia is looking to its farmers for support. These people in the rural areas have the power to make Zambia self-sufficient in food and to improve the national balance of imports and exports.

The issues which Zambia and its African neighbours confront are:

1. how to encourage farmers to produce more, and
2. how to utilize the services of the state to assist farmers around the country so that they may help themselves and help the country.

The country has resources: skilled agricultural research staff experienced agricultural extension and credit staff, marketing, transportation and processing agencies, and pricing policies. These must be efficiently used to assist and encourage farmers.

WORKSHOP

This workshop is part of a continuing effort to help Zambia

and its neighbours in this effort. As its special focus the workshop is designed to identify specific ways for non-economic social scientists to work with farming systems research (FSR) programmes. In other words, how can the non-economic social sciences contribute to understanding farming systems dynamics in order to help generate improved agricultural production technologies that are accepted by farmers? An earlier workshop with similar aims was convened in the Philippines in 1981 (International Rice Research Institute, 1982).

People have gathered here for this occasion from Botswana, Ethiopia, Kenya, Malawi, Sudan, Swaziland, Tanzania, Uganda, the U.S.A, and Zimbabwe. A number of colleges, universities, international and supporting agencies are represented, just as I am representing the small International Farming Systems Supporting Project which is funded by the United States (of America) Agency for International Development (FSSP - USAID) to support programmes like this around the world. The disciplines of anthropology, geography, rural sociology and sociology are also represented.

The workshop addresses national FSR programmes that are working in specific localities, although much of the argument also applies to programmes operating at international levels to develop more general models. Whatever our theoretical concerns, we must remember that the essential criteria in evaluating the contribution of anthropologists and sociologists, are increased production and cost-effectiveness. Increased agricultural production is essential to feed an increased population, provide more material for industrial processing and export, and avoid or diminish imports. Increased production is also one of the ways by which rural families may improve their living standards. Though the ultimate clients are farmers, national governments and international agencies are paying the bills for research and will want an accounting of our responsible use of their resources.

ZAMBIAN PRECEDENTS

Zambia is an appropriate site for this workshop. Agricultural research here offers historic precedents for us. One example is the multidisciplinary team composed of William Allan, an agriculturist better known for his later book The African Husbandman, Max Gluckman, an anthropologist who directed the Rhodes-Livingstone Institute in Lusaka for many years, Colin Trapnell, an ecologist, and D.U. Peters, a soil scientist. These four collaborated in 1945 on a study of land tenure and land use in Mazabuka District and made recommendations on how farmers' production and incomes could be increased (Allan, et al. 1948). Although this and other earlier policy oriented investigations of African farming did not include all of the features associated today with FSR these words from an earlier Director of Agriculture should

sound familiar:

Recognition of inherent soundness under natural conditions, of native agricultural practice has only become general in recent years. Practices apparently contrary to the accepted principles of good farming, usually prove on investigation to be the best possible in the circumstances under which the native cultivator works- but their natural mode of life has been rudely interrupted. Thus agricultural problems have arisen which were previously non-existent - and some guidance toward the adaptation of long established methods to new needs and conditions is usually necessary; but it becomes (sic) an agricultural department to investigate local practices with the utmost care before presuming to attempt to improve them (Lewin in Trapnell and Clothier, 1936).

It is chastening to realise that these words were published approximately fifty years ago in the foreword to Trapnell and Clothier's pioneering work on soils, vegetation and agricultural systems (1936). This era of "proto-FSR" work during the 1930's and 1940's was cut short by the dispersion of personnel to other work in other countries, a familiar occurrence today as well, and other paradigms of agricultural research took over.

FARMING SYSTEMS RESEARCH

What is called FSR today is an agricultural research approach that recognises the importance of local farmers. This research approach also recognises the complexity of the strategies that villagers have evolved to earn a living and earn enough to educate their children and contribute in other ways to helping their families. FSR focuses the skills and resources of many scientific disciplines, because no single discipline possesses the tools and insight necessary to totally understand farmer's strategies, the adaptive interaction of farmers and their environment, and the most effective ways to help them improve their production and living standards through agriculture.

