

**Women's Role in Food Chain Activities and the Implications for
Nutrition – Nutrition policy discussion paper No. 4**

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by
Gerd Holmboe–Ottesen, Ophelia Mascarenhas and Margareta Wandel

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ADMINISTRATIVE COMMITTEE ON
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UNITED NATIONS ADMINISTRATIVE COMMITTEE ON COORDINATION – SUBCOMMITTEE ON NUTRITION (ACC/SCN)

The ACC/SCN is the focal point for harmonizing the policies and activities in nutrition of the United Nations system. The Administrative Committee on Coordination (ACC), which is comprised of the heads of the UN Agencies, recommended the establishment of the Subcommittee on Nutrition in 1977, following the World Food Conference (with particular reference to Resolution V on food and nutrition). This was approved by the Economic and Social Council of the UN (ECOSOC). The role of the SCN is to serve as a coordinating mechanism, for exchange of information and technical guidance, and to act dynamically to help the UN respond to nutritional problems.

The UN members of the SCN are FAO, IAEA, World Bank, IFAD, ILO, UN, UNDP, UNEP, UNESCO, UNFPA, UNHCR, UNICEF, UNRISD, UNU, WFC, WFP and WHO. From the outset, representatives of bilateral donor agencies have participated actively in SCN activities. The SCN is assisted by the Advisory Group on Nutrition (AGN), with six to eight experienced individuals drawn from relevant disciplines and with wide geographical representation. The Secretariat is hosted by WHO in Geneva.

The SCN undertakes a range of activities to meet its mandate. Annual meetings have representation from the concerned UN agencies, from 10 to 20 donor agencies, the AGN, as well as invitees on specific topics; these meetings begin with symposia on topics of current importance for policy. The SCN brings certain such matters to the attention of the ACC. The SCN convenes meetings on inter–sectoral and sector–specific topics.

Ten-year programmes to address two major deficiencies, vitamin A and iodine, have been launched.

The SCN compiles and disseminates information on nutrition, reflecting the shared views of the agencies concerned. Regular reports on the world nutrition situation are issued, and flows of external resources to address nutrition problems are assessed. State-of-the-Art papers are produced to summarize current knowledge on selected topics. As decided by the Subcommittee, initiatives are taken to promote coordinated activities – inter-agency programmes, meetings, publications – aimed at reducing malnutrition, primarily in developing countries.

PREFACE

As part of the ACC/SCN's continuing effort to publish reviews of current knowledge on outstanding nutrition issues and its application to improving the nutritional status of people, we are particularly pleased to publish "Women's Role in Food Chain Activities and the Implications for Nutrition". This report was prepared by leading researchers in the topic, from Norway and Tanzania, and funded by the Norwegian Ministry of Development Cooperation (NORAD).

The work on this document started in 1986, following recommendations of the SCN's Advisory Group on Nutrition, and decisions of the Subcommittee. This happened at the same time that the Organising Committee of the ACC decided that, across the UN system, issues concerning women should be regularly included as priorities on the agendas of such bodies as the ACC/SCN. The study of the Norwegian and Tanzanian researchers responds to this decision.

"Women and Nutrition", as a topic for systematic review by the SCN, was the subject of a Symposium at its 15th Session, in February 1989. The present study on "Women's Role in Food Chain Activities and the Implications for Nutrition" provided important material both for the preparation of the Symposium and as background information for the discussions. In response to continuing demand, we are now publishing and distributing it in the present format. (The proceedings of the Symposium are also in preparation.)

We hope that the wide-ranging information herein will further the crucially important cause of women, specifically in relation to nutrition, in several ways. First, women's central role in providing for adequate nutrition – of families, communities, and indeed nations – in being described here in detail should help to give increased prominence to the need for supporting women's activities. To this end, a framework for identifying specific needs is given, and many important issues are delineated. Second, the information provides a valuable source of reference for planners and researchers concerned with women's wellbeing and their contribution to nutrition. Third, particularly with its extensive bibliography, the document provides a basis for assessing progress in this area in the future.

The ACC/SCN is most grateful for the enormous and careful efforts by Gerd Holmboe-Ottesen, Ophelia Mascarenhas and Margareta Wandel, and to NORAD for making the work possible.

A Horwitz

J Mason

Chairman, ACC/SCN Technical Secretary, ACC/SCN

PROBLEMS AND POLICY ISSUES

by

Gerd Holmboe-Ottesen, Ophelia Mascarenhas and Margareta Wandel

SUMMARY

The aim of this report is to give an account of the state-of-the-art of research related to the topic: "Women's role in food production and nutrition", and to discuss the practical implications of these findings. The emphasis has been on women's situations in Africa and Asia. The main issues chosen as the focus of the research

review have been: 1) Constraints and potentialities for women in providing adequate nutrition to their families. 2) Constraints and potentialities for women in catering to their own nutrition and other basic needs. 3) Areas of conflict and congruence between the two facets of the women's role as described in 1) and 2).

Chapter 1–2

It is pointed out that parallel to an increased international recognition of the importance of integrating women into agricultural development, there has been a call for including nutritional consideration in agricultural policies and programmes. Integration of both these considerations in agricultural development efforts require that light is thrown on the linkages between food production and nutrition and on women's mediating role in this relationship.

The "food chain" is presented to illustrate the linkages between food production and nutrition. It is used as an organizing concept for the literature review and the discussion of practical implications. The food chain is defined as the sequence of events that take place around food from when it is produced until it is finally consumed by the individual. The food chain activities generate food and cash and the "flow" of food and cash through the food chain as well as the labour and time spent on these activities will in turn influence the nutritional situation of the household members and of women themselves.

Chapter 3

The main trends in research concerning women's role in food production and nutrition are summarized. It is concluded that very few studies have actually tried to link women's activities in the food chain with nutritional consequences. In addition, the bulk of literature has focussed on women's role in food production, while other activities in the food chain have received less attention. In such studies, the emphasis has been on women's agricultural work in the field, and then mostly in relation to cereal crops. Other types of food-related productive work, such as fishing or fish processing, animal husbandry and dairy work have been studied less.

There is still a lack of research that may have immediate practical implications. Such research could be analyses of women's coping strategies in securing food for their households, accounts of successful individuals or groups of women who have achieved improved nutritional conditions through their food chain work, and evaluation studies that indicate what works and what does not work in "women and food" –oriented development efforts.

A list of suggestions for further research in the area is presented and discussed in relation to the findings in the literature. The suggestions deal with a number of areas where the documentation is insufficient or lacking.

Chapter 4

The review of the research literature starts with a description of women's food chain activities in different parts of Africa and Asia and how various factors may influence women's and men's participation in food-related activities. Cultural practices determining women's use and control of land, labour, food and cash, as well as other factors are discussed. The influence of seasonality on women's and men's food-related work is described in different socio-cultural contexts. Rural differentiation, according to ecological, socioeconomic, demographic and cultural characteristics, is taken up as one determinant of women's and men's participation in the food chain. Three aspects of social change are examined in terms of their influence on gender division of labour in the food chain and women's access to resources. These are: the monetization process, urbanization and migration, and the general process of underdevelopment. Furthermore, the issue of women and technology is related to the potential of decreasing/increasing women's economic benefits.

Chapter 5

Concerns women's contribution to family and child nutrition. The literature offers no clear picture of the nutritional impact of women's participation in food chain activities. The subject has been approached from three angles:

□ *The relationship between women's participation in food production and household food availability.* Although women's involvement in cereal production and in market food production may be limited in certain areas of the world, their involvement in the production of so called minor crops (vegetables, roots, legumes and fruits), in raising small animals (chickens, goats, pigs etc.), in dairy activities and gathering of wild foods (especially green leaves) is universal. The production of such foods contributes to a varied diet and thereby secures its nutritional

quality. It is also an important strategy in counteracting food shortages in the lean seasons.

□ *The relationship between women's opportunities to control food and cash generated through food chain work and household food consumption and nutrition.* The hypothesis that women's participation in food production and income generation contributes relatively more to household food availability and nutrition than that of men, is put forward by several researchers. The argument is that the participation of women in food production and income generation increases the control women have over food and cash, and that women put higher priority than men on catering to household food needs. It is, however, pointed out that the division of responsibility between the sexes concerning the provision of food may vary considerably from one culture to another, and that women and men may be responsible for contributing different types of food to the household.

□ *The relationship between women's workload and allocation of time in the food chain and child nutrition.* The evidence indicates that women's heavy workload, particularly in societies where women participate actively in food production, may have a negative influence on child care and nutrition. This effect is particularly evident in peak labour seasons and in households of low socio-economic status. However, many practices have been adapted that may offset the bad effects of women's work, such as the use of child-care substitutes, cooperation among women and the exemption of women with infants from field work. Also the fact that such work generates food and cash and thus increases the household food availability, may contribute to a positive net effect of women's work on child nutrition, especially in low income households.

The nutritional impact of the modernization process that has been taking place in the Third World, is examined with regard to phenomena such as male out-migration, increased production of "male crops" versus "female crops", and introduction of new technology. All these trends seem to have affected women's food chain work in such a way that it has had an overall negative impact on nutrition. However, the literature seems to indicate that given an increased consideration to women, the negative impact of these trends could be decreased or even eliminated.

Chapter 6

The relationship between women's activities in the food chain and their own quality of life has only been treated explicitly in the literature to a small extent. As a point of departure for this discussion, reference is made to studies that show how women's subordinate position in society results in less priority being given to the nutrition and health needs of females, compared to males.

Being good housewives and mothers is a moral obligation and tied to their identity as women. Thus, when resources are scarce, women tend to take a "sacrificing role" in their attempts to satisfy the basic needs of other household members. Numerous studies on the relationship between women's workload and health, show that the hard work of women may be detrimental not only to the health and nutrition of their children but also to women themselves. Time allocation studies show that women in general work harder than men and have less time to spend on education, community activities and leisure.

Chapter 7

An attempt is made to discuss the findings from chapters 5 and 6 in an integrated manner. The literature gives evidence of the complexities involved in analyzing the relationship between women's food chain activities and nutrition.

Firstly, the role of women as "mediators" of nutrition in their households, may be in conflict with their opportunities to cater for their own basic needs.

Secondly, the impact of women's work both on family nutrition and on the fulfillment of their own basic needs may be positive as well as negative. On the one hand, greater participation in food production and income generation may increase total household food availability and give women more control of food and cash, and improve their status vis-à-vis their men. This increases the potential both for improving family nutrition as well as women's quality of life. On the other hand, increased participation in food production and income generation may increase women's workload and thereby have a negative influence on other necessary activities in the food chain, as well as on child nutrition, women's health and other basic needs.

In practical terms, measures must therefore be found that can promote the positive effects of women's food-related work and prevent the negative ones. In addition, it is important to try to change attitudes towards women's role and status in society both among men and women.

Chapter 8

Some criteria for successful operation of women-oriented programmes are discussed in relation to issues and problems emerging from the literature. These criteria are:

- A holistic approach.* Many researchers argue that there is a need to take the whole food chain, as well as the socioeconomic and cultural context into consideration. An interdisciplinary approach to planning and evaluation is therefore necessary.
- Consideration given to gender relations.* Women's activities must be considered as part of a household and community economy. Consideration of the interrelations between women's and men's roles and their activities is said to be of particular importance in planning women-oriented development efforts.
- Sensitivity and flexibility in planning and implementation.* This implies the capability of responding effectively to the needs of women, and the ability to adjust project design during the implementation phase. To this end, it is considered important to have women in strategic positions within the planning administration.
- Participation and organization.* Participation of rural women in all stages of the project process is considered the most important factor for success. So is the participation of women in rural organizations. The formation of women's cooperatives is thought to increase women's power to press for their claims and help in resolving women's needs.
- Interaction with rural women on their own terms.* It is argued that extension workers should be recruited and trained with the view to making them more sensitive to women's situations and needs. In addition, extension workers should cater to women's needs for extension and training related to the whole spectrum of food chain activities. Furthermore, they should take into account women's extremely busy schedule of daily responsibilities when deciding time, place and methods for advising and training women.
- Combination of efforts.* Ways and means to allow women to rationalize their work in their multiple tasks are seen to be important in reducing women's workload and freeing women's time for taking on new important activities that may improve nutrition.

Chapter 9

Various typologies, which differentiate between women in different types of production systems, household organizational structure and socio-economic strata, are presented as they have been suggested by different authors. Such typologies are useful in the planning of development efforts, because the role of women and their situation may differ according to cultural context and social strata. The elaboration of a typology based on criteria relevant to the local situation may be useful for identifying possible target groups for development assistance and for the analysis of their particular problems.

Chapter 10

On the basis of the literature review, the main problems that Third World women seem to face in their efforts to provide food and secure the nutritional needs of their families and themselves are summarized. Five problem areas seem to emerge: 1) women's high workload; 2) seasonal variations in food availability and food chain work; 3) women's low productivity/effectiveness in the food chain; 4) women's low status; 5) lack of infrastructure and services relevant to women. Possible practical measures to counteract the different problems are listed and discussed under each of the five areas. The suggestions made are based on ideas, put forward in the literature. Relevant references are given under each suggested measure.

Chapter 11

A framework for planning is suggested that employs Household Food Security (HFS) as an overall goal for

improving women's nutritional contribution to their family and themselves. The HFS concept consists of three elements:

- Food Adequacy*: nutritionally and culturally adequate food;
- Viability in procurement*: ways of procurement that are in accordance with the fulfillment of the Basic Human Needs;
- Sustainability*: the capacity to keep Food Adequacy and Viability in procurement at acceptable levels over time.

A guide for identification of potentialities and constraints with respect to women's contribution to HFS is suggested. The guide uses the food chain as an organizing concept and distinguishes between three categories of determinants for women's food chain activities and the flow of food and cash through the chain. These are *the material resources, skills and knowledge* and *organization of responsibilities and decision making power*. The three categories of determinants for women's food chain activities and the flow of food and cash can be investigated at both household and community level. Finally, some examples of questions about constraints and potentialities that need to be answered for the purpose of research or planning, are listed as the first step in the food chain. Furthermore, an alternative approach to using the guide is shown through some examples of questions that relate to women's food strategies.

Annotated bibliography

A bibliography with selected annotations was prepared in connection with this report. The selection of annotations was made with the aim of elucidating women's activities in the food chain and establishing the linkage between women's role in food production and nutrition.

FOREWORD

In 1977 the report "Women in Food Production, Food Handling and Nutrition" was published by the Protein-Calorie Advisory Group of the United Nations system. Since then, the subject of "women and food" has been in the forefront of activities of international organizations and many of the national aid organizations. In the wake of this new orientation, a large number of reports from studies of women's role in food-related activities have been produced by various institutions and individual researchers.

The 10th session of the U.N. Administrative Committee on Coordination-Subcommittee on Nutrition (ACC/SCN), held in Rome in March 1984, recommended that a "state-of-the-art document" be prepared in the field of "Women in Food Production and Nutrition" to give a summary of the present knowledge and experience that could be useful for development efforts in this field. This report, which has been made possible through a grant from the Norwegian Ministry of Development Cooperation, has been prepared in response to this recommendation.

The report deals with the role of women in food-related activities and the consequences for nutrition, based on current literature. Due to limitations in time and resources we have concentrated on two geographical areas: Africa and Asia. Africa was chosen because of women's central role in food production in this part of the world. The inclusion of selections from Asia give a fuller picture of the multifaceted aspects of women's food-related responsibilities.

The orientation of the existing literature has led to the main focus of this report being women's role in agricultural food production and the nutritional consequences of this role. Documentation on nutritional consequences of women's role in fisheries, fish processing and marketing is particularly lacking.

In addition to the ACC/SCN's request for a summary of knowledge and practical experience from the literature in this field, the Norwegian Ministry of Development Cooperation requested that the present study also should give specific directions with regard to aid geared towards improving the living conditions of women and their dependents. The last two chapters, proposing concrete measures to be taken and a framework for planning of "women and food"-oriented development efforts, is an attempt to meet this request. An annotated bibliography with selected references to literature on women's food-related activities and nutrition has also been included in this report on the request of the Norwegian Ministry. We hope that these additions will benefit the readers of this report.

The different chapters in the report are written in such a way that they can be read independently. This means that some of the chapters are overlapping to a certain degree. Busy planners are recommended to read chapters 3 and 7, which summarize and draw the practical implications from the more detailed chapters dealing with research findings, and the last four chapters, which focus directly on questions important for planning.

The study has been carried out by a transdisciplinary team, consisting of two nutritionists from the University of Oslo, and a rural geographer from the University of Dar es-Salaam in Tanzania. In addition to reviewing a large amount of literature, the preparation of the study also included visits and discussions with personnel from a number of institutions such as FAO, World Food Programme (WFP) in Rome; African Training and Research Centre for Women at the Economic Commission for Africa in Addis Ababa; the International Centre for Research on Women, International Food Policy Research Institute, World Bank and USAID in Washington; and UNICEF and the Population Council in New York. We are grateful for the assistance that the group received from many individuals in these organizations.

Special thanks are also directed to the members of our Reference Group in Oslo, who provided valuable comments at different stages in the preparation of this report. The Reference Group consisted of 5 women from different divisions in the Norwegian Ministry of Development Cooperation and 2 independent researchers, all representing different disciplines and experiences with women-related research and development work.

Oslo. June 1986

Chapter 1. INTRODUCTION

During the last decade, the UN Decade for Women, there has been an increased interest in the role of women in food production. It has been pointed out that agricultural development, focussing largely on market production, has left women food producers more marginalized than ever. The concept of "integrating women in development" was advanced. The significant role which rural women can play in eradication of malnutrition, due to their role in production as well as preparation of food consumed by their families, was recognized by the World Food Conference in 1974. Resolution No. VIII recommended *inter alia*:

A call on all governments to promote equal rights and responsibilities for men and women in order that the energy, talent and ability of women can be fully utilized in partnership with men in the battle against world hunger (FAO, 1974).

The major turning point in the recognition of women in agricultural production was the World Conference on Agricultural Reform and Rural Development (WCARRD). The Conference emphasized the need for greater support of women's economic roles and called for a more systematic accounting of rural women's contribution to agriculture. WCARRD also underscored the need for providing rural women with equitable access to productive resources such as land, water, inputs and services (FAO, 1981).

In national economic planning, recent trends indicate a greater awareness of the situation of women and nutrition. Before the mid-seventies the emphasis in agricultural development was on farming systems for production of export crops. When food production was emphasized, it was to satisfy the needs of the urban population. It was assumed that rural households would take care of their own needs. Therefore, subsistence food producers were seldom considered for programmes aimed at improved access to inputs and technology. After the mid-seventies, some attention was given subsistence production, in order to alleviate the recurring food crises. As a result, the focus on the role of women became more important, since women often are heavily involved in this type of food production. However, parallel to this trend, there has been a strong persistence of the over-emphasis on market and export production in many developing countries, in response to the increasing needs for foreign exchange to pay their foreign debts.

During the same period nutritionists and social scientists have been increasingly aware that neither a rise in general food production, nor an increment in income will automatically lead to better nutrition (Berg, 1973; Berg, Scrimshaw and Call, 1973; and Joy, 1973). Therefore, there has been a growing interest to include nutritional considerations into agricultural development. This view was reiterated in Resolution 8/77, adopted by the Nineteenth Session of the FAO Conference in 1977.

The linkages between food production and nutrition have lately attracted some research attention. It is now commonly realized that more insight is needed into the processes which affect these linkages. It is acknowledged that many of these linkages are mediated through women in their role as providers of household food, nutrition and health care (Pinstrup-Andersen, 1981; Hide et al., 1985).

The focus on women, the orientation towards subsistence production, and the realization that an increase in food production does not necessarily lead to better nutrition, highlight the need to focus on the household as a unit of production, and on intra-household dynamics and processes which affect production.

The research on households has followed two lines. On the one hand, households have been viewed as economic units vis-à-vis the outside world. Here, research has been concentrated on "household behaviour", in terms of the household's access to and use of productive resources and the impact of these factors on living conditions. On the other hand, intra-household factors and relationships have been in focus, particularly in relation to gender issues. These two points of view are not mutually exclusive. Each has provided important insights to the understanding of the relationship between women's role in food production and nutrition.

In this report we have utilized research findings obtained by both these approaches. In doing so, we have wanted to synthesize the present knowledge on women's total working situation and the relationship to their role as nutritional agents within the household. It is hoped that the synthesis will be useful for development planning.

Chapter 2. CONCEPTUAL FRAMEWORK AND MAIN PROBLEM ISSUES

2.1 Nutrition: problems of definition

Research dealing with the relationship between women's food chain activities and nutrition vary as to some of the nutritional concepts and terms used. It is therefore relevant to define the nutritional concepts as used in this study. It is also important to point out the focus of this report with regard to nutrition.

The term "nutritional status" pertains to the condition of health of the individual, affected by the intake of foods and the utilization of nutrients. Thus, determinants of nutritional status are related to food consumption as well as to the general health status. Both these categories of determinants and the relationship between them are important in understanding the etiology of malnutrition.

However, since this report is concentrated around activities related to food supply, the main focus will be on the consumption side. Thus, factors influencing the food availability in the household, which in turn are decisive for food consumption will be discussed thoroughly, whereas determinants of hygienic and health conditions will be given less attention.

The literature that relates women's work in the food chain to nutrition has used different indicators in the assessment of the nutritional conditions. When the term "nutritional status" is used in this report, the assessment is based on one or more of the following indicators: anthropometry, such as measurements of weight, height and arm circumference or growth patterns based on these measures; clinical signs including clinical symptoms and physical signs of nutritional problems; or biochemical and laboratory measurements of body nutrients and constituents.

In a few dietary studies nutrient intake has been determined and compared with a standard for such intakes, such as estimates of nutrient requirements or recommended dietary allowances. More commonly, meal patterns, breastfeeding patterns and food expenditure have been discussed as nutritional variables in relation to women's food chain activities.

It is beyond the scope of this paper to go into a lengthy methodological discussion. However, it is important to stress that the indicators above measure different things. Assessment of food consumption measures food and nutrients entering the organism. Such studies do not give information about the utilization of nutrients in the body. When the utilization of nutrients is affected, for example because of infections in the gastro-intestinal tract, this can have great consequences for nutritional status, but may not be reflected in food consumption studies. Anthropometrical and biochemical measurements indicate abnormalities at an earlier stage than e.g. clinical assessments, since symptoms and signs of malnutrition appear very late in the

development of malnutrition. Thus, results from studies which have used different methods are not directly comparable.

Preferably, more than one of these approaches should be used together with information about factors influencing nutrition, to get a better picture of the nutritional conditions. However, many of these methods are very demanding in terms of time and resources. This is particularly true for dietary measurements. Therefore in many of the studies referred to in the literature, only one approach has been utilized for the nutritional assessment.

