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**INTRA-HOUSEHOLD DYNAMICS AND
FARMING SYSTEMS RESEARCH AND
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**INTRA-HOUSEHOLD DYNAMICS AND FARMING SYSTEMS RESEARCH AND EXTENSION
CONCEPTUAL FRAMEWORK AND WORKSHEETS**

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INTRA-HOUSEHOLD DYNAMICS AND FARMING SYSTEMS RESEARCH AND EXTENSION

CONCEPTUAL FRAMEWORK AND WORKSHEETS

Introduction

The purpose of this conceptual framework is to revise the bias of gender which underlies much current agricultural research and extension. In planning for and implementing agricultural development projects, 'the household' is taken as the unit of analysis and male heads of household as the principal decision makers and sources of information. The roles of household members other than the male head of household are frequently ignored. This is to the detriment of the project and those it is meant to serve. Adult women, the elderly, and children bring specific skills, resources, and priorities to farm production. To ignore these is to ignore half or more of the system in which decisions about farming are made.

The conceptual framework presented here provides guidelines by which information on gender roles and the intra- and inter-household aspects of farming systems may be gathered, analyzed and applied to the design of improved technologies for agricultural and livestock systems. Such new technologies are intended to increase yields, improve consumption, reduce risk, stabilize the environment or otherwise strengthen farm production possibilities. The framework is designed to highlight the **information necessary** to model a farming system and the **process** by which female and male farmers are included in the research and extension activities in a given area. It provides a means by which trainees can organize and analyze data in the case studies for use in planning subsequent stages of a project.¹

In farming systems research and extension projects, agroclimatic and agronomic data provide scientists with a framework for identifying problems and opportunities and for considering the technical possibilities of new and improved technologies. Socio-economic data provides a framework for understanding farmers' decision making and "intentionality," (Fresco and Jiggins, 1984) i.e. what resources they can bring to bear and their interest in mobilizing those resources for a particular enterprise, especially if new or modified (McKee 1985). Both are necessary for pinpointing areas of research which will meet client needs (Chambers and Jiggins 1986). In most societies, intra- (within) and inter- (between) household relations profoundly affect farmer decision making. The dynamics within and between households are based on differences of gender, age and seniority or position in the household. They are also profoundly affected by class and ethnicity (Carloni personal communication, Schulman and Garrett 1984) and developmental stages in the life cycle (Guyer 1980, McMillan 1984).

There are two basic arguments underlying this framework. The first is that **intra- and inter-household relations are embedded in farming systems and will have an effect on and be affected by changes in these systems.** We know that in every society women and men do different things, have access to different resources and benefits, and have different responsibilities. For

example, women and men may be responsible for different crops, for different fields of the same crop, for different tasks in the production cycle (Cloud 1985). These differences are rooted in social organization and are supported by cultural beliefs and values. We also know that in many cases, despite the persistence of beliefs about what people do or should do, these roles are in flux. The task is to observe and record these gender related differences in behavior and use these data as part of the analysis leading to the design and testing of improved technologies. Such knowledge will contribute to improved research. Experimental modifications will be better targeted towards production constraints and opportunities and an improved understanding of farmer and user preferences.

The second argument is that FSR/E is an **iterative and collaborative process, one which explicitly calls for continuous assessment and redesign.** It is not linear, there are overlapping cycles of activity: diagnosis, experimentation, evaluation and recommendation proceed simultaneously. This means there must be a continuous flow of knowledge, including, most importantly, the views of the farmers (women and men) whose system(s) will be affected. Because participation and continuous evaluation and adaptation are key, the framework for looking at intra-household dynamics must take into account **how** knowledge is gathered and used throughout the project.

This framework is based on the premise that productivity and efficiency are enhanced when technological improvements are developed and targeted towards the actual users--those making decisions or actually engaged in the tasks at issue and those responsible for the use of the final products. This requires knowing who does what and whose resources must be mobilized.

Issues of equity are also addressed by using this framework. There is an explicit concern for the welfare of families and individuals within families. Implicit is the belief that with improvements in welfare, particularly better nutrition and a better distributed or less crushing work load, there will also be increases in productivity. The 'maps' created by the framework provide the means for pinpointing the distribution of the costs and benefits of particular changes. Taken together, they will help predict whether the frequently cited goal of improvements in welfare are likely to be forthcoming or whether there may be negative consequences. Tradeoffs will be explicit. Farmers, product users, researchers, and policy makers all have preferred outcomes. This framework provides one tool for assessing proposed activities against these sets of preferences. Finally, an improved understanding of the roles and resources of all members of a household means that those formerly overlooked will be recognized.