This multidisciplinary research approach complements and strengthens existing commodity and single discipline research programmes. The other programmes focus their efforts on individual agricultural commodities or categories (maize, legumes, livestock, etc.) in order to probe deeply into technical and biological potentials. Farming systems research investigates a broad range of commodities and factors as they are found in local farming systems. FSR serves as a bridge between technical research programmes and farmers.

On the one hand FSR investigates existing farming and clarifies its problems, constraints and the highest priority opportunities. This provides direction to the technical research programmes by identifying high priority research targets. On the other hand, FSR investigates how technical recommendations and suggested technologies operate in local farming conditions. Over a period of time these experiments on farms identify the most important and effective ways for technical research findings to be applied to help farmers.

Agricultural research is a cost-effective investment for any country. Additional funding for agricultural research provides for a stronger national agriculture and increased production. This is a safe and productive investment when FSR and commodity research programmes are both well funded.

The two types of research are complementary. Each supports and strengthens the other. There is no question about the systems approach replacing technical commodity research. Together the farmer-focused systems approach and the commodity-focused approach provide a more effective agricultural research programme for the country.

If funding is not increased as the newer systems research begins, then commodity research programmes have to be cut back to provide funding for FSR. This creates resentment and conflict and weakens the agricultural research effort. Funding agricultural research is a good investment, and the additional funding necessary for the FSR programme will be returned and multiplied for the country as more effective research recommendations help farmers produce more.

The FSR approach varies from one country to another and from one theorist to another, but there is general agreement on the essential features. Increased agricultural production is the primary goal. The goal is achieved through the creation of alternative technologies that farmers adopt. Farmers are the real producers and the source of increased production. Technological alternatives that are inappropriate or unacceptable to farmers are not adopted and do not contribute to increased production. In countries like Zambia and its neighbours the majority of farmers are smaller and relatively poor in capital resources. This majority must be encouraged and assisted to increase their production.

In order to ensure that technological alternatives suggested by research are appropriate and really successful when applied by this majority of farmers, research must investigate and understand the empirical reality of farming. Farmers try to achieve a number of personal and family goals through farming and other enterprises.

These goals, the combinations of enterprises, farmer

resources, and the physical, biological and institutional environmental features form systems. To understand farming, research must understand these systems. These systems are so complex that the skills, experience and interests of technical and social scientists must be combined.

When farmers are involved in the research process, when their ideas and interests are included, and when research scientists actually see and appreciate how farmers operate, then research has the best opportunity to really learn about and understand the existing farming systems. Based on this knowledge and combining it with technical information about the biological and physical potentials of alternative technologies, research staff may devise appropriate technologies that will be successful under local farming conditions. Before recommending these to farmers and as part of the process of devising appropriate technology, research tests the alternatives on farmers' fields and under farmer management.

These essential features of FSR are important but FSR programmes in different countries are going to be different. It is important to be flexible. Earlier this year I headed an evaluation of an FSR programme in Central America. There were problems caused by conflicts between the expatriate technical assistance team administering the programme and host country professionals. The expatriate team had a clear but rigid interpretation of the FSR process. In order to implement this process as they understood it, significant changes needed to be made in the host country's existing agricultural research programme. The existing programme exhibited many of the characteristics of farmer-focused research, and the host country research staff were loyal to what they saw as an innovative (although earlier version) of FSR.

Conflicts such as these may be minimised by clearly understanding the essential features and the ability to compromise on details. FSR is different from commodity and discipline research, and the introduction of FSR does require some changes, but arguments over the purity and correctness of procedures should not be allowed to dissipate energies and clear concentration on the goals. Just as we must understand existing farming systems in order to successfully

generate appropriate technology for farmers, so we must also take the time to understand existing research institutions in order to create an FSR programme that will fit successfully into the national research environment. Expatriate assistance is very important at this phase of technology development but sustainable effective agricultural research requires the embedding of FSR into the administrative structure of the host country departments and ministries.