The literature which deals with the link between women's food-related work and the nutritional conditions in the household is limited. We have therefore included in the literature analysis, studies which have used any of the above mentioned indicators of nutritional conditions.

2.2 The food chain as an organizing concept

The reviewed literature describes women's involvement in nutrition-related activities. In order to illustrate the interrelations between these activities and nutrition the "food chain" is introduced as an organizing concept in this report (see fig. 2.1). The food chain is defined as the sequence of events that take place around food, from the time it is produced until it is consumed.

Thus, when the food has been *produced* it is often subjected to *postharvest handling*, such as threshing, winnowing dehusking etc. In order for the food to store well, it will often be subjected to some kind of *preservation* method, such as drying, smoking, fermenting, canning etc. *Food storage* may in itself involve certain activities, such as the building of storing bins, organization of the food stuffs within the bins etc. Foods can be taken out and *marketed* for sale at all the sequences described above. Foods may also enter the food chain in other ways than through own production. It may be gathered from free food sources, which here is included in the term "food production". In addition food may be *purchased*, as indicated in the figure.

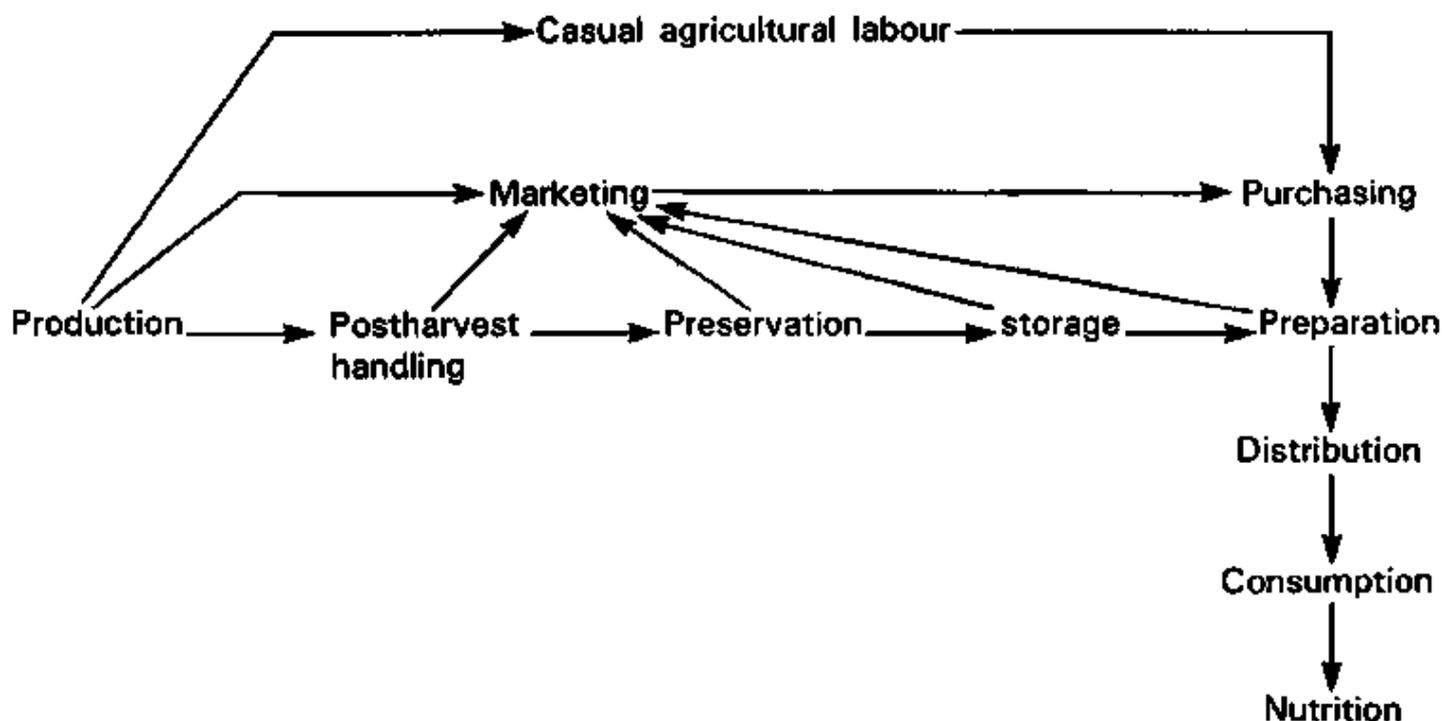


Fig. 2.1 The Food Chain.

It should be pointed out that the figure indicates alternative "routes" along which food and cash can move, depending on the type of household economy. In a subsistence household, where people consume what they produce, the flow of food will go through the postharvest handling, preservation and storage route. In a household relying mainly on cash crop production, the route may go directly to the market and food may be purchased from the cash earnings. Work in food production is not necessarily related to production on own land, it may also be done through the participation in *agricultural wage labour*. In this case the food chain

contains less of the sequences of activities as indicated in the figure. In many cases the households in question may have a mixed economy, where all the three routes, as indicated in the figure, may be in operation.

Whichever way food has entered the household, it is usually *prepared* in some way before it is served to the household members. An important activity in terms of nutritional outcome, is food *distribution* within the household. If priority is given to certain household members, it may have a detrimental effect on the *food consumption* of other household members, particularly during times of food shortage. As discussed above, not only food consumption but also general health status is considered a determinant of *nutritional status*.

Some activities which are not specifically indicated in the figure, are particularly important for many of the activities in the food chain. These are the so called "Food supporting activities", such as collection of firewood and water for food preparation. Also note, specially included is child care and child feeding which are part of the distribution and consumption activities.

2.3 Main problem areas

Figure 2.2 illustrates a conceptual model which was employed to formulate research issues of relevance for the review of the literature and the discussion in this report.

The research literature points to a number of factors and processes which influence women's food chain activities. Three broad groups of factors emerge as especially important in this regard. As depicted in the figure, these are:

i) Resources

such as access to adequate land for food production and for keeping domestic animals; credit for buying inputs for food production; equipment, suitable for women's work in the different parts of the food chain; and income for food purchase.

ii) Organization

such as division of labour and decision making power, and other organizational arrangements at household and community level related to the various activities in the food chain.

iii) Knowledge

such as access to knowledge and skills for food chain activities, including nutritional knowledge.

Some studies have related these factors to the broader cultural norms and socio-economic setting of the society or to the ecological context. Changes that occur in these factors have also been related to different processes of development, especially those which relate to various forms of modernization within traditional societies.

The nutritional consequences of women's role and work in the food chain have been studied from different points of view. In this report three aspects are specifically examined:

i) Constraints and opportunities for women in providing adequate nutrition to their household members. (Their "effectiveness" as nutrition mediators.)

ii) Constraints and opportunities for women to improve their own status and quality of life (seen in relation to satisfaction of Basic Human Needs).

iii) Possible conflict and congruence between i) and ii) above.

Even though the concepts of "household nutrition" and "women's quality of life" are not mutually exclusive, since women's nutritional status is included in both, we find it fruitful to examine them separately. It is thought that such an approach will contribute to an understanding of conditions leading to conflict between these two aspects of women's lives.

Fig 2.2 illustrates the interrelations between the factors within the three broad categories which have been shown to influence women's food chain activities, and the outcome of women's work in the food chain. The generation of food and cash as well as the total workload of women's food chain activities are considered in relation to household nutrition and women's quality of life. The relationships depicted in the figure will be discussed thoroughly in the chapters which follow.

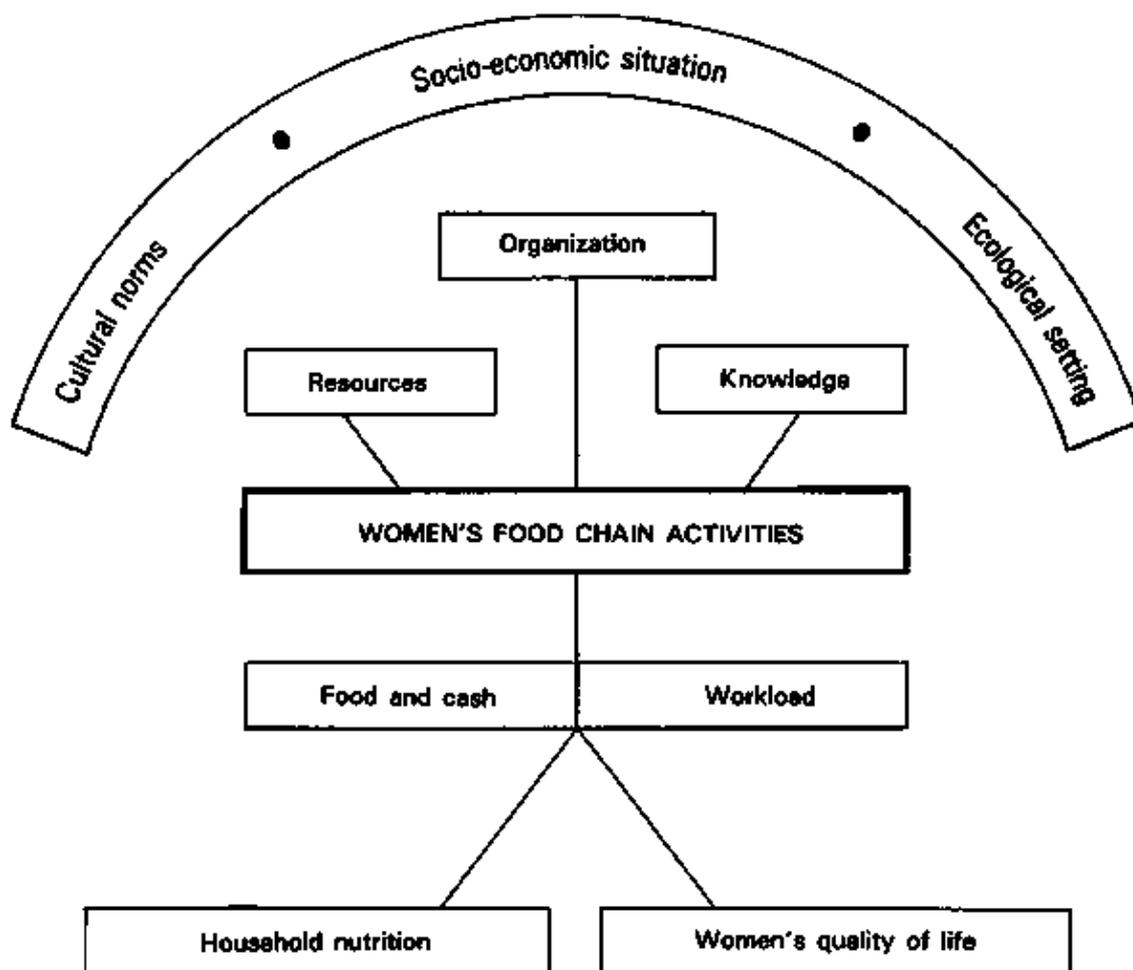


Fig. 2.2 Major relationships concerning women's activities in the Food Chain and nutrition.

Chapter 3. MAIN FINDINGS AND RECOMMENDATIONS FOR FURTHER RESEARCH

3.1 Selection of documentation

This report is based on documentation on women's food related work and the nutritional consequences selected from around 300 research and policy-relevant reports, articles and monographs. The selection was made according to the main problem areas as described in chapter 2. In the selection process, efforts were made to include as much as possible of the literature which attempted to link women's food chain activities with nutritional conditions of the household and its members.

In connection with the report an annotated bibliography was prepared. Most of the documentation used in the literature analysis of this report is included in the bibliography. The composition of the bibliography therefore reflects the basis for the literature analysis.

Out of the 111 documents included in the bibliography, 58 pertained to the African situation, whereas 18 concerned the situation in Asia. This reflects the special interest in women's role as food producers in Africa. In addition 39 references concerned issues on a more global level, relevant both in the African and Asian context. Around half of the documents were based on field studies in Africa (40) or Asia (14). The other half represented review articles or theoretical contributions. A number of the documents included discussions or recommendations of relevance for development planning. Most of these have addressed issues of global

concern, but some were specifically addressed to the local situation.

3.2 Present trends in research

In this section we will attempt to summarise, on the basis of the work with this report, the main trends in the research on women's role in food-related work and nutrition, and point to areas where the research done is inadequate as information is lacking.

i) Few studies have tried to link women's activities in the food chain with nutritional consequences (the bibliography included only 31 such studies). Where the link between women's food chain activities and nutrition has been studied, the tendency has been to concentrate on the negative aspects: lack of care of children especially in number of feeds per day, infant mortality, and malnutrition of under-fives. Although this aspect is important to highlight, there is a need to balance the very negative aspect with some positive strategies that are currently being used by households that do not suffer from malnutrition. In order to do this, one has to go beyond generalizations and look for the characteristics and processes of diversity.

ii) The main emphasis has been on women's productive activities, and most of the literature has therefore concentrated on the organization of work in this sector. This fact was reflected in the bibliography, which contained 88 studies of this type. Not enough studies are available on women's work in the other parts of the food chain such as postharvest activities, loss at storage level and technologies to deal with them, problems encountered with distribution of the labour product, norms about consumption, etc. The emphasis on field production resulted in a tendency to ignore the other activities around the household commonly known as domestic activities. In fact, the cleavage between productive and domestic activities does not reflect the organization of work in rural households where "productive" and "domestic activities" are intertwined.

iii) Most research uses a very sectoral approach e.g. studies on: labour/time budgets, technology in production, nutrition/health status of the families. There is little work on a systematic analysis of the relationships between the various facets of rural livelihood patterns – the extent and scope of these facets, how the households prioritize them, the differences between socio-economic strata, etc. Combinations and interrelationships are the basis of women's coping strategies and need to be more fully understood.

iv) Research on women's productive activities have centred around specific crops such as rice, wheat, maize or cash crops. Other crops like tubers, vegetables and fruits have been neglected. Even "women studies" have referred to vegetable production as "gardening" – a term that connotes a minor activity. Little attention has been given to the role that the production of vegetables plays in the economy and nutrition of the rural households and how this affects women's workload during "off-peak" seasons.

v) By concentrating only on field activities, the year round labour burden of women can easily be ignored as well as the implications of this work for household economy and the welfare of women. Introduction of crops or skills to reduce off-season "underemployment" can thus seriously affect important alternative sources of income which might be more lucrative than new crops, or new employment opportunities such as road construction. Time/energy budgets on a year round basis which consider *all* of women's productive and domestic activities are very rare.

vi) Studies on access of extension services to women have generally avoided the question of the content of such extension. Whereas formal access is important, equally, or more important, is the full range of what should be addressed. Agricultural extension to women should reflect the range of crops and livestock responsibilities that women are involved in. The current overview has also found little evidence of more experimental forms of agricultural extension both in content and methodologies that are better suited to women's needs.

vii) In nutrition/health there has been a tendency to look at women as providers of children's food and health needs. Little focus has been put on women's own needs or the perception of

their own needs, how these are met or not met and the conflict and congruence between such needs and the needs of other members of the household.

viii) In nutrition–relevant literature on development, there seems to be a reluctance to discuss women as individuals with basic human rights. Such studies as those dealing with participation and decision making have usually considered these aspects in connection with economic activities. Aspects such as leisure, social support groups, women's aspirations are not discussed in the context of women's productive and domestic activities. On the whole one gets the impression that women are just productive and reproductive machines – not individual members of society with rights and needs that are distinct from those of the household, the infants or the nation.

ix) Many of the studies that have addressed the contribution of women in the food chain have been very descriptive. They have not linked the situational analysis with historical and current processes of change, particularly at cultural levels. In many cases there is a resultant lack of a conceptual framework for the analysis and no attempt to discuss the implications of the findings for resolving current problems in the food chain.

x) Finally, research on women's food and nutrition–related activities has had a positive effect on highlighting the significant role of women in providing the household food, nutrition and other needs. It has also had the effect of highlighting gender specific constraints that affect this role. However, the tendency has been to see this contribution as distinct from that of other members of the household. While this trend was justified in the initial stages in order to highlight the role of women and make them "visible", a more balanced approach is necessary, particularly as some studies show that the contribution of male inputs in the form of labour, cash and technology are important to enable women to achieve the full benefits from their activities in the food chain.

3.3 Research needs

In reviewing the literature, a number of areas stand out where the documentation is insufficient or practically nonexistent. This section will summarize the identified needs for further research.

i) *Studies of how women's work in the different parts of the food chain affect food consumption and nutritional status of women and children.*

The need for such studies is particularly evident in regard to the latter part of the food chain, such as postharvest handling, preservation, storage and preparation. There is also a need to relate data from such studies to socio–economic levels and livelihood systems.

Studies of this type are particularly urgent in *pastoral* and *fishing* communities, on which there is practically no such documentation.

ii) *Studies of work and identity with regard to both women and men.*

The following are relevant research questions to this end:

What can women/men do and what can they not do? This question is relevant with regard to activities as well as the use of technology.

Under what circumstances will women/men overcome social norms which prevent them from participation in certain activities or in using certain technology?

This kind of research could help in revealing the conditions required for changes in the gender–related division of labour and technology.

iii) *Studies of appropriate technologies for women.*

This research is suggested to revolve around two themes:

Labour saving technology.

Technology that can bring about an increase in the quantity and quality of household food availability through improvement and increase of the flow at the different sequences in the food chain.

iv) *Studies of women's coping strategies, i.e. how women economize with time/energy, when they have much work to be done.*

Such studies would involve investigation into how women combine different tasks in order to save time/energy. The following are examples of such combinations:

In some communities women collect and carry firewood on the way back from the field (Mascarenhas, field data from Tanzania 1983).

It has been observed that women may do the washing of clothes and bathing of children on the same trip as they are fetching drinking water (Carr, 1979).

Information on women's coping strategies and their constraints and potentialities is important as a basis for development efforts.

v) *Studies of the potentialities for diversifying and combining cultivation.*

It is suggested that such studies should involve investigation into the possibilities for combining minor crops such as vegetables, fruits, less commonly used grains, and root crops with major crops which are mostly grains, in a way that would increase food supply, decrease seasonal variations in food supply and ease the workload of women. Intercropping of complementary crops is one such method, so is agroforestry. Investigations into combinations of cash crops and subsistence crops that would benefit women is therefore suggested. Such combinations could contribute to an increase in food production by making it possible for women to obtain much needed cash for inputs to food production.

vi) *Studies of the factors influencing women's priorities with regard to choice of work and distribution of food within the household.*

Frequently women's responsibilities and work obligations are so many that it would be impossible to spend the optimal amount of time on each of them. Women set their priorities with regard to work in food production as well as in food distribution within limits set by cultural norms and the households socio-economic status. In times of food shortage, women have to cut down on food consumption and decide which members of the household should receive priority in the distribution of food.

Documentation on the factors influencing women's priorities within both of these areas is insufficient, although very important as a basis for development work aimed at betterment of the food and nutrition situation.

vii) *Studies of inter-family and inter-community social support systems of distribution of food.*

In rural communities throughout the developing world, informal local exchange systems are prevalent. These systems are often important for food security of the household or rural community. As an example, such systems may be instrumental in exchange of foods between communities with different ecological and food crop characteristics.

Studies of this topic should revolve around how such systems may function without exploitation of one of the exchange partners and focus particularly on the role of women in such systems.

viii) *Studies of successful women's cooperatives.*

A number of women's cooperatives have been described in the literature. These have been

more or less successful with regard to the benefits women have reaped. The most frequently mentioned successful women's cooperatives are the Harambé movement in Kenya and women's savings clubs in other countries in Africa.

Information on the characteristics of such cooperatives, with special focus on the factors important for their success, would be useful in future work involving women's cooperatives.

ix) *Participatory action research for women.*

Action research projects where village women participate in changing their life situation are mentioned as being among the most successful development efforts for women. In this type of effort, the two components research and action are organically linked; analysis of and reflection on prevailing problems lead to action.

Such efforts may, in addition to identifying needs for development activities, also generate useful information about the constraints and possibilities for changing women's lives and working conditions.

Whenever possible, an interdisciplinary research approach is recommended. This makes a holistic view possible, which takes into account the entire life and working situation of women.

Although participatory action research is presented here as a separate point, it is clear that many of the other types of studies will also benefit from participation of village women.

Chapter 4. DETERMINANTS OF WOMEN'S WORK AND PARTICIPATION IN THE DIFFERENT PARTS OF THE FOOD CHAIN

In the past national population censuses or labour force surveys tended to under-rate women's work in the productive sector and its role in meeting the nutritional needs of the household. Such statistics generally considered women's work as "unpaid family labour" (Palmer 1977, FAO, 1984d, U.N. 1984).

Attempts are being made to better estimate women's role in production, particularly as a result of micro-level studies which have used detailed time/labour analysis to illustrate the extent and importance of women's work in the productive and reproductive sectors. Revised estimates of the contribution of women and men in agriculture in 82 countries found that women constituted over 40 per cent of the labour force in 52 countries. In 24 countries, or about one-third, women make up over 50 per cent of such labour (FAO 1984d).

Conceptual and methodological problems arising out of conventional definitions of "economic activities" still leave a great deal of women's work unaccounted for. Women's labour inputs into such activities as food processing (dehusking, shelling, decobbing, parboiling), storing, preparation for consumption and marketing, vegetable farming, care of livestock, and the cleaning, drying and selling of fish seldom enter national statistics. Neither do their contributions to the cash economy through sale of subsidiary food crops, processed products or crafts.

Another sphere of activities is that which is generally categorized as "domestic services". These activities include the procuring of water and fuel wood, cooking of meals and feeding of the young – all essential parts of the food preparation, distribution and consumption. Women generally provide 90 per cent of the labour inputs in this sphere.

This chapter will deal with some of the key factors that determine the specific forms of women's participation in food chain work and associated activities. The effects on women's food-related work of macro-level changes, commonly occurring in the Third World today, will be described on the basis of current research.

4.1 Persistence and change in cultural practices

One of the most significant determinants of women's participation in food-related work is existing cultural practices in a given society. Traditionally women's work has always been considered as significant for the household's food and nutrition requirements, but culturally women have always been conceived of as

dependents and legal minors. This contradiction has often curtailed the full potential of women's participation in the food chain with serious repercussions on the nutritional status of their families and on their own well being. As one United Nations study put it,

While women represent half the global population and one-third of the labour force, they receive only one tenth of the world income and own less than one percent of world property. They are also responsible for two thirds of all working hours (quoted in Folbre, 1985).