Intra- and Inter-household Dynamics: what are they?

The term "intra/inter-household dynamics" (IHH) is an unwieldy one, but we have so far failed to find another which so explicitly makes our main point. That is that a 'household' is **not** an undifferentiated grouping of people with a common production and consumption function, i.e. with shared and equal access to resources for and benefits from production. Rather, households are themselves systems of resources allocation (Guyer 1980). The pattern of decision making varies from one place or culture to another. In some places, households fit the standard model of a single decision maker or benevolent dictator. In other areas, household decisions are shared,

consultation takes place between particular members or all members. In some areas, households are hardly units in any sense of the word. Men and women and children have wholly separate spheres of decision making affecting production, income and expenditures. And in other places, the degree of participation of some household members in enterprises controlled by others results from internal bargaining (Jones 1984). Thus, within a given system, individual household members may share some goals, benefits and resources; be independent on some; and in conflict on others. In short, the form of the household and patterns of decision making cannot be assumed. What we face is complexity, not homogeneity. In a particular farming system or a single enterprise within that system, even where 'the household' is a useful unit of analysis, the pattern of activities, resources and incentives of its members are important information and must be determined by investigation.

A detailed investigation of patterns of decision making or intra-household dynamics is rarely possible as part of an agricultural research and extension project. The purpose of this conceptual framework is to provide categories for inquiry and analysis which help agricultural researchers identify **relevant** information on who does what and the factors underlying farmers' decisions.

There are several ways of looking at IHH characteristics, i.e. the roles, resources and incentives of individuals within households. First members are seen as **belonging to a category of individuals** defined by gender, age, position or seniority: e.g., women and men, adults and children, senior wives and junior wives, relatives and non-relatives. Such categories frequently carry with them combinations of rights and responsibilities, defined by law or expectation, which govern individuals' farming activities as much or more than their membership in a household unit. For instance—men prepare land, women weed; women raise poultry, men raise cattle; women grow cassava, men grow maize; senior wives work on their own gardens, junior wives on those of their husbands and the head of household. Analysis focuses on differences in the activities, resources, and benefits of different members within the household and on patterns of obligation, cooperation or conflict between household members.

Second, within a community there may be **different kinds of household structures** which emerge as responses to stages in the life cycle; population movements; or differences in asset holding, residence, or cultural traditions. Different household structures will have different resources and face different incentives. For instance, households with young children may give priority to adequate food crops and the demands for women's labor; households with older children at home and more labor upon which to draw may take on more labor demanding activities. Temporary or permanent migration may leave a high proportion of female headed households with less available labor and more limited access to resources for production. This variation in type may be as important as ecological differences for designating appropriate research or recommendation domains.

When looking at the roles of individuals or household structures, it is important to keep in mind that roles and resources are influenced strongly by economic class, especially between small holders, large landholders and the landless. All women are not the same. While there may be community wide

agreement on 'women's roles', e.g. "women weed", women in well-to-do households may not weed because women from poor household are hired to do so.

Third, individuals or households may belong to **other corporate groupings** (neighborhood, kinship group, church). These relationships carry with them patterns of access to resources and obligations which affect decisions about agricultural production. It is this patterning which is referred to by the term 'inter-household'. Poor rural households often depend on labor exchanges, exchanges of goods, cooperative activities, and other alliances for survival. "Inter-household dynamics" refers to such patterns of exchange or dependency of individuals or households with other entities.

We therefore include as "IHH dynamics" several alternative ways in which one looks further than the household to understand how resources and incentives are organized and might be mobilized for changes in farm production.

IHH and the Activities of an FSR/E Project

The FSR/E approach is currently applied to technology development in crops, livestock, and agroforestry. The approach consists generally of four overlapping activities--diagnosis, planning and design, experimentation and evaluation, and recommendations to farmers, researchers, and policy makers. The initial diagnosis will provide a very rough cut at the factors influencing farmer decision making. Continued testing and refinement of biological interventions through on-farm testing will benefit from being accompanied by continued and more focused collecting of data on IHH and other socio-economic factors. As well as organizing what is known, the framework helps define what additional information is needed. Thus during each activity, the information collected and the use of that information will differ, but cumulatively they refine what is known about a farming system or enterprise and what innovations will best meet farmers' needs.