Social scientists have roles to play in the research programme and process described above. This workshop provides an opportunity for scientists working in different research capacities to come together and share their ideas and experiences about these roles. My colleagues will be presenting papers and discussing specific methods and areas where social scientists may contribute to improving FSR and, consequently, improving the capacity of national agricultural research programmes. I wish to address only one area in the remainder of this paper, and that is the contribution that has been made, and may still be made, by the anthropologist. I do not mean to exclude a similar contribution from the other social sciences; what follows reflects my personal familiarity as an anthropologist with the accumulated knowledge of my own discipline.

FARMING SYSTEMS RESEARCH AND THE ANTHROPOLOGICAL BODY OF KNOWLEDGE

FSR attempts to understand the complex interdependencies of localized ecosystems and farm based economics in order to make farm tested recommendations that are appropriate for farmer conditions. Anthropologists may directly contribute to this research staff conducting special studies. Another way to contribute, even though not affiliated with an agricultural research agency, is through continuing professional investigations into rural life, ecological and socio-economic systems.

Let us start by considering the last role. Many developing countries and Zambia in particular have available an extensive set of anthropological monographs, articles and dissertations covering numerous localities within the country side. Four consistent features of anthropological studies are an intimate familiarity with the people being studied, inclusion of a broad range of factors, emphasis on inductive discovery, and systematic analysis. In addition, many of the rural studies were explicitly problem-oriented. Numerous generalized insights drawn from this literature form part of the body of knowledge that supported the evolution of FSR activities.

These existing studies and their authors may also be used by FSR national programmes for information about specific localities and local systems. To start with some famous examples; who would work in Zambia's Western Province without reading Economy of the Central Barotse Plain by Gluckman, in Zambia's Northern Province without reading Land, Labour and Diet in Northern Rhodesia by Richards, in Zambia's Southern Province among the Tonga without reading Colson, in Malawi among the Yao without reading Mitchell, in Mozambique among the Nyakyusa without reading what both of the Wilsons have written or in Sudan among the Nuer without reading Evans-Pritchard? Anthropological interests in these issues and

peoples continued through the years. In 1938 the first paper published by the Rhodes-Livingstone Institute, now the Institute for African Studies of the University of Zambia, described the fundamentals of land tenure among the Nyakyusa people of Tanzania and Malawi (Wilson 1923). In 1982 Mphanya Mvunga published in the Institute's Zambian Papers series on the fundamentals of land law and policy in Zambia.

FSR is action-oriented not academic, but it is a research based programme. The diagnostic phase emphasises field surveys among farmers because this farmer focus is an important innovation, but review of the relevant literature is also important. Relevance extends beyond rainfall, soil and cropping trials. Information about farmers is relevant. FSR is farmer oriented because production technologies must be adopted by farmers in order for increased production to occur. Technically correct innovations that are locally inappropriate or unacceptable are not cost-effective.

Acknowledged expatriate experts in African FSR such as Michael Collinson, David Norman and Elon Gilbert have spent years learning about Africa and are aware of the relevance of anthropological experience. That expertise is, however, a limiting factor to the expansion of effective FSR programmes. As the popularity of this approach among foreign aid agencies has increased, the demand for expatriate technical assistance, the importance of this limiting factor has been ignored. It is unfortunate that some agriculturists and economists now working in African agricultural research and extension are unfamiliar with the extensive collection of anthropological writings.

A ZAMBIAN EXAMPLE

Apart from the famous studies noted above there are many more. My own research in Zambezi District of northwestern Zambia is an example. For more than two years (1970-1972, 1977, 1979) my family and I lived in a rural settlement observing and interviewing. My dissertation examined how people and systems respond to changing conditions, both in terms of household level socioeconomic process as well as district level ecological and economic systems. That information would be of benefit to FSR teams working in the area (Hansen 1977).