The fundamental contradictions between significance and recognition are reflected in several ways.

a) Land

One of the prerequisites for women's participation in field production is access to land. The research on current norms and practices identifies the following types of access to land:

- i) separate women's plot(s) together with unpaid work on family or husband's plot(s)
- ii) joint cultivation with husband of the household plot(s)
- iii) sole responsibility for cultivation by women heads of households
- iv) landlessness.

i) separate plots

The practice of women having separate plots is widespread in Sub-Saharan Africa. As a rule married women are allocated a plot or plots by the male head of household on which to cultivate food for the household and surplus for exchange or sale to meet their own needs (Okeyo, 1980; Guyer, 1980; Muchema, 1977).

In many instances women have specific crop responsibilities. Among the Tiv in Nigeria, women perform over 85 per cent of the labour inputs for yams, maize and cowpeas, while men have a greater responsibility for cassava and beniseed. In Zimbabwe, women are solely responsible for sweet potatoes and groundnuts (Muchema, 1977). In Tanzania women have the predominant responsibility for millet, groundnuts and intercropped vegetables (Mascarenhas, 1983).

The practice of separate plots for women has several implications. In the first place, it means that women in Sub-Saharan Africa, are directly involved in field production, and, as will be shown later, to a much greater extent than in the other regions of the developing world. The greater involvement can give women greater ability to provide for the households, but this ability is contingent on several aspects.

In the first place, traditionally, women with own plots could expect some obligatory labour inputs from the male head of household generally in the form of assistance in land preparation. Such inputs are essential especially if they have no means to hire labourers or equipment such as the plough.

Secondly, cultural practices also dictate that women's rights to separate plots be associated to the land rights of the males – fathers, husbands or sons. The size of the separate plot(s), the quality of land, the kind of technology allocated to it can all depend on the decisions of the male heads of households. In many instances, the introduction of cash crops can result in women's food crops being allocated to the less fertile land (Bukh, 1979; McLoughlin, 1970). This, in turn has the effect of lowering yields which have to be compensated with other productive activities. Such as beer brewing or wage labour.

Thirdly, even when women have separate plots, they still have to work on the family plot(s). The amount of labour expected from women in this respect depends on the type of crops grown, the ability of the household to hire casual or full-time labour, the size of the plots, etc. Recent studies seem to imply that women can negotiate over such labour inputs (Guyer, 1980; Folbre, 1985; Jones, 1983). Other studies, however, show that if there is need for labour on the male plots, such labour takes priority (Muntemba, 1982; Okeyo, 1980). The dual role in production – as own farmers and unpaid family labour can thus have both potentialities and constraints for women's ability to provide food for their families.

ii) Joint cultivation

In areas where land is scarce or where commercialization has induced male heads of households to keep a tighter control over land and labour, joint cultivation is the more common practice. In Asia, both scarcity of

land and cultural practices result in women being predominantly joint cultivators rather than producers on their own fields. The term joint cultivators, is perhaps a misnomer because it implies parity of rights. In fact, women on jointly cultivated fields are usually "unpaid labour" with few rights to the decision about the disposal of the produce from these fields. In this sense, they are at a greater disadvantage *vis-à-vis* women with separate plots.

Nevertheless, joint cultivation does ensure women and men's participation in at least some of the activities. Furthermore, a jointly cultivated field is more likely to have the benefit of better technology and is often larger than women's separate plots. Therefore the total product *can* be larger and thus more beneficial for the household's well being, depending, of course, on how this labour product is utilized.

iii) Women-headed households

The phenomenon of women as *de facto* and *de jure* heads of households is increasing as male migration to urban centres increases and widowed and divorced women lose former family support systems.

The incidence of households that are *de jure* headed by women is still low overall, with the lowest (22%) being in Sub-Saharan Africa. However, in all three regions, Asia, Latin America and Africa, *de facto* women-headed households is quite high – with as much as 63% in Botswana (Buvinic and Youssef, 1978).

Recent literature on women in production has highlighted the special problems of female-headed households. Women in such households experience great difficulties in maintaining sufficiently large plots or obtaining adequate food from the fields (Bukh, 1979). Remittances from absent males or other members of the family are often inadequate to enable the women to hire labour to make up for the loss of adult male labour. A study from Zambia shows that women from such households work harder than those households that have participating male labour. Nevertheless, the output was low because of lower productivity (Kumar, 1985). This was probably due to the fact that problems with regard to access to technology, credit and extension service are intensified when households lack male adults. Many female heads of household are thus compelled to supplement field production with strenuous activities such as casual labour or beer-brewing to provide enough food for their households.

iv) Landlessness

The causes of landlessness are varied and extensive. In Asia the main causes are land scarcity and the very unequal distribution of land. In India, the top 8 per cent of the rural population owns more than half of the arable land. In the Pakistan Punjab, almost one-quarter of the land is owned by less than 1 per cent (Murdock, 1980). The introduction of the High Yielding Varieties (HYV's) has often aggravated this situation (Griffin, 1974).

In Africa the causes are much more varied. Colonial policies of reserving large tracts of land for white farmers resulted in intolerable population concentrations and landlessness in countries like Kenya and Zimbabwe (Leys, 1980). Some aspects of such policies still prevail.

In Sub-Saharan Africa, other more culturally based issues can lead to landlessness. According to tradition, divorced and separated women cannot have access to land in their own rights (Mascarenhas and Mbilinyi, 1983; U.N., 1984). Furthermore, current trends leading to communal use rights being turned into individual male ownership rights can result in women's landlessness when male heads of households sell rather than cultivate their land (Okeyo, 1980). In other cases the loss of male labour can lead to women opting out of agriculture because of its low productivity.

Landlessness has the result of changing women's participation in direct field production from cultivating for their own households to working for others, with all the consequent vulnerabilities. Nevertheless, such work is very crucial. In Thailand, for instance, even basic food needs such as the staple, rice, have to be purchased and earnings from women's work are crucial for the survival of landless households (Tinker, 1979). In most developing countries, however, wages tend to be low so that very often such labour has to be combined with other income generating activities for mere survival, causing tremendous psychological and physiological stress.

To sum up: four different types of land use have been identified, each with its own implications concerning adequacy, security in procurement, and ability to maintain adequacy and security.

b) Control of the labour product and decision-making

One of the crucial aspects about women's desire to participate in the production process centres around their ability to control the labour product.

In the past, when production was predominantly to meet food needs, the crucial question was how much could be produced on joint or separate plots. Cultural practices acted as sanctions against laziness and neglect.

As the monetary economy penetrates the rural areas, crop and livestock production has the dual function of having to provide both food for direct consumption and cash to supply other items. The dual functions take on a greater significance as more of the households' "needs" imply the utilisation of cash. When that happens there is concomitantly a greater tendency on the part of the men to control and sell more of the produce to meet their responsibilities and needs, and on the part of the women to require a greater retention at the household level to satisfy their responsibilities and needs.

In this dichotomy the women usually lose out because of their inferior status with respect to cultural practices that associate land rights with control and disposal of the product. Cultural practices and patriarchal relations tend to sharpen as the male head of household tries to exert greater control of the labour product of the other members of the family. This aspect becomes even more dominant where the labour product from the fields or livestock is small and the control has, therefore, got to be tighter (Mascarenhas, 1983). Equity in distribution is not necessarily better among wealthier households, but at least the women's share is sufficient to meet needs and there is more opportunity to intensify production and diversify activities (Kershaw, 1976; Cheater, 1981).

Several studies show that conflict over control can seriously affect women's participation in the production process. For instance, in the Semry I Irrigation Project in Cameroon, such conflicts led to significant differences in the participation of married and independent women in rice production (Jones, 1983). The latter worked more hours in the rice fields than the former. Loss of own plots and thus a decline in the control of their labour product, frustrated women in at least two settlement schemes in East Africa and affected the efficiency of the schemes (Hanger and Moris, 1973; Brain, 1975).

c) Sexual division of labour

Labour is a primary resource in peasant production systems. Peasant studies have treated households as a common pool of labour (Chayanov, 1966; Normann et. al., 1983), but cultural practices differentiate between female and male labour at two levels:

- at the level of direct productive activities
- at the level of supportive activities.

Generally women participate in direct productive activities to varying degrees but invariably perform about 90 per cent of supportive activities usually referred to as "domestic services". Differences in the degree of participation in direct productive activities are caused by differing cultural and religious traditions and by economic processes that modify the basic pattern.

Table 4.1 Household allocation of labour in agricultural tasks (by stated frequency)

Individuals doing jobs	Number of times mentioned									
	Woman		Husband		Children		Relatives		Labourers	
Type of job (N)	No.	per cent	No.	per cent	No.	per cent	No.	per cent	No.	per cent
Clearing land (99)	40	40.4	41	41.4	8	8.1	2	2.0	8	8.1
Cultivation* (118)	57	48.3	40	33.9	10	8.5	3	2.6	9	7.7
Planting (109)	60	55.1	30	27.5	11	10.1	2	1.8	6	5.5
Weeding (117)	59	50.4	36	30.8	10	8.5	3	2.6	9	7.7
Harvesting (109)	60	55.1	27	24.8	13	11.9	3	2.7	6	5.5
	60	68.2	14	15.9	8	9.1	2	2.3	4	4.5

Pre-storage processing (88)										
Storage (98)	59	60.2	21	21.4	10	10.2	3	3.1	5	5.1

Source: Mascarenhas, 1984.

* Cultivation – smoothing the fields, making ridges, etc., prior to planting.

In Sub-Saharan Africa women's and men's roles in field production and postharvest activities are clearly delineated. Men have traditionally had a greater responsibility for clearing land, while women have greater responsibility for such tasks as weeding, transplanting, harvesting, postharvest processing and storing (see Table 4.1). Even where women have separate plots, men are responsible for clearing land and women in turn are invariably responsible for almost all the weeding, processing and storage.

Several processes have modified this division of labour, in most cases leading to extra labour burdens. Firstly, the migration of males to plantations or wage labour reinforced women's role in subsistence production. Secondly, with the introduction of cash crops and new technology and the resultant increased need for intensive processing, male-operated farms required a greater participation of women on their plots.

The introduction of new technology can also lead to higher labour inputs: tractor clearing of land usually means more labour in terms of weeding, harvesting etc. In Malawi women labour inputs were greater in the sprayed fields than in the unsprayed because they were more involved than men in such spraying (U.N., 1984). Better tools for weeding, transport of the harvest and the use of hired labour can ameliorate the situation but these amenities are unavailable for the vast majority of women.

In the more Muslim North African countries women are less involved in field production. They are, however, heavily involved in postharvest processing and storing, the care of livestock, sale of livestock products and some horticultural production around the house. In Egypt, for instance, women perform less than 20% of the field work, whereas they contribute more than 60% of the work with livestock (FAO, 1984d). There are also differences between countries. In Saudi Arabia women do about one-half of all farm work (see Table 4.2).

Table 4.2 Percentage of Female Labour by Agricultural Activity in the Jordan

Ploughing and land prep.	10%
Planting	30%
Weeding	60%
Harvesting	70%
Transporting crops from the field	20%
Processing crops	80%
Storing crops	60%
Marketing crops	10%
Pruning trees	5%
Animal care	70%
Dairy production	80%

Source: Hammad, Hassan I., 1980 (quoted in FAO, 1984d).

In Southeast Asia, higher population densities, and small family plots necessitate a more intensified agriculture with a less rigid division of labour than in Africa. The smallness of the plot also means that women generally do less field work on the household plot(s) than men (see Table 4.3).

Nevertheless there are field tasks in Asia which are considered to be more appropriate for one sex than another. In nearly all rice growing areas, men traditionally prepare the land and lift the seedlings while women

transplant, weed and harvest the crop. In addition, women from landless households and those with small plots are also involved in wage labour. In Java, for instance, they account for between 52% and 70% of the hired labour, particularly for weeding and transplanting (FAO, 1983).

Table 4.3 Sexual division of labour in India

	MEN		BOYS		WOMEN		GIRLS		Total Hours recorded
	Hours	%	Hours	%	Hours	%	Hours	%	
Agriculture	2.3	17	0.6	5	1.1	9	0.6	5	222.4
Animal husbandry	1.4	10	2.4	19	1.5	12	3.4	27	297.4
Food processing	0.3	2	0.2	2	1.3	10	0.7	6	113.9
Food preparation	0	0	0.2	2	2.5	20	1.0	8	178.7
Collect water and firewood	0.1	1	0.6	5	0.6	5	0.3	2	67.1
Eating and drinking	0.5	4	0.5	4	0.5	4	0.4	3	87.3
Wage labour	4.2	31	0.3	2	0.4	3	1.6	13	290.8
Child care	0.1	1	0.5	4	0.5	4	1.1	9	49.3
Leisure	3.7	28	4.2	34	3.1	24	2.8	22	577.0
Total	13.3	100	12.4	100	12.7	100	12.4	100	2103.6
Total number of days: 39									

Source: Brandtzaeg (1982a).

Again there are wide differences between countries. In Bangladesh women do very little field work but they are responsible for most of the postharvest work and 25% of the wage labour for rice-processing (Ahmad, 1983). They also take care of all the livestock and cultivate vegetables and fruits around the homestead. In India, in rice systems, they supply 70–80% of the labour for transplanting; 70–80% for weeding; over 60% for harvesting and 25–40% for threshing (Agarwal, 1983). Women do little field work in the Philippines compared to Indonesia and Nepal (IRRI, 1985).

No matter what the differences in the extent and type of field labour, women from all regions in the developing world are invariably involved in performing the major part of the variety of tasks that constitute domestic labour. Increasing distances to fuelwood and water sources because of environmental deterioration can increase the burden even further.

The only recourse that women have is to relieve some of the domestic and field tasks through the assistance of children. This aspect in turn has major implications for high fertility rates which escalate child care burdens and increase the problems of sustainable development.

d) *Access to economic services*

Women's subordinate position with regard to land and the decision making power about its use also affects their access to other resources such as credit for purchasing tools to relieve the labour burden, and inputs to increase yields.

Some studies have hinted at the existence of indigenous savings clubs. Through this system a group of women put aside a certain sum of money each month which then goes into a common pool. Each of the women in the group takes a turn in using the common pool. There are a few examples where these have been successfully used. In Kenya the saving club method was used by a group of women to produce vegetables, pigs and chickens for sale in the urban markets. Such clubs or rotating societies are found in other parts of the world both among women and men, for example, the *arisan* in Indonesia, *susu* in West Africa, *gamaya* in Egypt, *tanamoshi* in Japan, etc. (Tinker, 1979).

More empirical data is available on the lack of agricultural information to women. Two significant studies in this context are those by Fortmann (1977) for Tanzania, and Staudt (1976) for Kenya. Fortmann used six (6) sources of agricultural information which included radio programmes, newspapers and agricultural field demonstrations, in addition to personal visits by the agricultural extension officers and found that in all cases women had less access to such methods of extension than men. This affects the quality of production and total output, which in turn affects food adequacy.

Another aspect of this determinant is related to access to the market. Women's participation in the productive sector and their ability to benefit from it depends, in many countries, on their access to marketing the surplus. In some countries cultural practices control the products marketable by men and women. As a general rule, women are less able to sell large amounts of cash crops (U.N., 1984).

Because of such constraints women are compelled to engage in non-field arduous tasks. In Sub-Saharan Africa, the main source of income is often beer-brewing which is a time and energy intensive task in terms of the labour involved in collecting fuelwood for brewing and the preparation of the brew (Mascarenhas, 1983). In Asia, the chief sources of income are often labour demanding home-based crafts or casual wage labour.

The extent of infrastructural facilities can also affect women's participation in marketing. In the Cameroon, proximity to the market was a major determinant of whether women sold crops or not. Those from villages nearby were able to sell their produce and take care of their domestic responsibilities. For women from distant villages it would have entailed an overnight stop which would conflict with their domestic responsibilities (Henn, 1983).

Finally, women's participation in marketing can also be affected by the form of transport that women are culturally allowed to utilize. The remarkable absence of women on bicycles or operating ox-carts in Africa and even in Asia, where such forms of transportation are more common, is a case in point.

4.2 Breakdown of cultural practices

There are some instances of the breakdown of cultural practices. In Africa, the introduction of cash crops has led to a limited breakdown of the rigid sexual division of labour. In Rukwa Region, Tanzania, women do all the weeding for millet, beans and groundnuts; but men participate in this activity for maize, which serves as a cash crop in that region.

In Zimbabwe, women have been able to establish themselves as successful medium size farmers, complete with Master Farmers' Certificates (Cheater, 1981). Other examples can be found from other parts of Africa (FAO, 1984d; Bader, 1975; Kershaw, 1981; Gbedemah, 1978; Mascarenhas, 1984).

In the Middle East, male migration is contributing to the breakdown of women's seclusion from direct field activities (U.N., 1984). Economic stress can also lead to a breakdown in the seclusion process. In Egypt, for instance, women from the poorer Shukyria community were very much involved in cotton picking in spite of religious taboos about women in public places (Murdock, 1979). Such stress is also the reason why generally in Asia, there is a greater sharing of tasks at least in the productive sector.

The breakdown of cultural practices can be beneficial. They can also add to women's labour burden and responsibilities. In Asia the responsibility for providing the household food has traditionally fallen to the male head of household, women have always been unpaid family "help". Economic stress has necessitated that women share and often assume this responsibility. Similar trends are becoming apparent in Africa where the need to purchase food has forced women to devise a variety of sources of income which improve the household food security at the cost of greater labour burdens.

4.3 Seasonality

A number of studies have discussed the impact of seasons on women's labour burdens and household food stocks. A very significant, perceptive and comprehensive work is the collection of articles edited by Chambers et al. (1981). It concludes that

...most of the poor people in the world live in tropical areas with marked wet and dry seasons. Especially for poorer people, women and children, the wet season before the harvest is usually the most critical time of the year. At that time adverse factors often overlap and interact... It is the hungry season and the sick season.

Seasonality also affects workloads in the field. The impact of seasonality on women's workload is best illustrated in Table 4.4.

Table 4.4 Seasonal distribution of women's workload in Nigeria (hours/month in agriculture)

	Men	Women
May	67	46
June	147	140
July	114	145
August	141	164
September	93	114
Year's average	85	84

Source: FAO 1984d.

Table 4.4 shows that both men and women had considerably higher workloads during June to September, but that women's labour inputs were even higher. In areas where there is less sharing of work such workloads can be even higher. The necessity of participating in cash cropping can increase this load even further. In Tanzania, for instance, transplanting of tobacco seedlings coincides with weeding of food crops and women's workdays begin at 5 a.m. and end at 6 or 7 p.m. or when darkness sets in – a total of 13 to 14 hours (Mascarenhas, 1983).

Even in Asia, where women are less involved than men in field activities, seasonality can affect certain classes of women. The poor and landless women are specially dependent on wage labour. Demands for women's labour in rice production, for instance, peak during transplanting/weeding and harvesting/postharvesting work. Other very labour demanding activities are cotton and tea-picking.

In all the above examples, there are additional labour inputs into domestic activities which can constitute between 4 to 7 hours a day (McSweeney, 1979; Bério, 1984a). The implications of adding these hours to agricultural labour during seasonal peak times are considerable – both in terms of expanding or intensifying agriculture; the care of children and the health of children. It also has great implications for any programmes to lower fertility since children, especially girls, are the only means that women have to lower their labour loads.

4.4 Socio-economic differentiation

A number of studies have commented on the role of socio-economic status of the households in the extent and form of women's participation in the food chain activities.

The most conventional factor of differentiation is economic status or wealth – usually of the head of household. Cheater (1981) found that women of wealthy households were often assisted by their husbands to set up independent farms. Fortmann (1977) argues that economic status overrides labour and technology constraints of female-headed households. Nestel (1985) shows that women from better off Masai families had less need to purchase supplementary food.

Socio-economic differentiation can also affect the labour burden. Women with greater access to resources either by themselves or through the higher economic status of the husband could afford to pay for fuel, wood and water collected by other women. The latter, were thus doubly burdened in this arduous task. (Folbre, 1985; Hedkvist and Mascarenhas, 1983). In Java, girls of 10–15 years averaged 94 hours a month on housework and water collection compared to 26 hours in the richest households (FAO, 1984d). In the Punjab,

improved incomes at the household level could result in women's labour being substituted by hired labour (Khan and Bilguses, 1976). In India, too, women from more prosperous farms withdraw from field tasks (Ghodake et al., 1978).

Socio-economic differentiation can also affect religious barriers to women's participation in direct field production (Salem-Murdock, 1979). In Asia, the greater sharing of field tasks between men and women is more prevalent in the households with relatively poorer incomes (FAO, 1984).

However, the result of improved economic status is not always beneficial; it depends on how the head of the household distributes the labour product. The concept of joint utility at the household level, which improves as total household resources improve, has been challenged by several authors (Folbre, 1985; Guyer, 1980). The study from India (Ghodake, 1978) shows that as women's labour is withdrawn, their decision making power as to the use of the labour product also declines. In Africa where wealth is often associated with polygamy and cattle, increased wealth at the household level may not be utilized to improve the status of existing wives and their households (Jakobsen, 1978). Women from richer households may thus have to resort to poorly paid and time-consuming activities to satisfy the household needs even in households that are overall economically well off.

Another aspect of socio-economic differentiation is marital status. Older women, for instance, have better decision making powers than younger ones in many African societies (Cheater, 1981). Some polygamous households can act as extended families with women assisting each other in productive and domestic activities. Women with older children who can help out with field and home activities have greater options about strategies to meet the household needs.

Women's age, however, does not give them greater security in case of divorce, separation or widowhood. Land rights are usually vested in male heads of households and are passed on to sons. A dissolution of marriage usually leads to loss of all rights to land, the basic resource (Andah, 1978; Mascarenhas and Mbilinyi, 1983; Okeyo, 1980; Muchema, 1977). In Sub-Saharan Africa, divorce also results in the loss of working-age children, thus losing labour as well as land. In other cases, women can be left with the children with little means to look after them.

These are some of the factors that contribute to the fact that female-headed households are among the poorest of the poor (Brown, 1981; U.N., 1984; Faruquee and Gulhati, 1983; Mencher, 1981).

Due to unfavourable inheritance laws and less capacity to withstand economic adversities, female-headed households tend to be more often landless than male-headed households, a characteristic maintained and further reinforced by agrarian reform (U.N., 1984).

4.5 Macro-level factors of change

Some reference has already been made to changes that have affected traditional practices. Three aspects, however, need to be examined in greater detail because they directly affect the dual aspects of women's participation in the food chain: the provision of food, and the constraints of resources to make this effective.

a) The spread of the monetary economy and cash cropping

The spread of the cash economy has affected rural livelihood patterns in some very profound ways resulting in both potentialities and constraints. Potentially, income can be used to purchase food and diversify diet and thus cover deficits in agricultural production. Many women now have several sources of income, the most common being small sales of surplus from the fields, cooked food, and local beer and finally agricultural wage labour.

The ability to generate income is specially important for women in some regions and in some types of households. In Asia, the generally greater scarcity of land and lower ability to utilize the high yield varieties makes supplementary cash a matter of survival. In Thailand, for instance, women could not live without money to buy food.