Diagnosis--The collection and analysis of information about a farming system. This information is used to describe the farming systems and constraints and to identify problems and opportunities for improvement. It lays the groundwork for on-farm research. **Diagnosis is an on-going process throughout FSR/E.** Diagnosis continues throughout a farming systems project as additional agronomic and socio-economic information is collected and is used to refine knowledge of the farming system. Throughout, information is collected by means of formal and informal surveys, time allocation or labor studies, meetings with farmers and users, etc. Information on IHH includes (a) the demographics of different types of households and other groupings which are important to the investment in and labor for farm production and (b) the activities, resources, and incentives of different (categories of) household members.

Planning and Design--The determination of which technologies might be tested with what anticipated results, what further agronomic or socio-economic research is required, and the actual design of on-station and researcher- or farmer-managed on-farm trials. The problems identified during the diagnosis are examined as to their causes, the need for further diagnostic research, and possible solutions (Tripp 1986). As constraints or problems are clarified,

potential solutions are **screened** according to their availability and their compatibility with the farming system. This process is called ex ante analysis. For well defined problems, this involves a determination of whether there is available technology (off the shelf) or a need for on-station experimentation. It is at this stage that proposed experiments should be examined with respect to (a) their fit with respect to all the farmers in the area or particular groups, (b) the desirable characteristics of all end uses of the output of production from the point of view of users as well as farmers, and (c) assumptions about the availability of particular resources, including labor, necessary for using the new technology (Carloni 1982).

Trial design includes specification of the experimental variables, treatments and levels; number, location, size, and form of experimental plots; and protocols for the establishment and monitoring of on-farm trials. Researchers should describe the manner of involving those whose way of doing particular tasks are being changed. The lack of data for making some of these decisions may make apparent a useful set of questions or observations to parallel the testing stage.

Testing and Evaluation--the actual implementation, data gathering, and on-going evaluation related to on-farm and on-station trials. This is accompanied by continuing diagnostic research on questions raised during the initial diagnostic and planning phases and by observations which verify or expand survey information. It is during this stage that IHH dynamics will become better defined by means of in-depth or focused surveys, field observations, and informal conversation. Discussions during on-farm trials provide an opportunity for getting at the more subtle aspects of decision-making and trade-offs made or contemplated with respect to specific new technologies. All individuals involved with the production and use aspects of an experimental technology are valuable sources of information. The evaluation of the first set of trials and an increased understanding of IHH dynamics becomes the basis for a better targeted second set of trials.

Recommendations to Farmers, Researchers, and Policy Makers--the agronomic and socio-economic information from the experimental stages analyzed with appropriate recommendations to farmers, researchers, and policy makers. Where technologies are ready for wider dissemination, the availability of and means for gaining access to inputs, including information, needs to be stated explicitly. Likewise recommendations for policies to correct for unequal access to resources need to be explicit about means as well as intent.

Use of the Conceptual Framework

Many people seeing intra- and inter-household issues addressed for the first time may feel overwhelmed and have visions of exhaustive data collection. The framework is aimed at **selectively** identifying and organizing the information on IHH dynamics which contribute directly to FSR/E in a particular location and in light of a project's objectives. The framework is flexible and may be used to describe a farming system or a particular enterprise and the worksheets described below used together or individually. With the worksheets, 'maps' or profiles are created against which technological solutions may be examined for improved ex ante analysis, on-farm trials and evaluation, and the organization of extension. Use of this approach will make research more efficient (quicker, better targeted) in

specifying desirable characteristics of new varieties and technologies, in screening for the compatibility of proposed changes with existing practices and incentives, and in identifying the tradeoffs of alternative solutions.

The Framework

There are four areas of knowledge important to farming systems research and extension to which a consideration of intra-household dynamics can make a contribution. To understand a farming system and farm management decisions, one needs to know about **labor or activities, resources, and incentives or benefits.**² This is the data upon which models of farming systems are based. Also important, is the **process** by which FSR/E projects collaborate with farmers, that is, **who** is included and **how** farmers are included in each activity of the project.

For each category of inquiry, a worksheet is provided. A description of each worksheet and the questions associated with each category for the activities of FSR/E are suggested below.