Many households on both sides of the Zambezi River earn their living by combining farming, fishing, local trade and labour migration. For many young men agriculture is an old man's activity. Attractive cash returns from flood plain fishing pull many men away from farming during the growing season, leaving their wives to produce the crops. Agricultural innovations requiring more labor input will be competing against fishing. People believe strongly that every household should be self-sufficient in staple food

production, so even those farmers who produce commercial maize usually have their cassava fields as well. There is an obvious sexual division of labour. Wives have the primary responsibility for food production, while husbands are responsible for bringing cash into the household, so innovations in food crop production should be geared toward women.

Agriculture has changed in many ways in the past few decades, and someone without a sense of history might misunderstand trends and potentials of local farming. Only in the last few decades have the majority of farmers changed from shifting to stabilized cultivation, largely in response to population pressure from Angola immigration. Farmers are still in the beginning stages of coping with soil fertility problems associated with stabilising cultivation on infertile sandy soils. Green manuring occurs, and cassava is left in the ground longer to mature, but groundnut production has dramatically diminished due to problems of pod filling ("pops" or what local people call kapokekapoke). Research on these problems would be eagerly accepted.

Villagers are constantly experimenting with new varieties. Many fruit trees have been introduced by labour migrants and travellers who brought home the seeds, and the same with cassava cuttings. Villagers appreciate the potentials of dambo cultivation of fruit, out of season maize and vegetables. Production could be greatly expanded, but marketing is the problem. Although independent truckers service the district because of the fish trade, it is too far by gravel roads for transporting perishable crops to the urban markets.

The western side of the river features extensive flood plains of Kalahari sands, and roads are poorly developed. Flood plain production of rice has been thwarted by marketing problems; farmers grew rice but became discouraged when it was never picked up by NAMBOARD the National Marketing Agency. Villagers remain interested in rice production technology because they consistently have to import staple crops from the eastern side. Farmers east of the river consistently have to import staple crops from the eastern side. Farmers east of the river consistently produce a surplus of cassava which is traded across the river for fish. Important intra-district trade occurs involving food crops (unprocessed and in the form of flour), fish, livestock and trade goods (clothes, etc.). Only a portion of intra-district trade involves money. Marketing studies which restrict themselves to commodity-cash exchanges will dramatically underestimate the extent of trade and crop production.

Outside of the district the major markets now for agricultural production are the urban centres hundreds of

miles away over gravel roads. This was not always the case. Western Province lies just downriver, and an important exchange of cassava from Zambezi against fish and cattle from Western continued for several decades. Beginning in the later 1970s with people walking back and forth, the trade escalated to include barge traffic. This ceased when cassava could no longer compete with subsidised maize trucked into Western Province on the new roads from the east. This historical information remains relevant because it demonstrates the potential of cassava production if another market appears and because Western Province remains just downriver.

My research was not unique; many other anthropologists have conducted research just as relevant to FSR teams working in their areas. What inhibits other scientists from utilizing this material? First of all they may not know of its existence or of its utility. Second, many disciplines have their own style and language, and the anthropological materials were not written for an FSR audience. A similar problem exists for Evaluation Officers in Malawi. They annually survey random samples of smallholder patterns, yields and labour. This is potentially invaluable to research and extension staff. Their annual reports, unfortunately, feature tables of data which are virtually incomprehensible to the agricultural staff. The staff in turn generally ignore the evaluation material.

Perhaps we could model a solution to our communication problems along the same lines as did several Evaluation Officers. Instead of writing the reports and merely circulating them, these officers called public staff meetings where the material was reviewed and staff asked for questions and suggestions. Staff began to ask questions of the material, and the material in the tables was picked apart and discussed. Once it became obvious that the evaluation material contained information that the staff could use, they became interested in it. At the same time evaluation officers usually learned that the standard formats they had been using were useful for national accounts but needed to be substantially modified for field use by research and extension people.