Even their basic diet of vegetables and salted, dried fish must be purchased in the market (Tinker, 1979).

Supplementary income is especially important to the landless and the female-headed households in Asia and even in Africa. In the latter region, although outright landlessness is relatively rare, the smallness of fields that can be cultivated by such households and the declining productivity of soils can make income generating activities a more reliable livelihood strategy.

In other cases, it can be a necessity to continue agricultural production. In Iringa, Tanzania, women from households with average economic indicators, engage in picking tea leaves in order to earn cash to hire labourers to clear their land (Mascarenhas, 1983).

In addition, income is necessary to ease some of the labour burden: cash can be used to pay for costs for milling instead of hand pounding; one can ride a bus instead of walking.

However, the penetration of the cash economy can have some very negative aspects particularly if it is associated with cash cropping and intensification. Several themes emerge in the literature on this topic.

A considerable number of studies assert that the cultivation of cash crops have been at the expense of food crops (Fleuret and Fleuret, 1980; Jakobsen, 1978; Reining, 1970). Women's rights to land in Africa become even more precarious when women's labour becomes critical to the process of capital formation through the production of cash crops. In many circumstances food fields get delegated to poorer land (Reining, 1970) or to more distant areas. In the Cameroons, land near the villages was all taken up by coffee and cocoa plantations while food fields were delegated to areas that were about six kilometers away, involving "a one and one-half-hour walk to the food fields over rough forest paths, often with slippery stream and marsh crossing" (Henn, 1976, quoted by Tinker, 1979).

The use of more land for cash rather than food crops becomes especially critical in new settlement schemes where the tendency is to give the proceeds from the sale of crops entirely to men. Land for food and for women's sources of income are either completely neglected or given a low priority (Hanger and Moris, 1973; Murdock, 1979; Brain, 1975). Depending on how the cash from the sale is used, the practice can not only affect women's contribution in the productive sector but also the amount and kind of nutrients available to the household.

Another theme, is that cash-cropping puts an extra labour burden on women. In Nigeria, for instance, a project to produce rice had the potential of doubling women's workload (Burfisher and Horenstein, 1985). In Asia, wives of small farmers who received some profit from the HYV-irrigation schemes to intensify wheat and rice production had to shoulder much higher labour burdens as "unpaid labour" (Khan and Bilgueses, 1976).

The effect on women in Asia, however, can be more varied. In some cases agricultural intensification can provide employment opportunities but here too there can be problems. The greater emphasis on cash as the form of exchange can result in women being paid in cash instead of the more preferred payment in kind. Furthermore, the expansion of HYV's has led to a decline in sharecropping, thus depriving some households of the basic means of production and thereby expanding the class of landless women and men (Griffin, 1970).

A third theme in the literature related to this aspect, is that the development of the cash economy can lead to women assuming many of the responsibilities for cash purchases that were previously considered as the man's share. Women have to assume these new responsibilities for several reasons. In the first place the combination of small plots, poor technology and declining yields, particularly in Africa, result in low outputs. With the best of intentions men have to spend a disproportionate amount of the cash received to pay off loans, and other costs incurred in the production of cash crops leaving little to share with their wives.

On the other hand, as women acquire more income, men tend to put more of their traditional responsibilities on women without compensatory sharing of work in domestic activities or even some of the agricultural tasks. The ability to acquire some cash can thus make women worse off in terms of sharing the total household labour product.

Moreover, the activities themselves can be very time consuming. In Tanzania, for instance, the most common source of income is beer brewing, but it does involve extremely heavy inputs of labour particularly in terms of collecting fuelwood and water. On an average, beer brewing required two to three times the labour and time inputs that were required for collecting fuelwood for domestic purposes. Preparation of sunflower oil, another lucrative activity, required even more (Mascarenhas, 1983). The degree of self-exploitation was therefore very high because many of the tasks were very time and energy consuming.

Finally, the need or desire to participate in such activities can be at the cost of household food security since the beer is made out of the staple foods – maize or millet. There is a false belief that it is easier to purchase rather than produce food, particularly as production techniques on the small plots are so arduous and time-consuming. The need to reduce the drudgery of work is very real. Similarly, there is a temptation to reduce the vagaries of climatic change by using cash income to make up for food shortages. In the long run there will be disastrous consequences to the food production sector if all women were to adopt this attitude. On the other hand, newer less arduous income generating activities, not involving the use of household food supplies could add to household food security.

b) *Urbanization and migration*

The intensification of cash generating activities among women can also be caused by the growing tendency among men to migrate to urban areas or other large sources of cash employment, resulting in the growth of the prevalence of female headed households. In Africa some sources put the rates at 45 per cent for Kenya to about 30 per cent for Malawi and Lesotho and 25 per cent for Tanzania (Fortmann, 1977; Muchema, 1977).

Evidence on the impact of such male out-migration is somewhat mixed. The more general tendency is to consider such migration as detrimental to women, in the sense that it deprives women of much needed male labour without compensatory cash to enable women to hire labour or equipment (Bukh, 1977; Palmer, 1985c; Brown, 1981). Even women on the smallest farms experienced an increase in their farm work. In some cases women were forced to lease their land to sharecroppers, thus getting less than they would if the family had cultivated the land (FAO, 1984d). Kumar (1983) asserts that women in female-headed households worked harder than in male-headed households but that their output was lower. Brown (1981) categorically states that women who were heads of households were among the poorest.

Some studies, however, argue that male absences may be beneficial to women to meet their needs including the family food needs. Staudt (1985) claims that "male absence enhances control over produce". In a study of small commercial farms, Cheater (1981) shows that women who managed farms of absentee sons or husbands had a high degree of decision making power including the use of the product. In Jordan, male migration increased women's participation in the productive sector. Fortmann (1984) uses data from Botswana to show that the ability to hire equipment or labour for clearing land was more crucial than merely the fact that adult males were absent.

Palmer (1985c) shows that, whereas in Africa earnings from male migrants do not generally benefit the women left behind, the opposite is true for Asia and Middle Eastern countries. The critical factor is the level of earnings and the duration and purpose of migration. The shorter the duration, the more likely are the men to invest in their farms to which they have to soon return. Obviously, the issue is complex and needs to be analysed in relation to other aspects of the rural households.

c) *Under-development: its characteristics and effects*

Micro-level communities cannot be analysed outside the context of the larger question of the characteristics of the developmental processes prevailing in the nations in which they are located. Developing countries are often categorised into different groups (see for instance World Bank Annual Reports) but some generalisations can be made.

In most developing countries the economy is characterised by its dependence on a market over which they have little control. As said earlier, prices for products and labour are very low so that survival strategies necessitate involvement in several simultaneous activities, not one of which can sometimes adequately cover the needs of the women and men in rural households. The unequal rate of exchange affects both women and men but the former are doubly affected because of their second level of unequal exchange in which tradition dictates that men have a right to use women's labour without strictly equitable recompense. Women, thus have to bear the burden of poverty over and above their traditional workload. Poverty means a low level of technology, extremely intensive methods of cultivation on small plots with declining productivity.

It also means a low level of social and economic infrastructure. In most cases such basic services such as efficient and regular transport, prepared and processed food (e.g. packaged maize flour for *ugali*) which make women's life somewhat easier in the urban areas are totally missing in the rural areas of the developing countries. Those who extol healthy "fresh" homemade weaning foods seldom consider the toll on women's energy and time.

Under-development is also characterised by irrational national public policies particularly with respect to food production. Several studies show how the food sector, until recently, has been neglected and demeaned, with resultant demeaning of women's activities. Murdoch (1980) has shown how the cash crop sector in India was allocated 6 times the funds for research compared to the food sector. In Tanzania, the First Five Year Plan completely ignored the food sector. Where public policies have intervened it has been to introduce new crops and techniques that have had the result of increasing food losses (hybrid maize is more susceptible to the stalk-borer), reducing variety of crops grown, or inducing the sale of traditional food crops for export or sale. For instance, in Tanzania, all sunflower seed is supposed to be sold to a government marketing organisation for export, although these seeds were traditionally used in foods to enrich the diet and are now being utilised to prepare cooking oil by several women. If women were to observe the State's regulation they would lose a valuable source of calories for their meals.

4.6 Women and technological change

The impact of technological change on women's participation in the food chain varies according to regions and the classes of women involved.

In Africa, technological change has generally meant the use of tractors or ploughs for land preparation. It is interesting that this, of all the agricultural tasks, should be of some concern in a continent where the greatest labour bottleneck is often weeding and harvesting. Unfortunately, the trend is still prevalent. In Tanzania a recent farm mechanisation study showed that of the oxen drawn equipment (insufficient as it is) 93.4 per cent consisted of ox-ploughs, 1.5 per cent of ox-carts, 3.4 per cent of harrow/weeders and 1.7 per cent of planters. The bias towards relieving men of their tasks is obvious in the predominance of ploughs for clearing land. The rationale that ploughs will lead to increased acreages has been negated in the face of evidence that shows that acreages have only increased where extra labour for weeding was available. Further mechanisation would be a boon to increasing acreages and total production and reducing labour burdens.

In Asia, on the other hand, mechanisation of agricultural tasks shrinks women's labour opportunities which are especially necessary for landless and female-headed households. Such mechanisation, albeit unintentionally, seems to affect women more than men because it is women's tasks in weeding, harvesting and postharvesting that are most affected. Yet, it is probable that for women from small farms that can generate an adequate surplus, such technologies can be beneficial in increasing productivity and reducing labour inputs.

Another aspect of the bias is the fact that technologies are more concentrated into improving production but not for activities in the other stages of the food chain – food storage, processing, preparation of food (Carr, 1981).

A third source of bias is that which makes a sharp distinction between "women's work" and "economic work". Equipment used for cash crops is not easily available for food crops or domestic activities. For instance, in Tanzania a water tanker, using a stream, was used to provide water to irrigate tobacco seedlings. A tractor-trailer was used to collect fuelwood to cure tobacco. Any suggestions that the tanker could just as easily supply water for dry season vegetable gardens or provide households with water was considered "impossible". The idea that the tractor-trailer could make two trips a week to supply the entire village with fuelwood was dismissed as "uneconomic" (Mascarenhas, 1984). Women's work in provisioning the household was obviously considered as not economic. Both in Africa and Asia, when men and women do the same field task, they use different equipment with the latter using the more traditional, less efficient equipment (Brandtzaeg, 1982a; Carr, 1981).

i) Technologies that have the potential of decreasing women's economic benefits

Other studies, however, point out that the introduction of new technologies is very complex and has both potentials and constraints, depending on the context in which the technology is introduced. In Java, the introduction of a new technology for rice hulling resulted in the loss of 125 million woman days, and a loss of \$ 50 million, mostly for the women from landless and small farmer households. On the other hand, the new process lowered the price of rice – resulting in almost three times the value of the lost jobs. In India, women harvesters using small knives, used to obtain about 10–15 per cent of the harvested grain and leave about another 10 per cent in the field for the poorest families. When sickles were introduced the task was taken over by men who only obtained about 6 to 8 per cent of the harvest. Even if the ensuing harvest was bigger the lower percentage did not compensate for the loss of grain. The loss of employment opportunity for women

also had the potential of reducing the total food in households. Furthermore, such loss had the potential of forcing women to look for even more difficult jobs such as road or building construction (Tinker, 1979).

The issue is obviously complex because in both cases there were gains at national level, and also among some households – the better off and even the average landowners. Thus an introduction of new technologies can have gains and losses; national interests can override local interests; the interests of some can be overlooked in the face of the advantages for others.

ii) Decline in control over the labour product

Another trend emanating from the studies dealing with the introduction of new technology has shown that when certain tasks that women performed were mechanised the control of the new technology and its product invariably accrued to men. In Nigeria, for instance, the home-based oil extraction activity was traditionally a woman's activity. When a hydraulic press was used to extract oil, the operation and all the oil went to men. Use of the press declined from 76 per cent in the first year to 24 per cent in the second (Janelid, 1975).

In Ghana, pottery was largely the work of women but with the introduction of a potter's wheel, the industry was taken over by men. Women were unable to take advantage of the new technique because of lack of credit to purchase the new wheel (Carr, 1981). Such incidences are quite frequent and can reduce the role and status of women in the food chain, and consequently their ability to provide for the necessities of their households. The assumptions of most organizations that have introduced new technologies have been that overall efficiency in output will benefit all households equally and that what benefits one member of the household is good for all. In some cases neither assumption may be true so that there is a need to see net gains or losses with respect to household food and nutrition needs.

iii) The "successes" of new technologies

All technologies have not affected women adversely. One of the best successes have been mills to grind grain. Particularly in Africa, these are usually controlled by male individuals or groups, but they are still considered as a mixed blessing. In many instances, young boys who would not participate in pounding grain in the home mortars could be relied upon to take the grain to the mill, stand in line to have it milled and return with the flour thus saving women several hours of hard work. Control of the machinery in this case is less important because there is no loss of product used for food or sale and there are sizeable gains in labour saving. Wherever donkeys or animal drawn sleds or carts are available, one often sees even men involved in such activities, as for instance in Rukwa, Tanzania (Mascarenhas, 1986). The availability of maize mills in this region has also lightened the work for preparing flour for brewing, thus giving women a double advantage.

In Kenya, and Mauritania improved bee-keeping (hives stand about 3 feet off the ground) has enabled women to participate in an activity that was mainly male dominated because it involved climbing trees (Carr, 1978). These are just two examples of how technologies can benefit women by enhancing the food and cash income at the household level.

To sum up this section, the factors which affect women's participation in the different parts of the food chain are varied. They range from cultural to economic and technological aspects, and from micro-level to macro-level determinants. Overriding these issues are modifiers such as regional differences, socio-economic differentiation and seasonality. The review has also emphasised the complexity of these determinants. Many have constraints for women, but there are also potentialities. The complexities of the effect and inter-relationship of these determinants need to be better understood. So far there has been a tendency to compartmentalise the issues and their effects, perhaps because the inter-relationships are so complex.

Chapter 5. WOMEN'S ACTIVITIES IN THE FOOD CHAIN; INFLUENCE ON FAMILY NUTRITION

5.1 Scope

To provide food to a household women combine time and energy inputs with other resources essential for performing the different activities in the food chain. It is important for the nutritional outcome that there is a certain balance between these inputs. Imbalances will upset the flow of food through the food chain and may

lead to poor nutrition.

In all societies women are almost exclusively responsible for the later steps in the food chain, particularly food processing, preparation and distribution. The responsibility for these steps are rarely taken over by the men. Thus, anything which interferes with women's allocation of time and energy for these tasks carries the potential of disrupting the food flow.

Developmental changes may alter the conditions for the amount of time and energy that women put into the different steps in the food chain. They may bring about imbalance in these efforts, thus affecting the food flow negatively. This may happen if women get additional responsibilities in food production, for example, due to out-migration of men. On the other hand, introduction of certain types of technology or a different cropping pattern may reduce the time and energy inputs required in some parts of the food chain, thereby allowing for additional inputs in other parts. Thus, factors initiating change may have both negative and positive effects on women's activities related to family nutrition. This chapter will deal with literature describing how these factors affect women's activities in the food chain and, in turn, the food flow. Such an analysis is important to throw light on constraints and potentials to improve women's role as food providers to the family.

The current literature on how women's participation in food chain activities affects household nutrition has been approached from three points of view:

i) The relationship between women's participation in food production and household food availability.

Here, the degree of women's participation in these activities is seen as important for the amount and type of food entering the food chain.

ii) The relationship between women's control of food and cash and household food consumption and nutrition.

Women are thought to give higher priority to the nutritional needs of their families than men. Therefore, it has been postulated that when women control the food and cash, it is likely that more of these resources are used for food consumption in the household and particularly for the small children. This point is also discussed in relation to women's participation in productive activities, the argument being that the more women participate the better they control food and cash.

iii) The relationship between women's workload and allocation of time in the food chain and child nutrition. Heavy workload and time constraints are seen as possible threats to adequate child nutrition.

5.2 Women's involvement in food production and the flow of food through the food chain

In the rural areas of developing countries women's daily activities are to a large extent centred around the food chain. The literature emphasizes the large contribution that women make to the total household food supply in many countries, particularly in Sub-Saharan Africa and also in some places in Asia, such as Thailand. In these areas women are the main responsible for feeding the family (Okeyo, 1985; ECA, 1984a; FAO, 1983a; Safilios-Rotschild, 1980).

Even in countries where men are considered the main income earners, women's contribution to the food supply is often quite considerable. One of the most important strategies for securing food in poor households is diversification of sources of income, whether in cash or in kind (Safilios-Rotschild, 1980; Holmboe-Ottesen and Wandel, 1985). In fact, the relationship between the total units of production and consumption in a household may be considered a determinant of the household's viability. Women's productive role in the household is important in this respect. Women's contribution to the market income may not be large, but becomes substantial when home production is taken into consideration (Safilios-Rotschild, 1980).

Women's contribution is not only important for the total food supply to the household, but also for dietary variation. In most rural households women are responsible for growing different kinds of vegetables, roots and fruits, (Garibaldi Accati, 1983) for raising small animals, such as chickens, goats, sheep, rabbits and pigs (FAO, 1983c; Safilios-Rotschild, 1983) and for milking and processing of dairy products (Chavangi and

Hanssen, 1983; Galvin, 1985; Nestel, 1985).

Furthermore, women in rural households frequently provide an addition to the diet in the form of wild foods, such as green leaves, which they incorporate into relishes or soups, in close combination with the staple foods (Skjønberg, 1981; Wandel et al., 1984).

Dietary diversity is a way to secure dietary sufficiency (Dewalt and Pelto, 1977; Fleuret and Fleuret, 1980). A diversified diet is more likely to provide a wide array of nutrients, and with many sources of food there is less risk of seasonal food scarcity.

Traditional diets reflect by and large a well-balanced adaptation to nutritional needs (Fleuret and Fleuret, 1980). The knowledge of methods for food production as well as preparation of foods passed on from mother to daughter has been crucial for the nutritional well-being of populations.

Women's work in food processing and preparation, apart from being essential for palatability and digestion of the food, may also contribute to the nutritional content. The widespread practice of steaming staples wrapped in green leaves as well as fermentation practices adds to the value of basic foods (Fleuret and Fleuret, 1980).

Women are engaged in drying and smoking of foods such as fish, vegetables, fruit and grains, which are preparations necessary for food storage. Such activities are important to minimize seasonal fluctuations in food availability.

Processing and preparation of food for sale is a way of earning cash for women. Beer brewing and sale is common among women in Africa. Preparation and sale of food and snacks, sometimes through children, is in some societies one of the few income generating activities available for women. Jackson (1985) reports from a muslim community in Nigeria how secluded women were highly successful in undertaking such an enterprise which in fact improved household food availability as well as their own economic independence.

The point of view that women's participation in food production and income generating activities will have a positive impact on the flow through the food chain is the basis for many development projects designed to improve production or income earning components for women. The question of what types of activities will most effectively contribute to increased food availability is often posed (Carr, 1979; Chaney, 1985).

It has been argued that improving women's productivity in subsistence food cultivation is often a far more rational use of women's time and labour, than many other income generating activities which have been tried. By producing food for one's own consumption, money can be saved. Such food can also be sold to generate cash if needed. Chaney (1981) found this to be the case in two rural development programmes, where family-sized plots for vegetable cultivation were introduced.

5.3 Women's control over resources, created in food chain activities; implications for nutrition

The view that women's control over food and cash has a positive influence on household food availability and nutrition is frequently encountered in the literature. Katona-Apte (1983) argues that women's control over income is dependent on the degree to which they contribute towards earning this income. Furthermore, since women have the main responsibility for feeding their families on a day-to-day basis they are more likely to make self-sacrifices for the sake of the health of their families, especially their children. In contrast, men tend to be more interested in spending on expensive nonfood items.

Tinker (1979) has pointed out that income-generating activities for women, which give women better control in how to spend the income, will have a more immediate impact on providing basic food and health to the poor than similar activities aimed only at men.

Empirical studies showing the relationship between women's control over food and cash and the food and nutritional situation in the household are limited. In the majority of studies women's control has to be inferred from analysis of the spending patterns and by comparing the effects of women's and men's income on children's nutritional status.

Detailed studies of rural women's and men's income and spending patterns have been performed in Zambia (Skjønberg, 1981); the Ivory Coast and Nepal (Bério, 1984b); Tamil Nadu and Kerala (Mencher, 1985).

The pattern that emerges from these studies is that even though women's cash incomes were generally lower than men's, a higher percentage of their earnings was allocated to household food. When home production was also taken into consideration, women's contribution was quite large in all these societies. Thus, in the Ivory Coast women contributed 54% of the total supply of calories. In Nepal women contributed 50% to total income, mostly in form of home-produced food. In Zambia, women spent 2–3 times as much money on food as men, which is remarkable considering they had about half the amount to spend.

A few studies have directly related children's nutritional status to the income earned by the mother or father. Tripp (1982) found in a field study in Ghana that although both men and women were active in marketing and the marketing activity of either parent makes a contribution to child nutrition, it was the income from women's marketing activities which had the most significant impact on the nutritional status of children.

In rural Kerala, it was found that in landless families increases in maternal income were significantly associated with a better nutritional status of children whereas the aggregate income was a weak indicator (Kumar, 1977, referred to in Safillios–Rotschild, 1980).

The results from these studies indicate that women's participation in food production and income generating activities will enhance household food availability to a greater extent than what could be expected from their contribution to the aggregated household income. This probably reflects a greater control by women over the money they earn themselves and that they often have a different spending pattern than men.

However, women's participation in production does not always result in increased control over the income in cash or kind, or food expenditure.

A study of the Masai in Kenya (Nestel, 1985) was designed to test the hypothesis that the participation of women in matters relating to food would have a bearing on food expenditure patterns and nutritional status. However, it was found that the men made all the decisions on factors which determined not only the amount of food available but also the access to food. Most of the income spent on food was derived from cattle trading which men controlled, even though women participated in milking and tending the cattle. Thus, in this case women had little influence in determining the nutritional status of their families, despite their active role in productive activities.

In many societies women's work is considered as "helping the men", and the men collect the income from this work. Even in societies where women have their own food crops from which they control the income, they may in addition have to work with crops over which they have little or no control (Jones, 1983; Bryson, 1979; Tommy, 1980).

Furthermore, the consequences for food availability and nutrition of the specific spending patterns between men and women may differ by societies. In southern Sri Lanka, Wandel and Holmboe–Ottesen (1984) found that both men and women gave high priority to household food, and in fact, a larger share of men's than of women's income was used for food. Men were considered the main providers of food, whereas women's income, which generally was smaller, was used for other expenses, such as clothing, school expenses, medicine and travelling. This allocation pattern was particularly evident in the more well-to-do households. While in the poor households most of the income, whether it was earned by women or men, was spent on food.