1. Activities; labor allocation

In this section we are concerned with **who does what**, particularly as this relates to the agricultural year and other seasonal patterns. Production difficulties are frequently traced to labor shortages usually at particular times of the year and often for particular tasks. Therefore we need to know **what tasks** are undertaken by men, women and children which contribute to farm production, to household production, to child bearing and rearing, and to other productive enterprises including off-farm activities. Worksheets I A and B, Cropping Calendar and Activities Analysis, provide a format for analyzing activities by season and gender. In Worksheet IA, Cropping Calendar, the primary agricultural and other tasks are laid out according to the agricultural calendar. For each month, the tasks associated with all production are listed. In addition to agricultural and livestock production, tasks associated with household production and with other activities which contribute to family and individual welfare, whether in cash or kind, should be included. In Worksheet IB, who does what task is designated by gender, age, or other factors. In some cases, whole areas of activity will be segregated by gender, e.g. men - cattle, women - crops. In others, sequenced tasks related to the same enterprise may be assigned by gender, e.g. men - land preparation, women - weeding (Cloud 1985).

These two worksheets create an **activities map** with which to screen the identification of problems, the selection of research priorities, the designation of collaborating farmers, and the design of on-farm trials. The seasonal calendar reveals periods of labor shortage and identifies the competing tasks. Activities analysis indicates who does what--whose labor will be affected by proposed changes? what are the competing demands? who needs to be taught new methods?

2. Access and Control of Resources

Farm management decisions are influenced or determined by the availability of and access and control of resources or inputs. Worksheet II, Resources for Farm Production: Access and Control, provides an outline for

disaggregating by gender and age who has access to and control of critical resources. By **control**, we mean the ability to decide how a resources is used, how it is to be allocated; by **access**, we mean the ability to use it, perhaps with some decision-making once access is obtained.

The question of access to and control of land can be confusing, but is illustrative. For instance, in the case where land is allocated by a senior male, but decisions about what to plant are left to the person to whom it is allocated, one would note that both adult males and adult females had access to land (with some indication that female access was through males); and that both had control of land, but that male control was greater (allocation and decision making on use) than female control (decision making on use only). The greater control of senior males than junior males would also be marked.

Resources include land (and the terms on which it is available); capital, including cash, tools and livestock for production or traction; labor (one's own, family/children's, others'); other inputs, including seed, purchased or in-kind fertilizers, pesticides, etc.; services such as credit and education; and knowledge. **Knowledge** is a particularly valuable and often overlooked resource. It includes the results of years of farmer history and experimentation, a practical knowledge of soil variability, traditional risk reducing strategies, seed qualities, etc. Such knowledge is often associated with task and is important for understanding current use of resources and for screening proposed changes. Resources also include access to markets which in turn may be influenced by mobility. While a distinction has been drawn between labor and non-labor resources, it is important to look for instances where the use of one provides access to the other, such as giving of labor in exchange for use of land or traction animals, for example.

Access and control analysis creates another screen or map for looking at production constraints and proposed solutions. What are the available resources? What resources are required for proposed changes? Who controls them? Or whose resource shortage is relieved? Does the control or not of key resources suggest separate research domains?

3. Benefits and Incentives

Acceptance and benefits from a new technology depend ultimately on farmer and user preferences or intentionality. It is important to understand what motivates people's decisions about the allocation of labor and other resources to farm production, home production, or other activities. This depends, largely, on who benefits from and the intended use of the output of each enterprise.

Benefits analysis refers specifically to who has access or control of the output of production. This includes **all the end uses** of a product (e.g. of a crop: home consumption, sale, income from sale, fodder, composting, crafts, building materials, etc.). It also includes the output of **alternative or competing enterprises**, such as areas which are currently 'wild' or fallow, but may be the source of important medicinal or food items and the output of other resource-using or time-consuming enterprises, on or off farm, which may compete with farm production. Benefits may also occur through changes in the farming system such as reduced labor demands or reduced risk.

Incentive analysis goes one step further. Associated with with each output or product are user preferences which underlie farmer incentives to continue or change what they do. Incentives may be associated with the production characteristics of an enterprise--particular plant characteristics, increases in yields or income, stabilization of yields or the environment, reduction of risk, increased resistance to particular environmental characteristics, timing of operations, reduced labor demands. Or they may be associated with the uses of the output--prestige, obligations to family or other groups, taste, marketability, improved nutrition, processing characteristics, availability of fuel, fodder, building materials.