FSR projects could invite anthropologists with field experience in an area to publicly present their material and answer questions. Anthropologists could be short term (temporary duty or TDY) consultants to a field team. Questions about an area could be written to an anthropologist for a written response, but this would not be as useful as the actual face-to-face dialogue. Institutions such as the Institute for Rural Development or Institute for African Studies in Zambia or the centre for Social Research in Malawi, all of which are affiliated with their national universities, could be used to sponsor these exchanges or to

sponsor anthropological research directed towards answering questions posed by FSR programme staff.

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5.40. ANNEX

AN OUTLINE OF CIMMYT PROCEDURES FOR ON FARM RESEARCH WITH A FARMING SYSTEMS PERSPECTIVE

By MIKE COLLINSON, CIMMYT ECONOMICS PROGRAMME, NAIROBI

CIMMYT's primary aim in the use of FSR methods in on farm research is to bring a farming systems perspective (FSP) to bear on technology generation. FSP is the perspective farmers take in choosing new technologies, and using it in technology development increases the relevance of the results. There are other uses for FSR methods but CIMMYT procedures concentrate on technology generation.

CIMMYT OFR proceeds in four stages:

- Diagnosis
- Planning
- Experimentation and Assessment
- Recommendation and Extension

These stages are best implemented by an OFR team including an agronomist, a farm economist or social scientist and an animal scientist in those regions where animals are important to farmers. The outline summarises the main ideas and methods of each stage.

DIAGNOSIS

Diagnosis aims to understand farm family priorities in operating their farming system and how they decide to allocate their resources to manage the natural and economic circumstances surrounding them. From such an understanding diagnosis identifies major problems impeding expansion of farmers' system activities. Primary interest is in problems which might be resolved by agriculture research, whether technical problems arising from the climate and biology of the area, or management compromises forced on farmers by either economic and social circumstances or by their limited resource endowments.

CIMMYT uses FSR methods in a four step sequence towards understanding and problem identification:

1. Identification of a target group of farmers

Secondary information and discussion with local officials is used for a preliminary specification of target groups, in CIMMYT jargon, a "recommendation domain" (RD). It is a stratification of the rural population, aiming to identify

groups of farmers operating the same system for whom the same research effort is likely to be relevant. It is an iterative process and the specification of RD's may be refined at any stage of the OFR process as more information and understanding accumulate.

2. Describing and understanding the circumstances to be managed by target group farmers.

Farmers manage the circumstances in which they operate. The second step in the diagnostic sequence seeks, again by the use of secondary information and discussions with local leaders and officials, to understand the management opportunities offered and the uncertainties posed by the local environment. It provides an initial basis for understanding what the OFR team subsequently see on farms and what they hear farmers saying.

3. Informal Survey (IFS)

The OFR team members visit farmers of the target group. They use guidelines to prompt them on facets they need to discuss with farmers to understand their system. The guidelines are organised first to describe and then to understand farmer activities, then to identify problem areas and to assess these problem areas in some detail. The OFR team may write their own special guidelines sometimes with the help of a specialist researcher, in order to probe problem areas.

Although not the final stage of the diagnostic sequence the informal survey is the bridge between diagnosis and planning and may also be seen as the first step in planning.

4. Formal Verification Survey (FVS)

Can be seen as the final step in diagnosis or the second step in planning. Its title describes it - a random sample of target group farmers is administered a standard questionnaire. The aims are;

(a) To verify hypotheses set up after the Informal Survey (on refinements in target grouping, farm characteristics, major farmer practices, major problems and their causes).

(b) To verify the relevance of potential solutions identified in the early planning stages.

(c) To collect information to allow proper location and effective detailed planning of experiments.