When discussing the influence of women's control over food and income on children's nutritional status a number of additional factors come into play, such as women's decisionmaking power on matters other than control of women's own income, knowledge about food and health, access to health services, women's workload and allocation of time.

Women's decision-making power is often discussed as an important determinant of nutrition. However, empirical studies of this relationship are lacking and would be difficult to carry out. Identification of methods for systematic study of household decision-making processes is a subject that has received limited attention, in part because experts have not agreed on the most relevant variables for study (Safillios–Rotschild, 1980). According to Pivoz and Viteri (1985) women's income-generating capacity is a key variable determining women's decision-making power, also in matters other than control over their own income. Thus, women's participation in income generating activities is believed to increase their status within the household. Another such key variable is education, which in addition to its influence on women's decision-making power, has also been shown to influence their knowledge about food and health although the relationship to nutrition is not completely clear (Pivoz and Viteri, 1985; Safillios–Rotschild, 1980).

5.4 Women's workload and allocation of time to food chain activities; implications for child nutrition

The main focus of the studies on the impact of women's work on child nutrition have related women's work in income earning activities with duration of breastfeeding or children's nutritional status. Two recent review articles on the subject have attempted to summarize the main findings (Carloni, 1984; Leslie, 1985). However, only a few of the studies reviewed focus on women's activities in the food chain.

The background for the concern that women's workload in food chain activities can interfere with their work in child care and feeding, stems from studies which have indicated that efforts towards nutritional improvements have failed due to problems related to availability of time for women to devote to child care. Time–budget studies have shown the incredibly long working hours of women in many developing societies. This matter is discussed further in chapter 6.

The immediate causes of malnutrition in children are often attributed to infrequent meals consisting mainly of starchy staples. The nutritional community is now generally in agreement that traditional diets, mainly including starchy staples, with small additions of pulses, vegetables, green leaves and oils, are sufficient to support child growth provided the meals are given frequently and in adequate quantities (Cameron and Hofvander, 1971). The optimal frequency of meals depends on the type of foods and whether or not the child is still breastfed. Three meals a day with snacks in between is often recommended for children of weaning age (Cameron and Hofvander, 1971; Woolfe et al., 1977).

The concern is centred around the question of how child care and feeding, which in all societies is mainly the responsibility of women, is influenced by women's workload in the other aspects of the food chain.

As discussed in the previous chapter the tasks in food production that repeatedly have been found to contribute to excessive labour loads for women are weeding, transplanting, harvesting and transportation of produce. These tasks require variable amounts of work, according to seasons. As discussed in chapter 3 and 5 this seasonal work burden may cause a tremendous strain on the women at certain periods of the year.

Palmer (1981) describes women's work as a seasonal cycle in which child care and agricultural work compete for the mother's time and energy. An indication of how women cope with such seasonal burdens of work and the implications for food preparation and child care are given in time allocation studies.

Detailed studies of women's time allocation and energy cost of different activities in the low and peak agricultural season have been performed by Brun and his group in Burkina Faso (Upper Volta) (Brun et al., 1979; Bleiberg et al., 1980). In both these studies the total "economic work" of women was increased during the rainy season. The increased work was partly offset by less time spent on tasks in other parts in the food chain, such as preparing food and in tending children.

Bleiberg and coworkers found that not only did time and workload in the field increase during the rainy season, but women spent twice as much time washing clothes, since they became more dirty in the field. Time used for picking wild leaves and fruit was also at its peak in this season, since they were more available then. Food preparation was reduced to one hot meal per day. Breakfast was usually made from the scraps of the previous dinner. The time for child care was substantially reduced.

The reduction in the time spent in food preparation may have had negative effects on the nutritional situation in the household, particularly with regard to children. Unfortunately the question of child feeding is not discussed in these studies. Other studies, however, have shown that children's nutritional status is at its lowest when low food availability coincides with periods of peak labour (Schofield, 1979; Galvin, 1985; Nestel, 1985). In addition, the problems of increased infections during these seasons may add to the detrimental effects on children's nutritional status.

Another important area of investigation concerns the relationship between women's seasonal work, pregnancy and child nutrition.

Rajagopalan and coworkers (1981) found that in Tamil Nadu, India, the peak in birth rates came right before start of the heaviest period of agricultural work. He suggests that this may affect infant nutrition adversely, by limiting the time available for breast feeding.

When birth rates peak around harvest time, it implies that many women are pregnant during the period of heavy work of weeding and transplanting as well as the worst period of food shortage. This may affect the birth weight of the children, as discussed more extensively in chapter 6.

Data presented by Bantje (1980) from a study in Tanzania indicate that low birth weights were related to women's seasonal workload. Even when food was plentiful, but agricultural labour was demanding, low birth weight was common. However, these effects can be expected to vary in different circumstances, depending on the severity of the food shortage and the strain of the workload on the women.

Poor nutritional status and excessive workload of women may be related to different types of low birth weight: small-for-date or preterm babies. The small-for-date babies have, by definition, suffered growth retardation before birth and are said to be malnourished (Perera, 1986).

The low birth weight may have implications for children's nutritional status later on in life. Some malnourished infants gain weight rapidly after birth provided a satisfactory nutritional input is maintained. On the other hand, some of the pre-term babies, by virtue of varying degrees of immaturity of their organ systems, appear not to take advantage of generous nutritional inputs to the same degree (Perera, 1986). Thus the mother's nutritional and working conditions may have varying impacts on children's nutritional status.

In a study in Sierra Leone, Tommy (1980) found that the farm tools pregnant women used in cultivation had an impact on the survival rate of infants under one year. The survival rate of infants born to women who operated heavy farm tools while pregnant appeared to be lower than among those operating lighter tools or heavy tools used less frequently. This was a small study and should be interpreted with caution. However, if these results have wider application it has implications.

Among the most frequently cited studies showing a negative effect of mother's working on child nutritional status is that by Popkin and Solon from the Philippines (Popkin and Solon, 1976; Popkin, 1980). The mothers in the sample were engaged in different types of work, including trading and farm work. The data presented indicate that even though mother's participation in these activities was associated with increased food purchases, children's nutritional status (weight/age, height/age and indicator of vitamin A status) seemed to be negatively affected. Vitamin A deficiency seemed to be more common among children in the lower socioeconomic groups whose mothers were working. The negative effect on the vitamin A status of children of working mothers was explained by the observation that a preparation based on green leafy vegetables was less used in child feeding by working mothers, since they did not have time for this lengthy preparation. It was pointed out that the time for breastfeeding was significantly reduced. This could also have been a contributing factor to the negative effects on children's nutritional status.

In this study the important question of the quality of mother's substitutes for child care is discussed. It is suggested that the negative effect of mother's employment found in the lower income groups is related to the difficulties these mothers had in getting good child care-takers when they were away.

Child care in the study area was to a large extent provided by older siblings. However, the higher income households were more likely to be able to afford to have older persons, particularly relatives outside the nuclear family, to care for the small children. This distinction is important in view of the evidence presented by Shak (quoted in Popkin, 1980) that the incidence of severe malnutrition was highest (55%) when mother substitutes were 6–8 years old, while much lower (8.5 and 21%) when mothers or elderly mother substitutes, respectively, cared for the child. However, this study did not control for intervening social factors and should thus only be taken as an indication of the problem.

A number of additional studies indicate that women's excessive work in food production is related to early weaning and early introduction of supplementary foods (Nerlove, 1974; Nardi, 1984; Tobisson, 1980). Women's work in other parts of the food chain may also affect child nutrition. Reports from Bangladesh (Chen et al., 1979; Chowdhury et al., 1981) indicate that mother's seasonal work in processing of grains may reduce the time available for breastfeeding.

Evidence, however, is mixed. The general pattern found by Leslie (1985) who reviewed studies about mothers working in different kinds of occupations, showed no decline in the prevalence of breastfeeding as a result of mothers' working status. She stated that when mothers working had an effect on infant feeding it was a shift from exclusive breastfeeding to mixed (supplementary food and breast milk) feeding. Furthermore, reference was made to two studies from Malaysia and Thailand in which it was found that agricultural work was positively related to breastfeeding. In these studies women farmers were found to be more likely to breastfeed than either non-working women or women working in other occupations.

A number of studies have examined the relationship between mother's employment and children's nutrition using multiple regression analysis. In an attempt to come to grips with the confusing picture that emerges Carloni (1984) points to the need to look at underlying economic factors. She argues that many of the studies have looked at mother's employment as the independent variable and the food and nutrition situation as the dependent variable. She suggests that it would be more useful to suspend judgement about which is the cause and which is the effect and examine more closely the characteristics of households where women are involved in income earning activities.

A field study of women's work and child feeding patterns in Tanzania by Mascarenhas (1983) seems to support this line of thinking. Mascarenhas found that in about half of the households studied, the preschool children got only one or two meals a day. Lack of mother's time was then considered to be the main reason for such a low frequency of child feeding. In a follow-up study, Mascarenhas (1984) found that nutrition seemed to be worse in the households where women were working as casual labourers. However, this kind of work was often the last resort for women when food supplies were low. Lack of food in these households during critical preharvest seasons forced women to do casual work during peak agricultural periods. Thus, the socio-economic condition was more likely to be both the cause of mother's working as well as of their children's nutritional condition.

The evidence presented indicate that even though women's heavy workload, particularly in societies where women participate actively in food production, may have a negative influence on child care, child feeding and nutrition, there are other factors of importance which must also be considered in order to understand the processes at work. In the studies discussed in this section women's socio-economic condition was shown to be a determinant of certain types of heavy work women performed as well as the chances for getting adequate child care when women were away from work.

It is also evident from the literature that some societies have adapted practices which may function as cushions against the negative influences of women's workload on child nutrition. The practice, that women of childbearing age are less involved in field work is one example, which has been shown in a field study from Sri Lanka (Wandel and Holmboe-Ottesen, 1984). Such a practice requires cooperation between the sexes and/or between the women. In extended families, for example, women's workload and time constraints seem to be less precarious. Khare (1984) reports from a study in India that the presence of an older woman in the household, especially the mother-in-law, seemed to give younger women with children more time, and resulted in better nutritional care of the children.

5.5 Factors introducing changes in women's work in the food chain; effects on the household food and nutrition situation

a) Male out-migration

The impact of male out-migration on the rural household and particularly on the workload of women was discussed in chapter 4. Factors, important for this impact were identified as the size and regularity of the remittances from the migrant as well as women's decision-making power over household resources such as land and cattle. The effect on the household food and nutrition situation is, more specifically, related to whether or not the remittances from the migrant are large enough to buy food or if women are able to keep up food production with the help of hired labourers to replace the loss of the migrants labour on the farm.

There is evidence that the effect of male out-migration is substantially different in, for example, Southern Africa than in Asia and Middle Eastern countries, depending on sociocultural differences and the money earning capacity of the migrant (see discussion in chapter 4 and Palmer, 1985c). The earning capacity, and the remittances sent home appear to be much larger for migrants from Asia and Middle Eastern countries who migrate to or within the Middle East or to Europe. Here the remittances are used, amongst other things, to buy food, small livestock which adds to household consumption of protein, or to hire labourers for work in the fields (Palmer, 1985c).

Several reports from different countries in Africa discuss the difficulties faced by female-headed households which may affect the nutritional situation in the households. In reports from Swaziland and Lesotho (Government of Swaziland, 1978; World Bank, 1980) it is stated that the remittances from the husbands were irregular or rarely enough to maintain the household. Haswell (1981a) reported from Gambia that food availability was lower in households where the males had migrated. In a study by Bukh (1979) the shortage of male labour for food production due to cash crop production and later the out-migration of men to the urban centers affected the workload of women. Due to excessive work, women switched from cultivation of yams to

cassava which is less labour intensive. Bukh argues that this switch may have had an effect on the nutritional situation of the households, since yams have a higher content of protein and other nutrients. However, the effect will depend on the intake of additional foods. Neither dietary intake, nor nutritional status was measured in this study.

In a study from Zambia, Kumar (1985) showed that female-headed households had lower food stocks than households where men were present. An interesting finding in this study is that although children's nutritional status on the average was lower in female-headed households than in the rest, when compared to given income levels it was higher. These data may indicate that women in female-headed households give priority to food and nutrition both in work and spending pattern.

b) Changes in cropping patterns and incorporation into market economy

The introduction of cash crops may affect food production as well as women's work. The effect on the food and nutrition situation may vary depending on factors such as the degree of economical gain, the extent to which food production is still maintained as well as the effect on women's work and decision-making power in relation to the food chain.

Based on a review of field studies in Kenya, Nigeria, Upper Volta, Cameroon and Sudan, Tinker (1979) states that the recurring theme is that while cash income may have increased due to introduction of cash crops, nutritional levels tend to fall. However, nutritional status was not always measured in these studies. The term nutritional levels is therefore used loosely to also include different proxy-measures for nutritional status, such as food availability and indicators of food consumption.

Introduction of cash crops have been one of the factors influencing the division of labour between the sexes. Even though some women have taken to cash cropping, it is often considered men's work, whereas women continue to work on food crops. Thus, women's workload may be affected, since they receive less help from the men in food production while at the same time they are expected to contribute a substantial amount of work in cash crop production and processing. The amount of food produced may thus be affected negatively.

In other cases the distinction between cash crop and subsistence crop is not always clear. Often, part of a subsistence crop may be sold and thereby serving the same purpose as the cash crops. However, whenever commercial production leads to mono-cropping, whether it is exclusively cash cropping or combined cash/subsistence crop, the level of risk of food scarcity to which producer households are exposed tends to increase. The multiplot and multicrop production strategies typical of subsistence agricultural regimes are aimed at reducing levels of risk and also smooth out irregularities in the food supply (Fleuret and Fleuret, 1980).

In her work from Tanzania, Mascarenhas (1983) describes problems related to decision-making with regard to the sale of food crops. She describes the frequent conflicts between husband and wife over the food stores; these conflicts tended to increase during periods of seasonal food shortages. Traditionally, men were supposed to ask their wives before selling or exchanging foods. However, frequently, the men did not observe the women's advice, and food was sold against their will.

In another study from Tanzania, Jakobsen (1978), related children's nutritional status to cash crop production. He found that the relationship represented a U-shaped curve. The nutritional status of children from households involved in subsistence farming was on the average better than among children from poor households involved in cash crop production or wage labour on commercial farms. However, with increasing income from cash crop production the incidence of malnutrition decreased so that children's nutritional status among the well to do cash crop farmers was better than among the subsistence farmers. These studies show the importance of including socio-economic status in studies on the effects of cash crop production on nutritional status.

A few studies focus directly on women's work arising from the introduction of cash crops. The study by Bukh, referred to in section a) of this chapter involved the production of cocoa as a cash crop. In the study area, men used to clear the forest and make large mounds for the yams, while women planted and weeded the crop. When men took up cocoa cultivation, the women did not receive help in the preparation of the mounds. Therefore, male labour was no longer available, and women switched to the cultivation of cassava, which is a less nutritious food compared to yams.

Changes from one type of subsistence food production to another may also affect the nutritional situation of the household. Most development work in improving agricultural production has been on so called "major"

crops. These are usually cereal crops, such as maize, rice and wheat. In many cases the intensification of these crops is at the expense of "minor" crops, also called "horticultural" crops.

The importance of these crops for nutrition have been pointed out in recent studies and have now attracted the attention of policy makers (Garibaldi, 1983; FAO, 1983; Longhurst, 1983). In addition to discussing their importance with respect to nutrition, Longhurst discusses their role in survival strategies. He points out that these crops fill important gaps at certain times of the year. The mix of production and timing of these crops are thus important for the food and nutrition situation of rural households.

c) Introduction of new technology

Much of the literature on the issue of technology has been concerned with the negative effects of new technology on women and nutrition (particularly in relation to technology introduced as a part of the "Green Revolution"). These studies show how women have been forgotten when new technology has been introduced or how a successful technology for women's tasks has been taken over by men. Some of these aspects are discussed in chapter 4. In this section we will concentrate on the potential for improvement of the nutritional situation by the introduction of technology for women's activities in the food chain.

An increased focus on new technologies for women may influence household nutrition in several ways. Successful interventions in one of women's activities in the food chain can trigger change in another. Thus, technology which can save women's labour and increase productivity may be instrumental in more food flowing through the food chain as well as in releasing some of women's time and energy for other activities within or outside the food chain.

Technologies to ease women's work in food processing, preservation and preparation in the third world are among the least developed, yet they have a great scope for improving household nutrition (Tinker, 1979; Carr, 1981; Brandtzaeg, 1982). In a paper prepared by ECA (1978) estimates of time used by different societies for processing staple foods (maize and manioc) using manual methods such as mortar and pestle showed that this operation alone can take several hours per day. Labour saving technology could release women's time for other tasks, including child care and income-earning activities. Reduction of postharvest food losses has come into focus as one of the methods to alleviate hunger and malnutrition. Estimates of the percentage of food lost and scope for improvement vary a great deal between countries and regions (Carr, 1978). It has been estimated that technology applied to the storage, processing and preservation of various food stuffs should be able to reduce losses by 50 per cent, and increase food available on the world market by 10 per cent (National Academy of Sciences 1978, cited in Tinker, 1979). The objective of decreasing food losses can only be achieved if the women who store and process the food are reached with adequate training and appropriate technology.

Introduction of technology for making weaning food have been tried as a measure of increasing the nutritional levels of children. In a field study in India, Brandtzaeg (1982) introduced simple technology for making inexpensive weaning foods on a cooperative basis. The production was based on traditional ways of food preparation which was one of the reasons why it became popular among the women. It had a substantial effect on children's nutrition, which was shown by comparing the growth rates of children consuming the weaning foods with those who were not. However, the organisational part was not developed enough at the time when the author left the village, and the preparation of weaning foods came to a stop.

Action oriented nutrition programs for supplementary or improved weaning foods are now being tried out elsewhere. One example is a WHO/UNICEF initiated programme in Tanzania.

Technologies for food supporting activities, such as water and energy for cooking have obvious implications for the nutritional situation, both with regard to clean water supply, the possibility for boiling the water and the time used by women in these activities.

A number of reports and articles have focused attention on appropriate technologies for women (Carr, 1978; ECA, 1978; Tinker, 1979; Carr, 1981). These include discussions on suitability of different equipment and techniques in different settings.

The emphasis is on technology, which is simple and inexpensive enough for women's organizations to buy and run. Carr (1978) argues that most hand-operated crop processing machines used in Africa have proved more economically efficient than the more sophisticated imported diesel-operated machines.

Tinker (1979) points out that nutritional dimensions should be considered when introducing labour saving technology. She uses the example of milling. The incomplete milling through hand pounding leaves sufficient bran in the rice to provide the much needed vitamin B. She wonders if it is possible for a new technology to be devised, so that this source of nutrition is not lost.

Carr (1981) takes up, *inter alia* the very important issue of introducing labour saving technology to ease women's seasonal workload. Promising developments referred to in this report are the attempts to reduce seasonal postharvest labour bottlenecks by the introduction of equipment which would allow the harvest to be stored before processing. A greater focus on women's seasonal workload when introducing technology may have great implications for nutrition since, as we have shown before (see section 5.4), when the seasonal workload in food production or processing increases, the time spent on food preparation and child care is reduced.

The question of how women will allocate the time saved through introduction of technology has been discussed in a few studies. In a pre-project study in Ethiopia (Kebede 1978), the anticipated effects on women's work and nutritional status of children were discussed with the villagers. In the area where project expectations were highest, most of the men anticipated that the women would spend more time on housework, whereas a majority of the women said that they would spend it on income-generating activities as well as on housework.

Tinker (1979) refers to a number of studies where technology, utilized in women's organizations or movements gave women more time. In the "mabati" movement in Kenya women used the traditional rotating credit societies to accumulate cash to buy iron sheets, which were essential for collecting rain water. With the time saved from fetching water women increased their production of vegetables, chickens and pigs.

When women in Cameroon were released from their labour of grinding sorghum, they turned to community-based projects, such as enrolling in training programmes in cooking and improving farming techniques (Tinker 1979).

The organization, process and participation aspects are crucial both to how the technology is received and the changes it makes in the life and working situation of women. In this respect Tinker states:

Many of the "new" technologies presently being tried around the world have in fact been tried many times before. That is why the major focus today is on process and adaptation. No longer can it be assumed that a piece of equipment or a method of production can be packaged and dropped in a village where, like a genie, it will transform the quality of life (Tinker, 1979, p. 25).

Carr (1981) also emphasises that technologies should be tested and worked out by the target group.

As discussed by Palmer (1981), Stoler (1977) and Tinker (1979) a contradiction may arise between farm women's need for labour saving technology and the risk of displacement of landless women labourers. This point is particularly important with regard to nutrition, since the nutritional situation is often the worst in the households of landless labourers.

Studies from Bangladesh and Indonesia indicate that millions of women have lost their jobs through the spread of rice mills. A careful assessment of the needs of women of different socio-economic groups before the introduction of new technology is therefore needed.

5.6 Attempts to explain the different influences of women's food chain activities on household nutrition

In their reviews both Carloni (1984) and Leslie (1985) maintain that there is a fundamental difference in the focus with which researchers of different disciplines have approached the topic of women's work and child nutrition. Whereas the focus of the women-in-development community has been on *women* rather than mothers, the focus of the nutritional community has been on *mother's* reproductive and child care roles. They have used different concepts, methods and an entirely different set of problems.