Worksheet III is for creating a map disaggregated by gender and age of the incentives and benefits associated with agricultural and other production. This map directs attention to the desirable characteristics of new plant material or other new technologies. What should be added? What should be retained? What should be substituted for? It is a mechanism for screening whether proposed changes in activities or resource use by particular (categories of) individuals 'fit' with changes in either the type or receiver of benefits. It is a guide to the incentives (or lack) for changing present allocations.

Laying out the distribution of **activities, resources, and benefits** between household members and as they relate to farm production and alternative activities provides a skeletal understanding of intra-household decision making. It may not reveal much about the level of communication and shared information. It does not reveal the actual process of negotiation within the household concerning the pooling or complementarity of resource allocation, or the subtler pressures which affect individual and household choices. It does provide a means for framing questions about the effects of proposed solutions at the household level. What reallocation of labor and resources does the proposed solution require? Who is affected? What are the possible tradeoffs? From such analysis, what is learned and predictable is used in screening proposed solutions for compatibility and for fine tuning the design of on-farm trials. What is still questionable or unpredictable indicates critical areas for further monitoring, observation, and focused discussions with farmers and users.

4. Process and Inclusion: Project Involvement with Households

This category deals specifically with technique, with the methodology for farming system research and extension. Farmers are central to FSR/E. To understand a farming system and the practices connected with any specific enterprise, all significant participants--those who do the work, those who invest their resources, those who use the products--are valuable sources of information. Process and inclusion analysis is designed to get at how women and men are included in the kinds of information gathered, as sources of information, and as actors and beneficiaries. **Criteria** for selecting farmers often contain unconscious sources of bias (Sutherland 1986). The **mechanisms** or methodology for collaborating with farmers will also influence participation and the richness of farmer response. Important considerations include time and frequency of visits or meetings; location; rules and means of access; whether joint, individual or group interviews; focus of the questions asked; amount of flexibility or open-endedness; attitude of the researchers;

and, often, gender of the researchers. Attention to criteria and mechanisms applies equally to organizing the extension of promising technologies and the supply of any new inputs. Merely stating there is "open access" does not guarantee full participation or response.

Process and inclusion analysis creates a map of research and extension activities and provides a screen for evaluating sources of information and farmer response. If response or information is weak, an analysis of the process of including farmers may provide clues to improved research and extension practices. Did the criteria for the selection of participants include all or exclude any significant persons? Were the mechanisms or methodologies employed ones which made participation comfortable for all parties?

Worksheet IV, Process and Inclusion, is a matrix for looking at who and how women and men farmers and product users are included in the activities of an FSR/E project.

The application of the analysis suggested by this conceptual framework will help protect a project from gross errors of inefficiency or inequity in outcomes. It offsets the prevailing bias towards concepts of a unitary household and male heads of household as sole decision makers and sources of information. It provides the rationale and means for understanding gender roles and intra-household dynamics as they affect farm production and will contribute to improved planning of agricultural research and extension.

ENDNOTES

1. This framework grew out of substantial discussions of the Advisory Committee to in the Intra-Household Dynamics and Farming Systems Case Studies Project. Members of the Advisory Committee are: H.C. Bittenbender, Cornelia Butler-Flora, Kathleen Cloud, Frank Conklin, Paula Goddard, Nadine Horenstein, Katharine McKee, Rosalie Norem, David Nygaard, Pauline Peters, Federico Poey, and Mary Rojas. Project Managers are Judith Bruce (Population Council), Susan Poats (Farming Systems Support Project), and Hilary S. Feldstein, Managing Editor.

2. The framework presented here builds substantially on pioneer work in conceptualizing gender roles and providing a framework for their analysis done by four scholars at the Harvard Institute of International Development and presented in their book of case studies, Gender Roles in Development Projects (Overholt et al, 1984).

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WORKSHEET I A

FARMING SYSTEMS CALENDAR

MONTHS _____

CROP PRODUCTION

LIVESTOCK

HOUSEHOLD PRODUCTION

OFF FARM ACTIVITIES

WORKSHEET I B
ACTIVITIES ANALYSIS

MALES*

FEMALES*

CROP PRODUCTION

Crop/Field 1

Task 1

Task 2

Task 3, etc.

Crop/Field 2

Task 1

Task 2

Task 3

Crop/Field 3

LIVESTOCK

Animal 1

Task 1

Task 2

Task 3

HOUSEHOLD PRODUCTION

OFF FARM PRODUCTION

*Or other important categories: ethnic, class, age, position, etc.