These four steps describe the initial diagnostic sequence probably occupying the team from 1/2 - 3 months for any particular target group. The end of the IFS and a proportion of the content of the FVS can be considered the start of planning technology development.

PLANNING

With the major problems of the system identified during the informal survey, planning begins. The initial aim is to identify new materials and techniques which appear potentially relevant to the solution of system problems. Identified solutions are then screened against the teams' knowledge of the circumstances within which the target group farmers operate, and against farmer resource base and current farm system activity. Four steps are followed.

(a) The cause of the problem is specified (This has a vital influence on the direction of any research thrust for its solution, further diagnosis including experimentation, may be needed to specify the cause.)

(b) As wide a range as possible of relevant potential solutions are identified from past technical research or from farmer practice elsewhere.

(c) These potential solutions are pre-screened technically and economically. Technical scientists answer 3 questions:

i. Will the technical relationships of the solution hold if it is transferred into the local environment?

ii. Will the technical relationships of the solution hold when incorporated into the management practices of target group farmers?

iii. What level and timing of purchased inputs, cash and labour are required to implement the solution?

(d) Economic pre-screening asks four questions:

i. Will the inputs needed and the outputs expected be adequately serviced by the market or government agencies?

ii. Are the resource requirements of the solution within the reach of target group farmers?

iii. Will the implementation of the solution be compatible with present system activities and with social and cultural behaviour and obligations?

vi. If the solution creates conflicts in the system, are the expected benefits likely to induce acceptance?

If a possible solution passes through these 'screens' it becomes potential content for experimentation.

EXPERIMENTATION AND ASSESSMENT

The essence of CIMMYT procedures in OFE is that experimental

work is done under farmers' conditions with farmer participation. The central idea is that representative farmers from the target group are exposed to ideas for solution. They may find ideas useful or unacceptable. Both research and extension find this out before any recommendation is considered.

The level of confidence in the transferability of the solution into local conditions dictates the type of experiment. Where confidence is low three steps may be necessary:

(a) Exploratory Trials - looking to see which solution components are effective in improving productivity under local farmer conditions.

(b) Levels Trials - Tuning various components to find their most cost-effective levels locally.

(c) Farmer Verification Trials - comparing improved to current practice under farmers conditions. Where the technical scientist is fully confident that the relationships will transfer into local conditions the potential solution may be immediately compared to local farmer practice in a farmer verification trial.

CIMMYT procedures advocate formal statistical, agronomic and economic assessment of the trial results, but emphasise that these must be paralleled by monitoring farmers' assessments of the performance of the solutions. Farmer assessment should be continuous throughout experimentation, not only after harvest.

RECOMMENDATION AND EXTENSION

One of the outcomes of a season of experimentation may be farmer recommendations. It is felt important that recommendations release is decentralised and can be done locally, and that decisions on supplies and services needed to implement the solution can be taken locally. Extension staff should be partners in the administration of the on farm experiments. By such cooperation, as they go through one or two experimental cycles, they become familiar with all the management facets of solutions under test, and with farmers attitudes to the different possibilities. They also have the opportunity to modify solutions to better fit the local situation they know. This involvement of both research and extension in the later stages of technology development solves the longstanding linkage problem.

This, in outline, is the CIMMYT OFR sequence aimed at generating technology relevant to local farmers.

Two points should be made in conclusion. First that the OFR

process, using the farming systems perspective to catch the local view on things, operated nationwide, represents a bottom up information flow. This bottom up flow offers a balance to the top down flow of national considerations which have for too long dominated project formulation. National priorities can be brought to bear on the OFR process at several places; in the selection of target groups, in the ranking of priority problems, and in the comparison of alternative solutions to the same problem. Secondly, significant policy spin off can occur, or be engineered from the diagnostic sequence. With technology development as a central focus for CIMMYT OFR, this concerns the institutional and service support required to mobilise the results of a particular research thrust. However the focus can be widened to cover any major policy issue to which a micro-perspective can contribute.