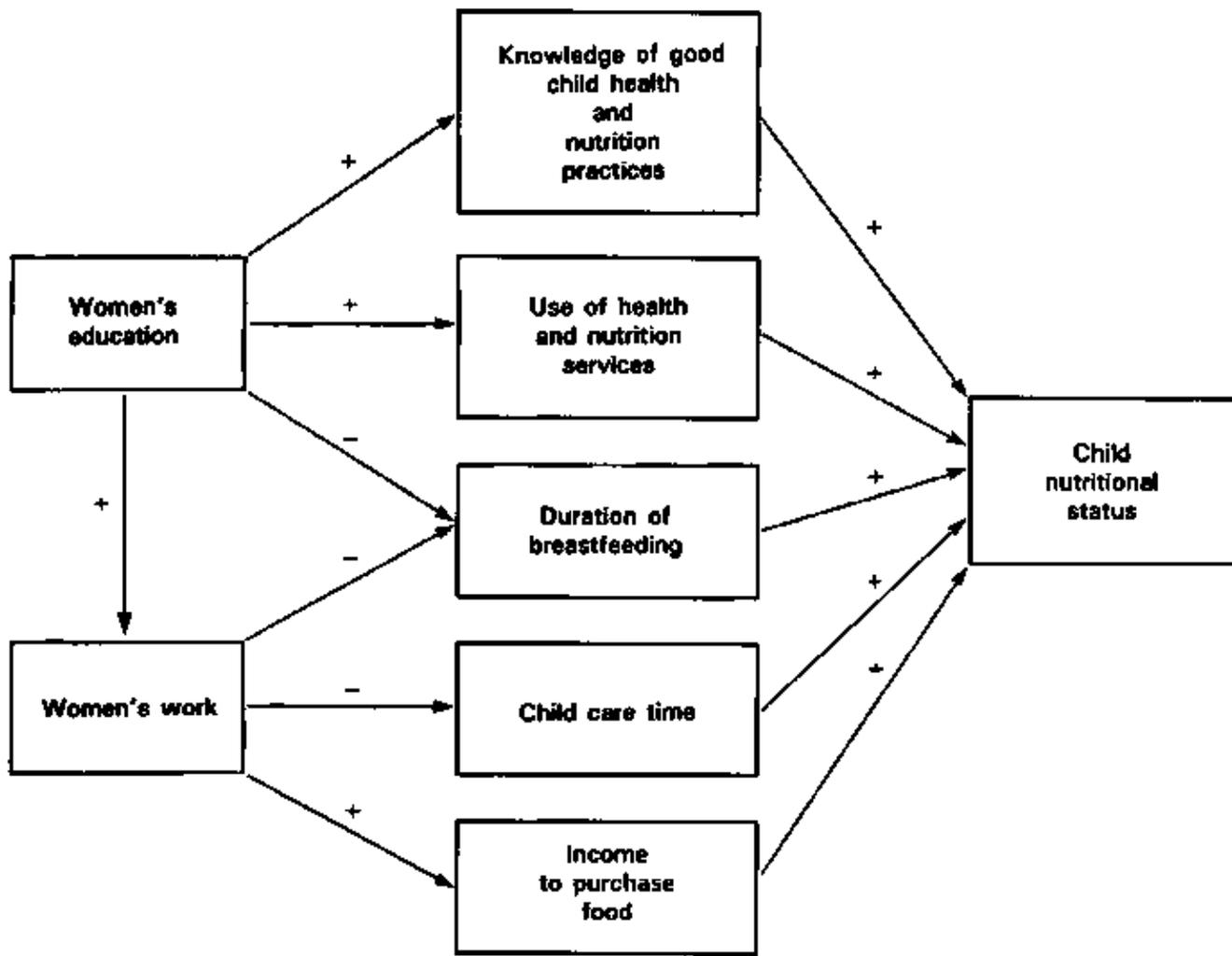


Fig. 5.1 A model of the linkages between women's education, women's work and child nutritional status.

Source: Leslie (1985).

The women-in-development community has been interested in such topics as women's role in food systems; women's need for an independent income; women's control over their earnings and the nutritional implications of changes in the sexual division of labour. Nutritionists, on the other hand, have been more interested in questions such as: do working mothers spend less time caring for their children? If children are entrusted to the care of someone other than the mother while she is away for work, how does this affect their nutritional status and health.

Seen in the perspective of the three areas discussed in sections 5.2, 5.3 and 5.4, the women-in-development community has been focusing more on the first two areas which are concerned with women in provision of food and their control over the food or income. The nutritionists have been more concerned with the third area which is related to the effects on child care and nutrition. Leslie points out that recently, there has been an increased dialogue between those groups. In fact she considers her paper both a beneficiary of and a contribution to that dialogue.

However, the contradictory findings in the research to date on the relationship between women's provision of food and cash, and child nutrition, reflect not only methodological and conceptual differences, but also the complexity of the relationship.

An obvious factor is the type of work women do: if they are involved in their own production, in marketing or in casual labour. As many of the authors have pointed out, casual labour is often the last resort for women, and shortage of food may be the very reason why women take up such work. If this is the reason, one may expect the households of these women to be nutritionally worse off than other households with which they are compared.

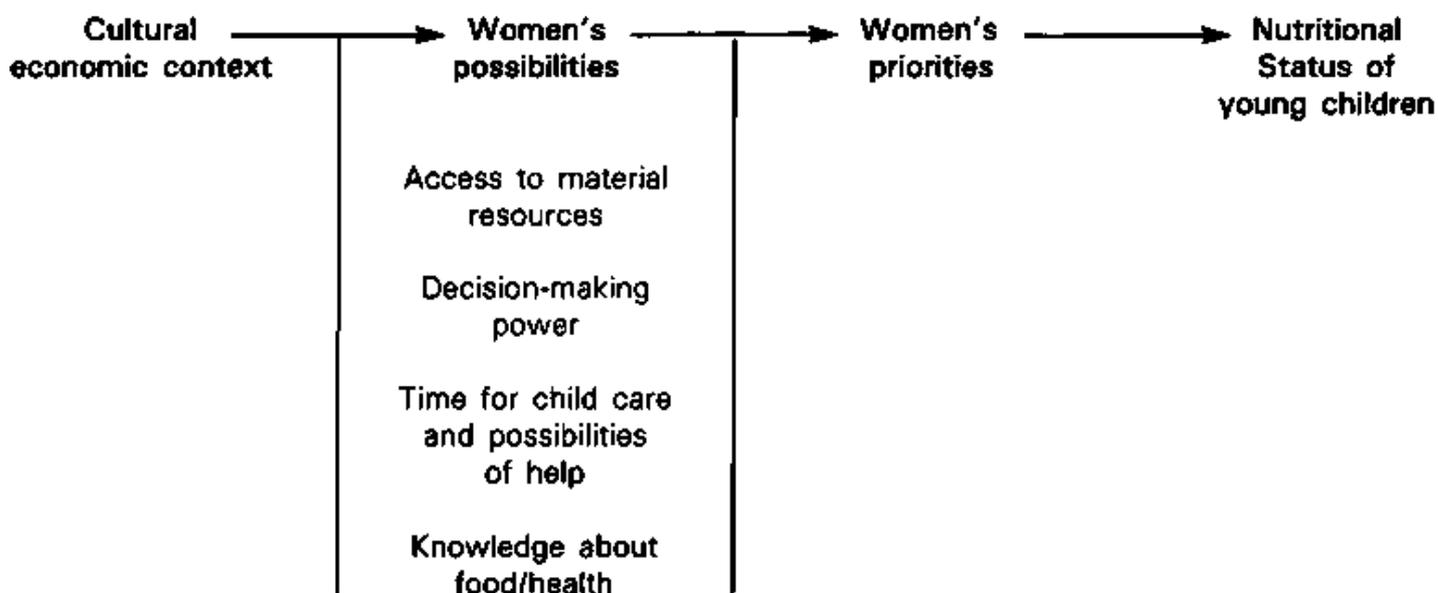


Fig. 5.2 Women as "nutrition intermediaries".

Access to material resources:

- income (men/women)*
- own food production*
- basic services*
- sanitary conditions*

Decision-making power:

- food vis-à-vis non food consumption*
- choices of foods*
- distribution of food*

Time for child care and possibilities of help:

- productive and reproductive tasks*
- division of labour between sexes*
- others taking charge, when women are ill or away from home*
- general assistance in household/care functions*

Food and health knowledge:

- traditional knowledge*
- formal schooling*
- public information*

Source: Wandel and Holmboe-Ottesen (1984).

Another important factor is the distance to work, and whether or not women can take their children along when they go to work. In rural areas women do several tasks simultaneously, some close to home and some further away from home. A strict division of "outside the home" and "in the home" work therefore becomes meaningless.

In a few studies, models have been suggested to clarify the factors determining the relationship between women's life and working conditions, and children's nutritional status. In fig. 5.1 which is taken from the review by Leslie, women's work outside the household is seen as having possible negative effects on child care and on the duration of breastfeeding, while it has possible positive effect on income to purchase food. Much emphasis is put on women's education, which is depicted to have a positive effect on women's working conditions as well as the knowledge of good child health and nutrition practices and use of health and nutrition services.

In fig. 5.2 which is taken from a study by Wandel and Holmboe–Ottesen (1984) women's potentialities as "nutrition intermediaries" are seen as determined by four main factors: access to material resources; decision-making power; time for child care and possibilities for help, knowledge about food/health.

In both these figures women's time, income (in food or cash) and knowledge are identified as the key factors determining the link between women's work and nutritional status.

Fig. 5.1 focusses on the linkages between mother's work outside the domestic sphere and child nutrition. Fig. 5.2 has a wider scope, showing the factors which may affect mother's effectiveness in the nutritional care of their children. Such models may help to identify important factors to include in a study of mother's work and child nutrition, as well as explain the basis for the differences found in the literature.

According to Leslie the effect of mother's employment on child care and feeding is determined by the relationship between the positive effect on income and the negative effect on time for child care and feeding. The question of whether or not the income is large enough to pay for a good substitute for the mother if she is away from home to work is not explicitly stated in this figure.

In the figure by Wandel and Holmboe–Ottesen the possibilities for help/relief in child care are explicitly stated. This will often depend on the presence of older children or other adult women in the household. Child work, particularly care-taking of small children is very common in developing countries. The effect on nutrition will depend on to what extent they are capable of taking on the responsibilities of absent mothers in food preparation and feeding.

However, this issue should not be seen only from the point of view of child nutrition. Child work may have detrimental effects in itself, such as may be caused by an excessive workload and when an older sibling, often a sister, is held back from school to take care of the small children in the household. This may lead to a vicious circle of low educational achievements and poverty. There are also many other aspects in relation to women's work in food chain activities, such as the effects on women's own quality of life.

Chapter 6. WOMEN'S FOOD CHAIN ACTIVITIES AND THEIR QUALITY OF LIFE

6.1 Scope

This chapter will examine how women's work along the food chain and their command of food and cash, resulting from such work may affect their own quality of life. Considerations for women's own life situation has important implications for the formulation of development plans and projects aimed at increasing women's productivity in the food chain and their effectiveness as family food providers. In this context it is necessary to take into account the possible conflict that may arise between women's expected role in providing nutrition to their families and the opportunities for improving their own quality of life.

Unfortunately the nutrition related literature has rarely dealt with the impact of women's food related work on the nutrition and health of women themselves. There has been a tendency of regarding women only as wives and mothers and not as individuals in their own right. The increasing demand for integrating both the interests of women and nutritional considerations into agricultural development makes it imperative that more is known about how women's activities in the food chain may affect their own welfare and life situation. The present chapter is an attempt to discuss some issues that are relevant in this respect. However, due to the lack of research in the area, this discussion is mainly based on documentation that does not deal with this problem area directly.

As depicted in figure 2.2 women's activities in the food chain influence their resource situation in two ways: on one hand, food and cash is generated through their food chain activities, but on the other hand women's labour and time are spent in the process. The food and cash generated as well as the total workload implied in such food-related work will in turn influence women's quality of life.

The main focus of this chapter will be on women's workload and its effect on the nutritional status and on other aspects of women's quality of life. How food and cash generated through food chain activities may influence their nutritional status will not be discussed, simply because the literature has not dealt with this topic. The reader is also referred to the two previous chapters which have discussed women's control of food and cash in relation to their role in the food chain and the impact on family food availability and child nutrition.

6.2 Women and the Basic Human Needs concept

As a point of departure for discussing possible impacts on women's quality of life, the concept of Basic Human Needs (BHN) will be used as defined by the ILO, World Employment Conference in 1976 (ILO 1976) in its proclamation of a strategy for development. The BHN approach to analysing women's conditions has also been suggested by the PAG-report (1977) and Palmer (1977). The latter has pointed out that the BHN approach to development must also take into account the unequal exchange relations between men and women as well as women's productive role, and not merely their reproductive function.

The BHN concept provides a universally relevant framework for analysing women's conditions, irrespective of socio-cultural differences. Two broad categories of the concept can be distinguished, the *material* needs (e.g. food, health, shelter, education) and the *non-material* needs (e.g. participation, cultural needs, self-realization). The BHN concept, particularly the non-material needs component, is often vaguely defined, and therefore difficult to operationalise. In the report to the World Employment Conference the concept is given somewhat further content by discussing it in relation to strategies for development:

A basic needs oriented policy implies participation of people in making the decisions which affect them. ... For example, education and good health will facilitate participation, and participation will in turn strengthen the claim for the material basic needs (ILO, op. cit. p. 32).

A BHN strategy especially geared towards women is also discussed, mentioning among other things, the need to ease women's work burden, further their economic independence and ensure a more equitable integration into the community (ibid. p. 61).

A further operationalisation of the BHN concept will not be attempted here, but rather a discussion in broad terms about certain elements of the concept as they relate to the analysis of how women's food related work affect women's quality of life. Such elements are: women's access to health and adequate nutrition, access to resources relevant for the procurement of food, access to education relevant for women's activities in the food chain, and opportunities for self-realization and participation which apart from being fundamental rights, are judged necessary for the satisfaction of the other basic needs.

Before discussing how various authors in the literature have dealt with the relationship between women's activities in the food chain and their quality of life, it will be necessary to high-light certain aspects related to women's role as the main providers of food and other basic needs within their families.

6.3 Women's status – women's priorities

One decisive factor determining not only family nutrition, but also women's opportunities for satisfying their own basic needs, is their status in a given society and the role they are expected to fulfil. The successful fulfillment of their role as main providers of nutrition to the family is particularly important to women in traditional societies, in that it is linked to their *identity* as women. In other words, women's food related household work is also a moral obligation tied to general conceptions of "male" and "female". The priorities that women make concerning allocation of their own labour, their cash spending and distribution of food between the family members may thus not only be dependent on their access to and control of resources, but also on the existing socio-cultural norms for women's role in society (Holmboe-Ottesen and Wandel, 1985).

Several authors have discussed women's "sacrificing role" in intra-household food distribution. Rizvi (1983) describes how girls in Bangladesh from puberty onwards learn to become the least demanding in the family and to give priority to the needs of the male members of the household when food is scarce. The same phenomenon was observed in Sri Lanka: The poor women took pride in being able to provide their husbands and children with satisfying and adequate meals every day, even if they had to work extra hours or reduce their own food intake (Wandel and Holmboe-Ottesen, 1984). Katona-Apte (1975) describes how women from southern India feed their husbands first, then the children (boys before the girls), and only then do they think of themselves. The best and most nourishing portions of the food are served to males. Maletnema et al. (1974) summarizes results from food consumption surveys in 5 villages in different regions in Tanzania and states that "food is made by women for men and often the better share in quality and quantity is given to men".

Anwar and Ijaz (1984) present data from a sociological study in Pakistan, clearly showing the subordinate position of women with regard to intra-familial distribution of food.

Both husbands and wives were asked which family members needed the most healthful foods, and both husbands and wives (wives even more so) responded that husbands most needed such foods. The food needs of infants were ranked much lower, followed by the elders. Wives were almost never mentioned as being the ones needing the most healthful foods, neither by husbands nor by wives.

Schofield (1979, p. 131) summarises the results of surveys from 898 villages around the world:

Our data indicate that in the family food distributive system, priority is usually given to males rather than females.

This clearly indicates that women's self-sacrificing role in food distribution is a universal feature.

There is evidence that the degree of discrimination against females may vary from one country to another. Findings from India, Bangladesh and Pakistan have revealed discriminatory feeding and health practices of favouring male children right from childhood (WHO, 1980; Chen et al., 1981). In Sri Lanka such practices vis-a-vis children seem not to exist. Data on prevalence of malnutrition from a field survey from the southern district of Sri Lanka showed no difference between boys and girls (Holmboe-Ottesen, 1983).

Ware (1981) reviews weight-for-height data as a measure of nutritional status among male and female children and adults in different African villages, finding no coherent pattern of difference between the sexes. She suggests that women may enjoy a better nutritional status in places where they have a major role in productive activities. This role may result in a reluctance to accept an inadequate share of the family food supply. This notion is supported by Hamilton et al. (1984) and Katona Apte (1983) who points out that the extent to which women contribute income to the family, may determine their share of food among the family members.

Food taboos specifically directed towards women, especially pregnant and lactating women are common throughout the world. In reviewing this phenomenon Hamilton et al. note that restrictions are characteristically put on protein foods particularly needed by women in pregnancy and lactation. They conclude, however, that little is known about the nutritional importance of these taboos during other phases of the life cycle. As pointed out by Ware (1981), it is interesting to note that few traditional cultures seem to recognize the increased nutritional needs of women during pregnancy and lactation. She exclaims:

The suggestion that the best food should be given to young wives is a revolutionary one in most traditional cultures where the best is reserved for old men (p. 60).

There are, however, important exceptions to this general picture of little recognition for pregnant women's nutritional needs. For example, in Sri Lanka women are pampered and given special nutritious foods both during pregnancy and lactation (Obeysekere, 1963).

A study by G. Lewis in 1975 may give an indication about how role expectations influence women's priorities as to catering for their own health. Lewis found that women in New Guinea were expected to be very ill before they gave up their work. Men, on the other hand, lied down simply when they felt unwell. This point is underlined by findings from India, Korea and Bangladesh where parents put less priority on the health of female children than on that of male children. For example, girls are taken less often to the hospital for treatment than boys (WHO, 1980).

Ware sees the "underinvestment in females" as a general feature in the Third World, pertaining not only to food and health but also to other basic needs, such as education, time and affection that female children are given. In a report to the World Conference of the UN decade for women in 1980, WHO states:

Attitudes which discriminate against girls from infancy to adolescence have negative influence on their potential contribution and participation as workers, mothers and members of society (p.i.).

It can thus be concluded that women's subordinate role and status in society reduces the potential that women have for catering to their own needs through their food chain activities. In the conflict that arises between fulfilling their role as food providers for their families and catering to their own needs, the latter aspect is bound to lose out. In this way women can be said to contribute to reproducing and perpetuating their subordinate position in society. It is therefore evident from a policy point of view that apart from attempts to uplift women's material standard of living, attitudinal changes also have to take place both among women and men.

6.4 Influence of workload on women's health and nutritional status

a) Women's health and nutritional status

Despite the biological advantage that women have over men in terms of longevity, this fact is not reflected fully in life expectancy and mortality statistics for women in most developing countries. Life expectancy in these parts of the world is usually lower for women than for men in age classes below 50 years (WHO, 1980; Ware, 1981; Hamilton et al., 1985). This can be explained by higher mortality rates for women in childbearing age (between 15–44 years) and a generally higher mortality rate for female children above 5 years. In India and Pakistan, the mortality rate among girls aged 0–5 years is higher than for boys in the same age group, despite the fact that infant mortality rate among boys in most countries is substantially higher than among girls. This indicates discriminatory practices towards girls already from birth.

Complications associated with child birth are among the five leading causes of death for women aged 15–44, and nutritional factors have been associated with these complications. Lack of nutrients, such as calcium and vitamin D, may cause deformities of the pelvic bones resulting in difficulties during child birth (WHO, 1980). Nutritional anemia is also listed as one of the major causes of death among women (Hamilton et al., 1985). It is estimated that at least half of the non-pregnant and two-thirds of the pregnant women in developing countries are anaemic (WHO, 1980). Anemia has been shown to affect the psychological and physical health. It increases the susceptibility to diseases, lowers resistance to fatigue and affects working capacity. Studies are quoted by Hamilton et al. (1985) where women's working capacity and endurance were significantly increased by the supplementation of iron.

b) Influence of workload

Studies dealing with the relationship between women's workload and health, have most often looked at how the workload influences *child* nutrition and health. This indicates that the nutritional and medical professions have been more interested in women's nutrition from the point of view of child bearing and lactation, rather than showing interest in the health of the women for their own good. However, many of the studies in relating women's work to child health may also give indications as to the effects of this work on women's own health. For instance, studies relating workload in pregnant women to low birth weight in their children illustrate this point. Low birth weight is not only an indicator of the child's nutritional status but also of the mother's.

It can be assumed that the workload can affect women's nutrition and health status both in a direct and indirect way. The direct effect could be nutritionally related, as when increased energy use in heavy work is not matched by a corresponding increase in food consumption, or it could be a "wear and tear" effect causing body pains, arthritis or premature deliveries. The indirect effect could be mediated through changes in women's diet or dietary patterns, which may occur during periods of heavy work.

As pointed out in the two previous chapters, several studies have shown that women have a heavy workload, and that it varies with seasons. The workload is especially high in peak agricultural seasons for women who participate in the fields. The total time women allocate to work on a yearly basis, seems to average about 8–10 hrs a day (Bério, 1984a; Tobisson, 1980; Brun et al., 1979). In peak seasons their total daily work time can amount to as much as 15 hrs (Palmer, 1981). However, time allocation studies do not give a clue as to

the energy that women put into their various work tasks. Such information would be necessary to judge the "heaviness" of women's work burden. Bério (1984b) has calculated the energy expenditure for men and women based on time-allocation data from a national survey in the Ivory Coast. Her findings showed that the energy expenditure over a week's period was higher for women than for men. (A similar finding was done by Haswell (1981) in Gambia.) More interestingly, Bério's computations proved that women in the Ivory Coast spent more energy on the average, than what has been set as the standard level of heavy physical activity for women by the FAO/WHO expert groups on energy and protein requirements. This was so, despite the fact that the time-allocation data were collected in a period which was not considered to be the peak season for agricultural activities (women's total work time being 7 hrs).

Bleiberg et al. (1980) estimated the energy expenditure by season of female farmers in Burkina Faso (Upper Volta). In the dry season the women were found to have a total daily expenditure classified as moderate – very active, according to the FAO/WHO grading system, while in the rainy season their energy expenditure was classified as exceptionally active. The results indicate that women have much heavier work in traditional societies than what has been supposed.

It is reasonable to assume that such heavy work burden will affect women's health. A good example of women's hardship is described by Haswell (1981) from her field work in Gambia: When women returned from working in the fields they collapsed from overwork and lack of food.

The best documentation on the relationship between relating women's work burden and their health, concerns pregnant women. In a cross-cultural study of 202 societies, Jimenez and Newton (1979) show that the most common pattern of work during pregnancy in traditional societies was that of continuing full duties until the onset of labour. However, the authors also point out that there are some traditional societies where women are relieved from performing heavy tasks, as for example, in parts of India and Sri Lanka. The cross-cultural study also showed that in more than 1/4 of the societies women returned to full duties 1–7 days after delivery, while in 1/2 of the societies women returned to full work after 2 weeks. The traditional Asian societies seemed to be more restrictive in regard to a new mother's resumption of duties, probably because women here are not as involved in field work as in e.g. Sub-Saharan Africa.