WORKSHEETS I A AND B: FARMING SYSTEMS CALENDAR AND ACTIVITY ANALYSIS

EXAMPLES

Crop Production: food crops, cash crops, trees, home gardens, gathering of wild foods, medicines; land preparation, processing, storage, transport, marketing

Livestock: cattle, small ruminants, fowl, draft animals; hunting

Home Production: food preparation, child bearing and rearing, fuel, water, building maintenance; beer brewing, craft production, snack food production

Off Farm Activities: wage labor, marketing, sales, schooling

GENERAL QUESTIONS FOR STAGES OF FSR/E

(a) diagnostic: What are the activities (task and time allocation) of members of the households by gender and age which contribute to agricultural and livestock production. What are the interactions associated with gender related segregation or sequencing of tasks? When are these tasks undertaken? How much time is involved? Does this vary with age or rank or position in the household? or by economic class of the household? Does the physical location of the task for women with small children or cultural limits on the mobility of women influence whether or not a woman may carry out a task? What time is allocated to other remunerative or obligatory activities, including household production (for sale or trade) and off-farm enterprises or wage labor? What time is allocated for household maintenance and family welfare including child care, food preparation, fuel and water supply, building maintenance, etc.? Is there cross-household labor mobilization, whether by individuals or groups, as for work parties? Is availability of labor for particular activities a constraint on current production?

(b) planning and design: What changes in labor allocation (time required, timing) are associated with/are desirable from technological improvements being tested? Whose labor is affected? Will there be increases or decreases in wage or exchange labor requirements and who will be affected?

(c) testing and evaluation: What changes in labor allocation, in time or task, are actually associated with on-farm experiments? Do these contribute to or detract from increases in productivity or income or decreases in risk for this enterprise? or for other enterprises or activities of the household? Do they fit what was predicted in the design?

(d) recommendations to farmers, researchers and policy makers: Have the changes in labor allocation (time and/or task, location, sex or age of the doer) related to the new technology been taken into account in assessing its success or in further adaptations? Is the new information required in using this technology being directed to those who are doing the work?

WORKSHEET II

RESOURCES FOR FARM PRODUCTION: ACCESS AND CONTROL

	ACCESS	CONTROL	NOTES	IMPLICATIONS FOR FSR/E
LAND				
Who uses				
How to use				
WATER				
LABOR				
Own				
Family				
Hired				
CAPITAL GOODS				
INPUTS (Purchased or produced on farm)				
CASH				
AGRICULTURAL CREDIT				
KNOWLEDGE				
MARKETS/TRANSPORT				
EDUCATION				

WORKSHEET II: RESOURCES FOR FARM PRODUCTION: ACCESS AND CONTROL

EXAMPLES

Capital Goods: livestock for production, for draft; poultry, farm equipment, food, storage facilities, fencing, trees

Inputs: seed and seedlings, fertilizer, manure, fodder, insecticides

Knowledge: seed selection criteria, planting techniques, marker plants for soil fertility

Education: general, specialized courses

GENERAL STUDY QUESTIONS FOR STAGES OF FSR/E

(a) diagnostic: What are the resources required for existing production practices? Who (men, women, children, position in household, or which households) have access to and/or control of these resources? Is access affected by exchange relationships? Is the absence of particular resources a constraint on current production? Is it a constraint for particular categories of farmers? To what extent are income and expenditure streams for men and women separate or joint? What are the income and expenditure streams for men and women including sources, uses, and timing?

(b) planning and design: What changes in kind of amount of resources will be required by each of the technological improvements being tested? Who has access to or control over these resources? Are technologies being tested which address resource 'gaps' of particular categories of people? Will the value of factors of production be affected by proposed changes?

(c) testing and evaluation: How and to whom have new resources been supplied? Who has/has not used them? What networks of relationship or exchange have been used to garner any additional resources needed? Can further constraints in access to resources by particular groups be identified as a result of the testing?

(d) recommendations to farmers, researchers, and policy makers: Has the access or control of resources necessary to the acceptance of new technologies been taken into account in determining its success? Are new or modified systems required to insure access to (new) resources for particular categories of farmers?