5.50. ANNEX:

GUIDELINES FOR GROUP AND PLENARY DISCUSSIONS

Group Discussions

1. Importance Discussion sessions are the most important activity during the workshop. They provide the opportunity for small groups, containing different disciplines, to give a full discussion to participants' papers. This kind of discussion will not be possible during plenary sessions due to the large number of participants and papers.

2. Group Composition. There will be five discussion sessions during the workshop. Participants have been divided into six discussion groups, each with a secretary and a chair person. In addition to sociologists and anthropologists, each group contains an economist and at least one natural scientist. The composition of groups will remain essentially same over the five sessions. This will enable a working relationship to develop, so that group members discuss each others papers frankly. It will also allow for the tasks of secretary and chairperson to be rotated fairly. Details of group composition are attached.

3. Secretary The full recording of discussion at these sessions is very important. The position of discussion group secretary carries considerable responsibility and work, and for this reason we suggest that the position be rotated in each group.

The Secretary is expected to record the comments of individuals during each session. These should be summarised so they can be presented to the plenary session briefly and succinctly; within the 10 minutes allocated. The discussion group secretary will be the raconteur and secretary during the plenary session. At the end of each day, the discussion group secretaries will hand in their written up records of comments to the convenor, Dr. Sutherland. The comments will be typed up and handed back for corrections, so that discussion group members can each receive a copy of their group's deliberations.

4. Chairperson Each discussion group will have a chairperson. This position may also be rotated or not, according to the wishes of the group. The task of the chairperson is to ensure that each group member has the opportunity to speak and have their comments recorded, that all the main points are covered within the time allocated for discussion (usually one hour).

5. Discussion Focus. The focus of each discussion session will need to be adjusted somewhat for each paper. The following suggestions apply especially to papers which present case studies, relating to surveys and on-farm

research:

a) How does the case example relate to the CIMMYT sequence for FSR? (Refer to Collinson's briefing paper).

b) Methodology used:

i) Is it sufficiently low-cost? How could the cost be reduced?

ii) What level of accuracy was achieved, and how does accuracy of data relate to cost

iii) Is the methodology more widely applicable, or is it specific to an individual sociologist\anthropologist or cultural area?

iv) What are the inter disciplinary implications of the methodology?

v) What is the level of training required for the methodology, how easily could it be delegated.

c) Economist's comment on the case study.

d) Natural Scientists/Agronomists comments

e) Are there any related studies or individuals working on similar cases. Details known to group members should be recorded on a piece of paper and handed to the secretary to save time during the discussion.

f) Any further points which the author wishes discussed

g) Any other comments generally, it would be helpful if the authors of papers made it clear to the group which aspects of their papers they would like to be discussed, especially if they feel the above format needs to be modified for their paper.

6. Preparation. It is very important that participants read papers carefully before the discussion sessions. This means reading five papers fully during the workshop. It would also help if they make notes of their comments in advance, taking into account the format described above.

PLENARY SESSIONS

1. Objectives Plenary sessions give the opportunity for the author, and the small group discussing his or her paper to present a summary of their main points to the workshop as a whole. Following this, comments will be invited from other participants. However, there will be very little time for

discussion or for presenters of papers to respond to comments.

2. Importance of Time Each working paper will have to be dealt within 30 minutes due to the large number of papers. The author will have 10 minutes to present his or her main points. The discussion group secretary will also have 10 minutes to present a summary of the group's comments on the paper, preferably following the format suggested in the guidelines for discussion groups (see point 5). This will leave 10 minutes for other participants to make comments not covered in the previous 10 minutes.

3. Chairperson Each of the five plenary sessions will have a different chairperson. Their job will be to introduce the paper and author, and to ensure the papers are dealt with inside the time allocated.