Studies on the relationship between women's workload and weight gain in pregnancy or low birth weight in infants indicate that heavy workloads do affect women's health. Thomson et al. (1966) found that all women in a remote village in Gambia tended to lose weight during the peak of the agricultural season and to regain this weight in the period with lower activity level. In the period of low activity the average weight gain of pregnant women was 5.5 kg, while in the peak season it was only half of this. Another study from Ethiopia (Tafari et al., 1980) confirms these results, finding that women engaged in heavy labour had a weight gain in pregnancy of 3.3 kg, while less active mothers gained 5.9 kg. The difference in the mothers physical activity also appeared in the birth weight of the children being delivered at full term. The "heavy work" children weighed 3060 g, while the "less activity" children weighed 3270 g. A relationship between high workload and low birth weight has also been found in India (Rajagopalan et al., 1981).

It has been shown that low weight gain during pregnancy, low birth weight, and weight losses during seasons with heavy work is caused by a combination of high workload, low food availability and increase in infectious diseases (Hamilton et al., 1984). Schofield (1979) examined data from 25 African villages and found a significant difference between the percentage fulfillment of energy requirements in the peak season for agricultural labour and the low season in the village populations. This was related to a difference in energy intakes and not in requirements, the reason being that the estimates of energy requirements were based on the nonworking part of the population. The data indicate an overall reduction in food consumption in the high agricultural season. Haswell (1981) in her study of Gambia found the lowest food intake among the women in the preharvest period, the peak season for work, when women's energy expenditure rose fourfold compared to the season with the lowest work. Thus an energy deficit was created which caused weight losses in women.

Seasonal variations in weight have been shown for many societies (Bleiberg et al., 1980; Chowdury et al., 1981), and also for pastoral societies (Nestel, 1985; Galvin, 1985). Both men and women tend to lose weight, however women seem to lose more weight than men (Hamilton et al., 1984; Galvin, 1985). Some studies indicate that not only the energy deficit created by a combination of low food intake and high workload may be detrimental to women's health, but that high workload in itself may influence their health negatively. Bantje (1980) showed in a study from Tanzania that even when food was plentiful, but agricultural labour demanding, women had a high risk of giving birth to low weight children. The birth weight appeared to be affected by changes in labour conditions even as late as just before delivery. This indicates that high labour intensity could lead to premature deliveries. A similar phenomenon has been observed in Sierra Leone. As

described in the previous chapter, Tommy (1980) found that the survival rate of infants born to women operating heavy farm tools while pregnant was lower, than for infants whose mothers had used lighter tools or worked less frequently with heavy tools. Data from Thailand show a doubling or a trebling of the incidence of miscarriages in women during the seasons for rice transplanting and harvesting (FAO, 1984c).

A heavy workload for women may also lead to a poorer diet, not only for their children and other members of their families (as discussed in previous chapter), but also for women themselves. The diet may be poor because there will be less time for preparation and cooking. As Schofield (1979) points out, the combination of low food availability and less time for food preparation during peak agricultural seasons, may result in meals that are less in quantity, less varied and less well prepared. Meal frequencies have also been reported to be reduced. Bleiberg et al. (1980) found in Upper Volta (Burkina Faso) that lunch was skipped because women were working in the fields at noon. The PAG report (1977, p. 81) quotes a study by Thompson and Rahman in Gambia where women were involved in swamp rice production to demonstrate the detrimental effect of women's work on child nutrition:

When the mothers were heavily engaged in farming, those who did not cook the morning meal might go for days and almost never see their children. At times they left early in the morning when it was dark and returned after sunset.

From this account one may really wonder when women themselves had time to eat. It is reasonable to assume that this type of work pattern will not only affect child nutrition, but also have detrimental effects on women's own health.

6.5 Women's time use: Potentialities for satisfying own needs

There is a general lack of documentation that directly deals with how women's work in the food chain affects their Basic Human Needs such as access to education, social services and opportunities for participating in community life. It is, however, evident that women's time constraints limit their opportunities to participate in any activity apart from their primary tasks in household and food-related work.

The universal pattern, as evidenced by time allocation studies is that women have less time than men to spend on their personal needs (Skjønberg, 1981; Hamilton et al., 1985; Bério, 1984a). Bério (1984b) sums up from analysing men's and women's allocation of time in the Ivory Coast:

While women work more, men are left with more time for rest, leisure and social activities, i.e. for most decision making and self-promoting activities at community level.

Skjønberg (1981), in her year-round time allocation study from Zambia, describes the implications of the discrepancies in women's and men's leisure time in this way:

Perhaps more than any other data, the amount of time spent on "leisure" throws light on the obligations and opportunities that mark the sex roles in this community. While men spent 40% of their recorded time on "leisure activities", women spent 23%.

In a typical oral society, being informed and having decision-making power are often a matter of "being present", but women often find themselves too busy to participate in probing opinions, gathering information and forming social networks.

Several researchers report that females spend less time in education than males (Bério, 1984a; Brandtzaeg, 1982; Palmer, 1985b). This pattern holds true both for school-age children and for adults. The main reason for keeping girls out of school does not seem to be the cost of education or conservatism, but rather the family's dependence on girl's labour at home and in the fields (Bério, 1984a). Daughters are, from an early age (often from 5 years) helping in the home, looking after small children and assisting women in the field. Usually girls are assigned responsibilities much earlier, and work longer hours than the boys (Safilios-Rotschild, 1980; Bério, 1984a). Also the long working hours of the women will render little time to spend on educational activities. Palmer (1985b) suggests that the poor attendance of women in literacy classes, compared to men, is due to their time constraints.

The lack of time is generally considered to be a serious constraint to any attempt to bring women into the mainstream of development. As pointed out in many studies, technological modernization in agriculture has

often had the effect of increasing women's work burden, while reducing men's workload. Development projects aimed at increasing the participation of women have therefore had limited success when they have implied further demands on women's time. The result of such efforts has been either to increase women's workload and make their working day longer, or to have little participation from women because of their already heavy time constraints (Bério, 1984a; Hamilton et al., 1984). For example, Palmer, in her Nemow case study (1985), points out that the nutritional advice offered on cooking and diet by extension workers is not always taken, partly because women lack time for implementing such advice.

Introduction of techniques and tools that can reduce the time and labour that women spend on certain tasks in the food chain, may have the potential of reducing the drudgery of women's work and give women more time to spend on other activities. However, studies show that this extra time is not commonly used for leisure or for increased participation in community affairs. Usually such time will be spent on family needs, such as cooking and child care or on production and income-generating activities. Reviewing the possible effects of a proposed food and nutrition intervention programme in Senegal, Carr (1979) put forward the hypothesis that time saved for women in water collection will be devoted to more work on their husbands' fields. As pointed out in chapter 5, studies on seasonal variations in time allocations reveal that when women do not have heavy work in the field they spend more time on cooking, food processing and income earning activities, such as beer brewing.

The main picture emerging from the literature seems to be that women, when left with extra time after fulfilling their obligations as housewives and mothers, will put high priority on activities that can generate extra income to the household. Caughman (1980) reports that women in Mali spent more time in income-generating activities, when they were relieved from part of their domestic drudgery. In a pre-project study in Ethiopia women were asked what they would do with the time saved after installment of improved water supplies. The majority of women answered that they would like to spend the extra time on income-generating activities (cottage production) as well as on housework (Kebede, 1978). Also in Sri Lanka (Wandel, field data) women were found to spend available time, in between other household chores, on weaving palm leaf thatches and straw mats for sale.

As a conclusion it can be said that women's time is to be regarded as a scarce productive resource. Devices or organizational arrangements that can reduce the time and labour that women spend on certain tasks in the food chain activities, may increase women's productive potential. This may also improve women's potential for catering to their own needs, although this opportunity is not always used. Apart from women spending less time and effort in work that can be detrimental to their health, more time can be spent on activities such as income generation, education and learning skills. As pointed out earlier, this may increase women's status and their command of food and cash as well as their bargaining power vis-à-vis their men. A potential may thus be created allowing women to cater for their own needs. More research is however needed to throw light on women's priorities in time allocation as a result of introduction of labour-saving technology.

Chapter 7. AREAS OF CONFLICT AND CONGRUENCE CONCERNING WOMEN'S ROLE IN THE FOOD CHAIN: SOME POLICY ISSUES

A development strategy based on the Basic Human Needs approach, which also includes considerations for women, has been suggested by the ILO. The strategy takes into account two aspects of women's life and work:

There are thus two facets to a basic-needs strategy for women in developing countries. One is to enable them to contribute more effectively to the satisfaction of their families' basic needs, within the framework of their traditional responsibilities. The other, which is a fundamental need of the women themselves, is to ease their work burden while furthering their economic independence and their more equitable integration into the community, beyond the narrow circle of the family. ILO (1976, p. 61).

These two facets, as they relate to women's food-related contribution to basic human needs: their family nutritional needs and their own needs, have been discussed separately in chapter 5 and 6. In this chapter we will attempt to point out possible areas of conflict or contradiction of relevance from a policy point of view, when both these facets are taken into account.

The previous chapters have pointed out the complex relationship between women's food chain activities and nutrition. A finding that has important policy implications, is that women's food-related work can have both

positive and negative consequences for family nutrition and for the fulfillment of their own basic needs.

On the positive side, a greater participation of women in food production and income generation may: 1) increase total household food availability, including improved access to a more varied diet, 2) give women more control of food and cash in the household and 3) increase women's status and decision-making power.

As pointed out in chapter 5 and 6, women's participation in productive activities tend to improve their economic value and this may improve their rights to household resources, including food and cash. There is evidence that the cash and food that women generate themselves are more likely to remain in their own control. In addition, many studies have shown that women put higher priority on their families' basic needs, than men. Therefore, the more control women have over household food and cash, the more potential there is for satisfying the basic needs of their children and themselves.

On the negative side, greater participation in food production and income generation may increase women's workload to the extent that time and energy available for other necessary activities, both within and outside the food-related field, will not be sufficient to secure the basic needs of their families or themselves. In addition, the physical labour involved may in itself be so heavy that it is detrimental to the health of women as well as for the unborn they may be carrying.

Results from studies referred to in chapter 5 indicate that in societies where women have a very heavy workload, which is often the case when they are involved in field work, there may be time constraints on women's opportunities to prepare and feed adequate food to their children. In chapter 6 it was pointed out that this lack of time also could affect the diet of women themselves. Studies reporting higher incidence of premature deliveries, miscarriages and weight loss in peak agricultural seasons indicate the detrimental effects of heavy physical work on women.

Whether the positive effects of women's participation in food production will offset the negative effects, depend on a variety of factors, of which the *organizational arrangements* around the food chain activities, both at household and community level, are the most important (see figure 2.2 and its explanation). Such arrangements are culturally founded and vary with the local context. However, research has shown that such arrangements may change as a result of developmental processes, including those generated by aid projects or programmes.

The extent to which arrangements exist that allow women to draw on family labour for their productive and reproductive tasks will determine on the one hand, their effectiveness in generating food and cash, and on the other hand, the size of their workload. In this respect, the participation of men in household subsistence activities, such as production and processing of food for home consumption, collection of firewood and child care, may be of utmost importance for the satisfaction of all family members' nutritional needs.

The contribution of men to household food availability should not be underestimated. In female-headed households women have more obligations to fulfil and a higher workload, because of functions they have to take over due to the absence of men. While the presence of men in the household makes women less free to make their own decisions, men will on the other hand contribute with their labour and cash income. The lack of male contribution is the main reason why women-headed households in general are nutritionally worse off. This fact implies that men's contribution to family subsistence is substantial, even in places where women traditionally have most of the responsibility for providing food to the family. In a policy perspective, this implies that more emphasis should be put on how to maintain or increase men's contribution to the household food availability without decreasing women's control over the food supply. Organizational arrangements at community level may also enforce the positive nutritional effects of women's participation in food production and minimize the negative ones. For example, community child care facilities and cooperative arrangements for production and processing of food may render women more effective in their food chain activities. The importance of such arrangements is discussed in chapter 8.

Another important factor in determining the nutritional impact of women's food-related work is the technology available for each sequence of activity in the food chain. Labour saving equipment or methods may render women more efficient, and at the same time minimize the negative consequences of an otherwise heavy workload. Labour-saving technology for women's food-related work is therefore an important measure which includes both the above-mentioned facets of women's lives.

Women's various tasks and obligations related to the food chain, may be the basis for conflicts in terms of different priorities and needs. This is especially true when women's time is constrained due to a heavy burden of work. Such conflicts may be limited to alternative allocations of time and resources within the food chain,

such as when women prioritize work in the field over food preparation and child feeding. Conflicts may also arise between activities related to the food chain and other spheres of women's lives and activities.

A crucial conflict is tied, on the one hand, to women's moral obligation to fulfilling their role as housewives and mothers to the utmost of their capacity; and on the other, to safeguarding their health and nutritional needs and allocating time for activities that can strengthen their position in society and improve their decision-making power. In many instances, women's role as food providers can be seen as a main hinderance to the integration of women into the mainstream of development, and thus to their possibilities of achieving equal status with men.

It has been pointed out, however, that much of women's work in the food chain is considered a moral obligation and thus tied to their identity as women. Such work therefore contributes to affirming women's position as good housewives and mothers. For example, it has been argued that, in the African context, women's participation in food production is an integral part of the African notion of "motherhood" (Bryson, 1979).

To conclude, areas of conflicts can be discussed at two levels. Firstly, at the subjective level, which concerns women's own assessments of their situation: the different responsibilities and obligations they perceive to be tied to their roles as housewives, mothers and members of society, and their stated priorities based on these perceptions.

Secondly, at the objective level, which on the basis of development concepts, such as Basic Human Needs and Equal Status, may lead to a different assessment of women's opportunities and needs, and of the possible conflicts that may arise as a result of efforts to improve the women's situation.

Development planners may thus face a dilemma when planning for efforts that will render women more productive or effective in the food chain, as well as improve women's quality of life. They may have to identify possible areas of conflict even beyond women's own assessments, because the women are inclined to put less value on their own needs. Women will usually not question their traditional role of subordination without being made conscious of the problem. Therefore, if women are asked about their priorities concerning their activities in the food chain, they usually tend to request assistance that can help them in catering to the nutritional needs of their family members, and put less priority on their own needs.

Chapter 8. SOME CRITERIA FOR SUCCESSFUL OPERATION OF WOMEN-ORIENTED PROGRAMMES

Literature dealing with projects, which have been successful in promoting women's development, is very limited. This is partly due to the fact that it is mainly in the last decade that women have received special attention in development work. Thus, many of the projects aimed at women have not yet reached the point where it is possible to pass judgement about their success. Furthermore, when projects have been evaluated, much of the attention has concentrated around flaws in the project design or implementation and on recommendations for alternatives which might more successfully address the needs of women.

Less attention has been given to the few successful project experiences. It reflects the tendency of evaluators to become more interested in the shortcomings of development projects and be less conscious about the potentialities of learning from aspects that seem to contribute to success.

Furthermore, there is little basis for generalisation about women-oriented development, since women have such varying and multifaceted responsibilities with large possibilities for conflicts. However, despite such limitations it has been possible to identify some features which seem to increase the likelihood of success for projects aimed at including women in the development process.

In the following section some criteria for successful operation of women-oriented programmes are discussed, based on issues and problems which have emerged from the analysis of the literature.

a) Consideration to be given to intra-household relations, with special emphasis on gender relations

It has been pointed out that development for women should not only be viewed in terms of measures which could lead to an increase in their income and reduction in drudgery, but also as an important means of social change in the life of the entire rural family (Date-Bah and Stevens, 1981). Important factors to this end are the complementarities between women's and men's roles and activities. Thus, the role of men cannot be

neglected in development efforts for women. Before starting new activities for women it is important to find out, not only how these activities will fit into women's total work responsibilities, but also into those of men. In all societies men have traditionally had certain responsibilities for family survival and well-being. It is important that planners, working with development for women, do not become so eager in promoting women's independence that they are instrumental in relieving men of their responsibilities towards their families.

Similarly, nutrition education aimed at both men and women may be a far better approach than if it is aimed only at women. Priorities in food acquisition and distribution are often based on status and power relations within the household. It is therefore important that nutrition education programmes take these relations into account and stress the fact that both the father and mother have responsibilities for the welfare of the family. Furthermore, development efforts could reinforce traditional areas of cooperation, or promote new areas of cooperation. For example, in societies where men have substantial earnings from cash crop production and women lack the money needed for production as well as being burdened with heavy workloads, it would be more feasible to consider ways of increasing cooperation in responsibilities and reducing women's workload, rather than introducing new labour consuming activities for women.

The need to consider women's activities as part of a household and community has repeatedly been pointed out in relation to success stories. In a collection of successful cases of rural women's income-raising activities (ESCAP/FAO, 1979) many of the authors stressed the important aspect of acceptance and support from the men and the community at large. Furthermore, in some cases the whole family was engaged in the activities, even though they were started by women who were mainly responsible for the outcome. In fact, the cooperation within the family in the work was crucial to the success of some of the projects.

Thus, there need not be any contradiction between women's projects and the need to consider the potentials for cooperation within the family. A question which has received some attention is whether projects aimed exclusively at women or those where women are included in the target group are of greater benefit to women. Projects aimed directly at women may be more effective in reaching women. On the other hand, such projects tend to have smaller budgets and receive less priority as indicated in an analysis of FAO projects for women (Carloni, 1983). Projects aimed exclusively at women also run a higher risk of treating the problems of women as isolated from the rest of the community.

Instead of ear-marking certain projects for women it has been suggested that the division of labour in local farming systems should be taken as a starting point for identifying those who should receive assistance (FAO, 1984a). We would like to specify this suggestion in line with the framework presented in this report. Thus, the starting point should be an analysis of how food production, handling and consumption are organized within the rural household and an identification of potentials and constraints in relation to these operations, including potentials for cooperation between the sexes. If planning is based on such information and sufficient attention is given to the role of women, there will be less need for separate women's projects.

b) Necessity for sensitivity and flexibility in planning and implementation

Sensitivity and flexibility in project design as well as implementation have been recognized as key variables for success in development projects aimed at women. Sensitivity is the capability to respond effectively to the needs of the target women in the rural areas; flexibility connotes the ability for making changes in project design and implementation when it is deemed necessary.

In her review of successful and unsuccessful efforts in introducing appropriate technology for women, Aklilu (1983) notes that NGO's in general have shown more sensitivity and flexibility in planning and implementation than government-sponsored projects. They have therefore often been quite successful in promoting rural women's development. The degree of success appears to be even higher when the projects aimed at rural women are undertaken by women's NGO's.

Several reports discussing factors contributing to success, mention the importance of having women, sensitive to the needs of rural women, in strategic positions in the target country and within the headquarters of aid organizations (Cloud, 1985; Aklilu, 1983). Such an arrangement contributes towards continuity in the promotion of development for women. Such continuity is a very important issue, in view of evidence indicating that measures aimed at women often receive less priority and therefore tend to be dropped in the later stages of the project process (Carloni, 1983; Cloud, 1985).

In a study assessing a number of IFAD¹ projects (IFAD, 1985) it was noted that the largest problem was a lack of continuity between preparation and appraisal of projects. According to this report the best results of development projects for women were achieved when WID² experts were teamed up with IFAD mission

leaders in the identification and preparation phase. In this way the mission leader acquired knowledge and experience on crucial issues for women's integration in development. The utilization of IFAD personnel for this purpose was considered important for continuity during subsequent phases of the project.

¹ International Fund for Agricultural Development.

² Women in Development.

In addition to basic knowledge of the situation of women in the project area, sensitivity and flexibility require a system of monitoring and reporting where the involvement of women is considered as an integral part of the project.

c) The importance of participation and organization

Participation of rural women in all stages of the project process is generally considered the most important factor for success. Participation is a sign that the development activities have some support from local women, which is necessary for the success of the development project.

In the analysis of experiences with "appropriately" introduced technology some fundamental similarities were found in the successful experiences (Aklilu, 1983). It was the social context within which the technologies were introduced that presented a striking consistency: in the target group's motivation, in their level of organization, and in the provisions made for the participation of the beneficiaries at different levels of the project, from its formulation and design to its implementation.

Participation of women may take different forms. Projects planned "from above" may seek participation from the women in order to determine women's needs and priorities and to receive feedback on ideas for improvements in women's work. This should be the minimum requirement, in view of the fact that it is essential to allow for trial and error. It is also important for women to be able to evaluate the extent to which they have benefited from a programme and compare this finding to other alternatives for their allocation of time.

It is when women's participation leads to self-sustaining activities that development efforts have the best potential of leading to long lasting effects. In some of the successful projects women have been able to get access to land, markets or the banking system through raising awareness and providing training for organization. This has contributed to a feeling of self-reliance, which has had implications for women's position in the community as well as the household (ESCAP/FAO, 1979).

The importance of women's participation in rural organizations has been discussed in a number of reports. Staudt (1979) states that while economic growth and redistribution, better planning and design, and more accurate assessment of women's work in a given society are important considerations, these measures alone do not adequately meet women's needs, because they leave essential power balances untouched. Organizational activity is seen as a possible means to counterbalance the disparity in access to power and resources within the community.

One of the problems often encountered in organizational work is that the power structure which exists in the community will be reflected in the organization. Two main sources of imbalance have been discussed: the dominating role taken by men in mixed organizations and the tendency of women from higher socio-economic strata to dominate low-income rural women.

Avoidance of domination by men is often sought by the establishment of separate women's organizations. This has in many cases been crucial to the success of women's projects, as was the case with the women's farming cooperatives discussed by Safilios-Rotschild (1981). However, separate women's organizations may have the disadvantage of dividing interest groups and organizations or further marginalizing women's interests through isolation.

An important guide to answering the question of separate versus integrated organization in project design is the existing relations and division of labour between genders within the community. In a review of women and participation, Staudt (1979) points out that when women embark on projects without sufficient resources and power to press claims and acquire bargaining leverage, the result is often low priority for the women's interests. Therefore, a separate organizational activity is often appropriate in the early stages of development programmes for women in order to acquire organizational skills and to promote a wider acceptance of the importance of women's interests. Ultimately, promoting organizational activities based on people's interests,

work and occupations, rather than on gender, may be the most feasible means of reaching development goals, for men and women.

Even though establishment of women's organizations is often suggested as a means to include women in development processes, the problems pertaining to power structures within these organizations are less frequently discussed. Only a few reports have focused on the problem of socio-economic differentiation in women's organizations.

In discussing women's farming cooperatives Safilios-Rotschild (1981) sees the exclusion of women of high status, who tend to dominate women's organizations, as an important condition for success. She recommends that a membership requirement of contributions of physical labour, which are not compatible with the higher status of better-off women could contribute to the establishment of cooperatives which can be controlled by and successfully benefit, low income rural women.

Staudt (1979) maintains that elite leadership might have some advantage in certain instances, in that it brings skills, influential contacts, the potential for in-country institutionalization, and consequently, increased leverage in the larger political context. However, only to the extent that equality and solidarity among women are more prevalent than among men in a given society, has this organizational set-up a real prospect of promoting effective and collective action. Staudt sees three possibilities in project development which can add to this prospect:

- i) leaders adopting a developmental, rather than charity attitude;
- ii) internal group practices ensuring accountability to, and participation of, members;
- iii) group goals which, when accomplished, allow for a more equitable distribution of benefits among members.