WORKSHEET III

BENEFITS AND INCENTIVES

Benefits and Obligations

1. Who Benefits: Access and Control of product or income from product
2. Uses and desirable characteristics of product including uses of all parts of the plant or animal.
 - a. consumption
 - b. storage for later (i) consumption, (ii) exchange, (iii) sale
 - c. other domestic use (e.g. fuel, building material)
 - d. exchange
 - e. sale
 - f. reinvestment in agricultural production (e.g. manure)
 - g. other

	ACCESS	CONTROL	USES/CHARACTERISTICS	IMPLICATIONS FOR FSR/E
CROP PRODUCTION				

LIVESTOCK

HOUSEHOLD PRODUCTION

OFF-FARM ENTERPRISES

WORKSHEET III: BENEFITS AND INCENTIVES

EXAMPLES

Crop production: maize--cobs, stalks; cowpeas--grain (peas), leaves, stems;
leucaena leucocephala--fuelwood, timber, shade, mulch, fodder, soil
enrichment; medicinal herbs

Livestock: cattle--meat, milk, manure

Home Production: leather goods, beer, snack foods, baskets

GENERAL STUDY QUESTIONS FOR STAGES OF FSR/E

(a) diagnostic: Who (gender, age, position in household) benefits from the output of current production of each enterprise in terms of subsistence, income from sales, or other uses? What and under whose control are the important subsistence crops, particularly for periods of stress? Are there obligations associated with the output of particular production enterprises? What are the desirable improvements from the point of view of men, women, children? What non-agricultural enterprises are a source of income or other benefits to household members and how do they compare (profitability, reliability, seasonality) with farm production enterprises?

(b) planning and design: Do the changes in technology have the characteristics desired by farmers and users? Do they eliminate any desired/useful characteristics? Will the technological improvements lead to changes in the uses of the product and thus in the nature or locus of benefits? Will there be changes in the characteristics of the product which will affect its use pattern? What are the incentives for men, for women, or for those higher or lower in seniority to contribute additional time or resources necessary for improvements? or to change varieties or practices? What tradeoffs may have to be made?

(c) testing and evaluation: What incentives/disincentives are actually associated with the particular modifications being tested as indicated by observation or answers to questions? Are there incentives or disincentives associated with being a cooperating farmers? How do the technologies being tested affect individual income streams? How do users respond to any changes in product?

(d) recommendations to farmers, researchers, and policy makers: Has a shift in use of resources resulted in a shift of beneficiaries? Are increased labor demands for a particular enterprise matched by increased benefits for the individuals supplying the labor? Where there are increases in production are there outlets through increased consumption, adequate storage, or markets? Are these outlets equally accessible for all farmers?

WORKSHEET IV

PROCESS OF INCLUDING HOUSEHOLDS

STAGES OF FSR/E

WHO IS INCLUDED?

WHY INCLUDED?

HOW WERE THEY INCLUDED?

Which household members

Diagnosis

Planning and Design

Experimentation
and Evaluation

Recommendations
to researchers,
to policy makers,
to extension

Extension
Information
Inputs
Credit
Market Outlets

WORKSHEET IV: PROCESS OF INCLUDING HOUSEHOLD MEMBERS

EXAMPLES

Who is included: interviewed? consulted? as interviewer or enumerator? as decision maker? as cooperator? as beneficiary?

Why included: criteria? rationale?

How included: frequency of contact, location, rules and means of access, methodology for gathering information (formal and informal surveys, group meetings, focus groups, forced field analysis, observation, farm and household records)

GENERAL STUDY QUESTIONS FOR STAGES OF FSR/E

(a) diagnosis: Have women as well as men been included in formal or informal interviewing in each 'household' and in the community at large? Have any cultural or structural barriers to interviewing certain categories of people been anticipated and appropriate efforts made to reduce those barriers? Have government or non-government services which have field workers with particular access to women (e.g. home economics, community development, primary health centers) been included in the collecting of information during initial and subsequent surveys or in designating areas of concern?

(b) planning and design: How are women and men farmers as well as professional researchers included in determining research priorities and in the design of on-farm research? Are all categories of farmers for whom the technology might be useful represented among the collaborating farmers? Are designs explicit on how the views of all household members are to be included in assessing new technologies and on-farm trials? Are special efforts to be made to get the views of hard-to-reach farmers? (such as women with small children or any whose mobility is otherwise limited?)

(c) testing and evaluation: Are women as well as men included as cooperating farmers in on-farm research? For particular enterprises? fields? In the management of trials? in interviews evaluating the trials? Are there factors which inhibit the participation of particular categories of farmers?

(d) recommendations to farmers, researchers, and policy makers: Will the targeting and means used for dissemination encourage participation from all farmers? Will steps be taken to overcome barriers of some groups to receiving information on new practices or having access to new resources required?