4. Secretary The discussion group secretary will also act as the plenary session secretary for each paper. This will involve according the author's (or presenters) main points and the comments from other participants. To assist the secretary with recordings authors could provide a written summary of their main points presented during the plenary, session.

5. Seating Full participants should ensure they sit at their allocated place so that they can be easily identified by the chairperson, secretary, and other participants.

5.6. ANNEX:

WORKING PAPERS PRESENTED AND DISCUSSANTS

1. Baker, Doyle and Lesothlo John "A methodology for farm management research in Botswana".
2. Bantje, Han, "Household differentiation and macro-factors in farming systems research - the case of the Mbozi Plateau, Tanzania".
3. Bulla, Grasiano, "Improving farmer participation in on-farm experimentation".
4. Chilivumbo, Alufeyo, "Small - scale farm resource endowment evaluation and research and development issues".
5. Collinson, Mike, "An outline of CIMMYT procedures for farm research with a farming systems perspective".
6. Curry, John Jr. "Anthropological contributions to systems oriented research in pastoral development: The case of the Niger Range and Livestock project".
7. Francis, Paul, "Factor allocation and technology in small agriculture: a case study from Northern Zambia".
8. Grandin, Barbara, "Delimiting target populations through informant wealth ranking".
9. Hansen, Art, "Anthropological contributions to recognition and analysis in farming systems research".
10. Kabagambe, John, C.K. "Using local perceptions in target grouping for farming systems research".
11. Kean, Stuart and Sutherland, A.J. "Institutionalising rural sociology into agricultural research - the Zambian case study".
12. Kerven, Carol, "The family farm and out migration: some issues for FSR in Africa".
13. Kishindo, Paul, "Agricultural Development in a matrilineal system".
14. Merafe, Yvonne, "Role of rural sociology in planning for livestock development in Botswana".
15. Onyango, Christopher, A. "Extracting and measuring farmers' values and attitudes to agricultural technology".
16. Opio-Odongo, J.M.A. "Contributions of rural sociology to technology generation in the context of farming systems

research".

17. Reynolds, Pamela "An examination of children's labour in a subsistence economy".

18. Russell, Margo, "Closer focus: a plea for more small-scale face-to-face interviewing in contemporary African social research".

19. Sharpe, Barrie, "Social knowledge and farming systems research: ethnicity, power and the invisible farmers of North - Central Nigeria".

20. Rocheleau, Diane, "Land-Use planning with rural farm families in Kenya".

21. Simelane, Funekile, "Is it the household or the homestead that is the basic unit for research? Some considerations on data collection methodology in rural Swaziland".

22. Sutherland, A.J. "Rural Sociology and technology generation for subsistence farming systems: A Zambian example".

23. Tripp, Robert "Anthropology and on-farm research". (presented in absentia).

24. Warren, Mike "Cost effective methods for obtaining indigenous agricultural technical knowledge."

25. Whalen, Irene, T. "Land Tenure and technological innovations in the Ethiopian Highlands."

26. National Scientists involved as discussants included: E. Shomba (FS Agronomist) from Zimbabwe, and from Zambia; M. Chisi (Sorghum Breeder), V. Eylands (Oilseed Agronomist), B. Habowa (Oilseed Breeder), R. Hudgens (FS Agronomist), J. Kanyengwa (Nutritionist), R. Little (Wheat Breeder), C. Masi (FS Agronomist), K. McPhillips (Soil Scientist), K. Munyinda (Soil Scientist), C. Ndiyoi (FS Agronomist), C. Nkoma (Weed Specialist), A.J. Prior (Cereals Agronomist) B. Verma (Sorghum Breeder), V. Veldkamp (Soil Scientist), and R. Watts (Research Extension Liaison Officer).

27. Economists and other social scientist discussants from Zambia included, P. Chipulu (Rural Sociologist), G. Geisler (Anthropologist), P. Hachongela (Rural Sociologist) and C.A. Njobvu (Agricultural Economist).

5.7. ANNEX:

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