However, as Staudt also points out, many societies are characterized by wide socio-economic disparities; this makes it less likely that the particular interests of the poorer groups of women will be voiced by more well-to-do groups. One must always ask the question, whether all women are represented or whether the interests of specific groups are represented.

Another aspect which is particularly important with regard to women's organizations is the question of training. Aklilu (1983) found that in all the successful projects in her study a component of leadership training figured quite prominently. Staudt (1979) points to the possibility for training in group processes, emphasizing democracy and accountability to members. It has also been pointed out that rotation of leadership and training with relatively short intervals have successfully been implemented in order to avoid dominance and to spread opportunities for learning.

The advantage of strengthening already formed and functioning women's groups by provision of technical assistance and credit has been discussed (Date-Bah and Stevens, 1981; Safilios-Rotschild, 1981). In most Sub-Saharan African countries there is a long tradition of women's associations and groups for a variety of purposes. Examples of such women's groups are the rotating credit clubs to which members make regular contributions. The total sum collected is given to each member in rotation, thus providing the women with interest-free capital for their activities. It has been suggested that leaders of these groups could be selected and trained in matters important for women in their area, for example the use of improved technology (Date-Bah and Stevens, 1981). These leaders can, in turn, go back to their groups and disseminate their acquired knowledge. The use of these existing groups to affect developmental change may be more effective than the establishment of new ones. Women are less likely to be skeptical to the new innovations, if launched within a familiar context.

d) *The need for interaction with rural women on their own terms*

A number of reports have emphasized the importance of reaching women in projects which include measures that may also be of relevance to women's activities, not only to men's (Carlioni, 1983; Cloud, 1985). In this context, there is a common agreement that agricultural and extension services in general have failed to reach rural women.

The reasons for this failure are numerous, from cultural barriers that prevent direct interaction between male extension workers and women, to a general neglect of women farmer's need for agricultural services. One of the problems of reaching rural women is the notion of women as working solely in non-productive activities

within the home. Thus, home economics agents have been employed to cater to women's housekeeping needs whereas agricultural extension agents address the needs of male farmers.

However, women's needs for extension and training cover the whole spectrum of food chain activities. It has been pointed out that the division between home economics agents and agricultural extension workers does not reflect the real needs of rural women. More integrated approaches to rural extension service have been proposed; for example the need for broader training and overlapping curricula in the training of agricultural agents as well as home economics agents (FAO, 1983b). A related proposal is to consider novel ways to train more female extension agents, for instance through reducing distances to training centres, day studies instead of boarding courses and provision of childcare facilities whenever possible.

Several authors have attacked the problem of how to induce extension workers to reach both women and men. Staudt (1979) has proposed several ways to interact more effectively with rural women:

- i) recruitment of a socially representative staff, including a better balance between the sexes in staffing;
- ii) career structure, including job tenure, salary increases and promotions being based on their performance vis-à-vis women;
- iii) clientele accountability – this means that the rural people themselves have a voice with regard to the performance of the extension staff.

Spring (1985) has reported another solution to enhance interaction between extension workers and women. In a rural development programme in Malawi, the RDP extension workers were introduced to women's needs for extension by collecting sex-disaggregated data as part of their job.

Staudt's first option is seen as the most equitable solution and is most commonly proposed in the literature. However, the constraints to this option, including cultural restrictions for women to move around or wide sex disparities in formal education, reduces the prospects of recruiting substantial numbers of women in many societies. This may make it necessary to look for other options, at least temporarily. The second option requires record keeping or a performance monitoring system. The third option is only possible in societies where women are aware of the services and the support to which they are entitled and where women are capable of voicing their demands, for example through organizations. There is a strong political aspect in this issue, and the suitability of these options will vary according to the local context.

Another issue of importance with regard to approaches to reach rural women is the availability of time. The previous chapters in this report revealed the fact that women in many societies have multiple responsibilities, related both to work in the field and in the home. The demands for women's work in the field often show a high degree of seasonal variations. In many societies the seasonal work burden for women is so heavy that it would be impossible for them to find time to attend meetings or training sessions.

The location of meetings is very important. Women generally have many responsibilities to fulfil with regard to housework and childcare even in low peak seasons. Furthermore, it is not considered proper for women in many societies to travel alone for long distances. Extensive travelling may also be beyond the economic capacity of many women. Therefore, the arrangement of meetings close to women's homes and in seasons when women have time to attend, may be crucial for the success of reaching rural women.

An example of successful approaches to reach rural women are the mobile teams for nutrition education described by Hamilton et al. (1984). These mobile teams visited women at their working place, whether at home or in the field.

One way of reaching rural women, which seems promising, is through organizations which have an intermediary role between women and formal institutions. One example of an arrangement which has been successful in providing credit for women in India is the Mahila Bank, established by the well-known Self Employed Women's Association (SEWA) of Ahmedabad (discussed in Schumacher et al., 1980). The Mahila Bank acts as an intermediary between members of SEWA and the national banks, which have resisted credit to these women in the past because of the administrative problems in approving small loans and women's inexperience in dealing with formal institutions. The staff of the Mahila Bank work with the women in filling out loan applications, submitting them to banks and paying out the money to the women. In this way the Mahila Bank has been able to provide credit for thousands of women. Such intermediary organizations may be useful also in other areas of development.

It is evident from the literature that because women's role in production has been so largely neglected, a great deal of innovativeness is needed in order to effectively reach women on their own terms.

e) *Combination of efforts*

Women's important contribution to many of the steps in the food chain necessitates a combination of development efforts for women.

As pointed out by Schumacher et al. (1980) there has been a tendency to target two types of projects to women. One type could be characterized as "welfare projects", the other as "productive projects". The first aims at supporting women's role as providers of family health and nutritional welfare. When technology is introduced in this type of project it is generally in the form of sanitation facilities or household implements such as cooking stoves. The primary goal of these projects is generally to improve the family health, and not necessarily to free up women's time from laborious tasks.

The second group of projects are most commonly aimed at increasing women's economic participation through efforts, such as handicrafts, animal husbandry and petty marketing of dairy products and farm surplus. These activities involve the use of simple technology, and generally afford little profit for the energy expended. Projects, which are aimed at improving women's contribution to food production also belong to this group. However, projects with the general aim of increasing productivity have very often failed to cater to the needs of women.

Women's multiple roles and activities in production and reproduction clearly indicate the need to combine these two approaches. A statement by Carr in relation to a development programme in Senegal emphasizes the need for such an integrated approach.

To attack the problem from only one direction would be self-defeating. To recommend the introduction of labour saving devices is unhelpful if the women have no money to pay for them. To recommend the introduction of income generating activities is unhelpful when the women have no extra time to indulge in them. Almost every aspect of improved nutrition and hygiene has a time consuming element, which would require diversion of time from other activities such as food production which would have a nutritionally detrimental effect. (Carr, 1979, p. 28).

One way of avoiding this type of conflict is to address the problem from different angles and introduce dual or multiple purpose activities. Attempts to this end have shown good results, particularly in projects with a high degree of participation from rural women. In her review of FAO projects, Carloni (1983) describes a women's component in a livestock project in the Sahel where expansion of goat production was coupled with action to reduce women's work burden in other areas through the introduction of grain mills and carts for transporting water and crops. A component of nutrition advice was also included, which was useful in view of the fact that increased production of animal protein does not automatically result in increased consumption for rural families.

A project in Gambia, mainly financed by IFAD, had a similar promising combination of efforts (N'diaye, 1985). In this area women are responsible for rice production for family consumption. Among the problems they encountered were food shortage and malnutrition among the children, long walks to the fields and excessive workloads. Local participation in project planning and execution was facilitated by a women's rice growing committee. A combination of mechanization of farming methods, introduction of postharvest technology and better management of the irrigation system resulted in a dramatic increase in rice production at reduced labour costs. Many women used the time saved to grow vegetables. Food security was further ensured by the establishment of cereal banks which sold rice back to the farmers during the off-season at a reasonable price. Roads were constructed to aid transportation and day-care centres for children were established close to the fields to ease the work burden for the mothers and provide better care for the children.

Systematic planning of such combined efforts which allow for the development of different but mutually supportive activities for different groups of women, has the potential of substantial long-term benefits.

f) *Conclusion*

In this section we have tried to concentrate on a few ideas about what seems to contribute to successful women's projects. As has been pointed out, the assimilated knowledge in this area is still very small. Furthermore, we will always run the risk that what works in one programme will not work in another.

Therefore, the criteria chosen for this discussion must be very general in nature. Some of them will apply also for general development efforts, not particularly geared towards women, especially when such efforts are aimed at poor and deprived groups in the society.

However, these criteria are particularly pertinent when development aid is focussed on women's food chain activities. For example, some degree of participation from women is absolutely necessary in this regard. Since women almost always will have many conflicting priorities with regard to their food-related and household work, it is important for the success of projects related to food chain activities that these are brought out and discussed.

More evaluation studies of the impact of women-oriented projects are needed to shed light on what does work and what does not work in different socio-cultural settings. It should be emphasized that merely focussing on the failures of development projects does not necessarily contribute to increased knowledge of what can work. There is also a need to bring out and discuss the positive aspects of projects to gain insight for future planning of women-oriented efforts.

Chapter 9. TARGET GROUPS AMONG RURAL WOMEN

There is a tendency in the literature to overgeneralise the picture portrayed of rural women, as the overworked food producer and household worker denied access to important resources, with no time for leisure. However, the potentialities and constraints with regard to women's performance of food chain activities vary according to farming systems as well as economic strata and age structure within a given society.

A few authors have presented typologies to signify that development planners must show consideration for differentiation among rural women. Safilios-Rotschild (1981) presents a typology based on three levels of differentiation in availability of land and labour, and the percentage of female-headed households in different types of rural areas.

In the first type of rural area within this typology, land is scarce, the percentage of landless or near landless households is high, there is a high labour supply and a large number of women tend to be working as agricultural wage labourers. This pattern is common in Asia, particularly in South East Asia. It is emphasized that efforts to modernize agriculture in this area, must take into account women's heavy involvement in agricultural wage labour, including both production and food handling. Agricultural technology which displaces female labour must be accompanied by labour absorption strategies (cfr. the introduction of rice hullers in Java, which displaced thousands of women workers, chapter 4). Such strategies may include formation of women's cooperatives, which buy, lease and operate the new technology and the creation of non-agricultural wage employment for women. Further suggestions for this area are introduction of appropriate technology to render women's agricultural work less physically taxing.

In the second type of area a large number of households have small land holdings. Women tend to work as unpaid workers on family plots and occasional agricultural or non-agricultural wage labourers. This pattern is found in rural regions and communities in Middle Eastern and Latin American countries. The proposed strategies here would include appropriate technology for making women's agricultural tasks easier and more efficient as well as nonagricultural income-generating opportunities for women. It is also advised that introduction of livestock and gardens to be attended by women would be an appropriate way to improve family nutrition and women's income. Agricultural extension and credit programmes for women would be relevant in such areas.

In the third area type the percentage of landless households is very low and labour is scarce as is true for many Sub-Saharan countries. The majority of women are unpaid family workers, farm managers on small, independent holdings or a combination of both. A small proportion are occasional agricultural wage labourers. A critical development strategy in such areas would be to redirect the existing agricultural information and services so as to include women (see section 10.5 for a further discussion). Introduction of labour saving technology would be an appropriate strategy. The same type of farming equipment that may displace women agricultural workers in areas of high labour supply, may be greatly beneficial in these areas of labour scarcity. It is emphasized that these technologies should save women's as well as men's labour. If labour saving technology is introduced only for the tasks which are the responsibility of men, as has been the prevalent pattern, the heavy workload that many women in this area have, may increase rather than decrease (this point is discussed in chapters 4 and 5).

In the typology, each of these area types are also categorized according to the frequency of female-headed households. Whenever there is a large number of female-headed households in these areas, the strategies discussed for each area are even more urgently needed. Introduction of labour saving technology that decreases women's time in household activities such as food processing, fetching of water and fuel, which would benefit working women, is particularly needed in areas with a large number of female-headed households.

Safilios-Rotschild did not include in her typologies the various ways in which responsibilities and work is divided between the sexes. These aspects are considered in two other typologies proposed, which also are made with the purpose of discussing implications for planning of women's different roles in various rural areas.

A typology developed by Staudt (1979), is based on women's degree of autonomy. This is made with the view to help in programme decisions about whom to contact with extension and credit among the household members. Women are classified according to three intrahousehold situations, where they are respectively autonomous, interdependent and dependent. Autonomy can occur either when men have migrated, resulting in female headship or when men reside in households where plots and/or crops are divided between the sexes. In such societies women usually have considerable decision-making power and control over the fruits of their labour within their own sphere. Examples of such societies are several traditional communities in Sub-Saharan Africa (see chapter 4).

Staudt considers interdependency as probably the most common and yet largely overlooked pattern in rural households, particularly among the poor. Here, women's contributions to total household productivity is often considerable. Decisions are made jointly or by consensus, and are often determined by survival and maintenance needs of the household, requiring closely cooperative work patterns. Those who do the work tend to control the products of their labour.

The pattern of dependency fits the common image of male household headship. Women are either involved only to a minimal degree in productive tasks, work under close male supervision, and operate inside the home or compound in a segregated fashion. Typical examples of this pattern are found in many Muslim societies.

One implication for planning of women's diversified roles, as presented in these typologies, is that assumptions about responsibilities and decision-making within households have to be assessed and verified. Otherwise staff may be contacting inappropriate persons or mistakenly focussing on certain individuals when others are crucial in the decision-making process. Inappropriate channeling of services or income to a man may disrupt the financial and labour balance between men and women and lead to increased labour, decreased commitment, and ultimately declining productivity for women. Such mistakes will have far reaching consequences when autonomy is the prevailing pattern, but they may be detrimental also in areas of interdependency.

Katona-Apte (1983) has presented a typology in order to demonstrate how a single socio-cultural factor, namely division of labour in agricultural production, may be relevant when trying to elucidate why some agricultural projects have had a negative impact on nutritional status. She has categorized societies into three groups according to extent and type of female participation in agriculture: 1) women's participation is minimal; 2) women participate in collaboration with men; 3) women work separate fields and crops. This typology and the one presented by Staudt are quite similar. They both assume a close relationship between women's participation in agricultural work and the extent of their decision-making power and control over resources.

Thus, in Katona-Apte's typology, women do not control income in type 1 societies, while the income is shared between men and women in type 2 societies, and in type 3 societies women control income from produce on their own plots. Similarly, in Staudt's typology the dependency category includes societies where women's participation in the labour force is minimal, and typical examples of societies where women are autonomous include those where women work separate fields and crops. This last category tends to include the same areas as those which Safilios-Rotschild identified as areas with low frequency of landless and low labour supply, which includes many Sub-Saharan societies.

Katona-Apte maintains that the factors leading to adverse nutritional effects of agricultural development programmes may be quite different in the various types of societies.

Three categories of problems which may link agricultural development to deleterious effects on nutritional status were identified: 1) increase in cash income results in nutritionally undesirable expenditure patterns; 2) changes in the perception of food needs within the household result in less food available for women and

children and 3) women's available time for child care and other household-related tasks is decreased.

In type 1 societies, she sees the main possible problem as being a wrong perception of food needs within the household and that agricultural development may contribute to higher priorities for men's needs if they acquire greater earning potential. She suggests that such societies are mainly in need of general health and nutrition education, and that some of these should be aimed at men.

Potential problems pointed out for type 2 societies are time for household chores and child care as well as appropriate spending patterns. Suggested development strategies for such areas should aim at saving labour in food preparation, provision of adequate child care facilities as well as nutrition and health education and control over advertising and promotion.

Women in type 3 societies which are mainly subsistence food producers may encounter a serious cash control problem. Agricultural development leading to greater earning potential for men may also contribute to higher priorities for men's needs in these societies. It is suggested that women in such societies should be specifically included in cash crop production and that programmes on how to use technology to increase yield should be aimed at them separately from men.

These typologies are presented in order to make planners more aware of the different roles women play in various societies and the importance of taking such information into consideration in development planning. However, classifying societies in this way will always present certain problems. Many societies do not fit into such rigid systems. Furthermore, some important characteristics may be overlooked.

For example, the classification by Katona-Apte does not include the possibility that women, in societies where they mainly cultivate their own plots, may experience an increased work-burden as a result of an agricultural programme, such as the introduction of cash crops. This is because she sees women's agricultural work as totally separated from men's, which is almost never the case. As discussed in chapter 4, men have traditionally had the responsibility of clearing the land on women's plots. If men become too busy to continue this work, because of involvement in cash crop production, and if women in addition have to help out on men's plots, as is often the case, work overload for women will become a pressing problem. Thus, women in such societies are often urgently in need of measures which can save their labour, as discussed by Safillios-Rotschild. In fact, it may be very inappropriate to seek to involve them to a larger degree in cash crop production, if no labour-saving means are introduced.

It should also be noted that Katona-Apte has discussed only one factor. The possibility that other socio-economic factors may contribute to adverse nutritional influences of agricultural development programmes, should not be overlooked.

In addition to the differences between societies and regions as described above, it is obvious that there is considerable differentiation between women living in the same community. The wife of a prosperous farmer leads a life quite different from that of a poor agricultural wage worker, because the former benefits from her husband's income. She does not experience the harsh seasonal variations in food availability and she may expect to be able to get household goods and gifts from her husband.

Women living in the same community may also encounter similar problems. However, the potentialities for women to overcome these problems may be very different. These differences do not only concern their access to resources, education and employment, but also access to a social network which is important with respect to achieving self-reliance. As pointed out, many of these differences reflect the variations in the living situation between poor and the more well-to-do women. When a development programme aims at improvement of the nutritional situation, the focus will be on the rural poor, since it is here that the nutritional situation usually is most precarious. Thus, there is also often a need for target orientation in development programmes for women. This aspect has surprisingly enough, attracted very little attention in the literature dealing with women in food production.

A target orientation may be achieved by selection of certain geographical areas, characterized by low class or caste, or by high prevalence of malnutrition which may indicate problems in women's work in some part of the food chain. Areas with a high frequency of female-headed households may be another basis for targeting, since female-headed households encounter particular problems and are often found among the most poor.

Another angle of approach is a selection based on the type of work women do. This approach is particularly suited for development work through organization building and could include poor women working in particular fields or with particular crops or women having particular problems, such as seasonal work overload.

Targeting could also include women, working with certain demeaning tasks. For example, in many societies cultural norms prevent women from working in certain capacities, such as agricultural wage labourers. Well-to-do women can abide by these norms. Thus, the women who do not follow these norms, often do so because of poverty.

From the above discussion it becomes apparent that planners have to take into consideration the socio-economic reality in which women, as well as men, live. Different needs and interests of various groups of women may lead to conflicts and a different project outcome than was intended.

In many rural development projects, the selection of beneficiaries is not based on the social and economic characteristics of women. Frequently, whole areas or communities are chosen. In such projects it is important that a monitoring or evaluation system is built into the project so as to assess the impact with regard to workload, income generation possibilities and general wellbeing on different groups of women, particularly among the most disadvantaged of the intended beneficiaries.

Chapter 10. MAIN PROBLEM AREAS RELATED TO WOMEN'S FOOD CHAIN ACTIVITIES – POSSIBLE PRACTICAL SOLUTIONS

In this chapter we will discuss the practical implications of the research findings which have been brought out in reviewing the literature (chapters 3 – 9). As a start, there is a need to identify the main problems that Third World Women are facing in their efforts of providing food and securing the nutritional needs of their families and themselves. Five main problem areas seem to emerge from reviewing the literature. These are: 1) women's high workload; 2) seasonal variations in women's work and household food availability; 3) women's low productivity/effectivity in the food chain; 4) women's low status; 5) lack of infrastructure and services relevant to women.

In the following paragraphs we will define each of these problems more concretely and discuss possible measures that would be relevant in practical work. It should be noted that the stated problem areas are inter-related and overlapping. Consequently many of the practical measures proposed for solving one particular problem, may also be relevant for the solution of another. In practical situations where one is faced with many of these problems simultaneously, special emphasis should be put on measures which may have the potential of solving more than one problem. Since this chapter is based on the preceding literature review, references to the source of particular facts and assumptions stated here, will not be given. As a guide for further reading, some key references will however be listed at the end of each discussion of suggested measures.

10.1 Women's workload

Problem:

Women's workload is so heavy that it may be

- a constraint to higher productivity in the food chain
- a constraint to adequate child care and nutrition
- a health risk to women themselves and a constraint for fulfilling their other basic needs.

Possible Measures:

a) Labour-saving technology

Many authors have emphasized the importance of introducing labour saving technology for women. Such technology would include labour-saving tools or devices as well as alternative methods for production and processing of food throughout the food chain. Special attention should be drawn to labour saving devices and techniques in postharvest food processing and conservation as well as food preparation for meals. Many studies have shown that such tasks may be very heavy and take up a large proportion of women's day. As pointed out earlier, processing and preparation (such as pounding) of cassava and grains, especially maize, sorghum and millet can be very laborious. Hand-operated grinders have been suggested and successfully tried out for this purpose. However, it is important that the introduction of such technologies be based on a

thorough investigation of women's needs and their possibilities for utilizing the technologies successfully. Local conditions and traditional methods should be taken into account when redesigning women's tools and methods. It is important for the success of such efforts that women are involved in the process of improving or identifying new techniques. There are several handbooks available from various international organizations that give examples of appropriate labour-saving devices and methods for food processing, conservation and preparation.

Literature: Tinker (1979), Carr (1978), Carr (1981), ECA (1978), Aklilu (1983), Date-Bah and Stevens (1981).

b) *Improved provisions of water and fuel*

The scope for saving women's time and energy through improvements with regard to the so-called "food supporting activities" such as fetching of water and firewood, may be very large. However, unless provision of water is carefully planned, taking into account all the purposes for which water is used (cultivation, animal husbandry, food processing and preparation, drinking and washing) it may not be viewed as an improvement by the rural women. In some instances women have refused to use water provisions that do not have this multipurpose function, such as when fetching of drinking water cannot be combined with washing of clothes. Furthermore, the technology involved in drawing water may be important for women's potential for benefitting from a new water source. Hand-operated pumps have sometimes been too heavy for women to operate. In addition the design of the pumps should be such that they would be simple to maintain and repair by women themselves.

Several possibilities have been tried concerning efforts to reduce women's energy and time use in fetching fuel for heating and cooking. Of special interest are alternative sources of energy, such as solar ovens, biogas and plant residues from agricultural production which are not utilized for animal feed. Methods for saving energy have also been tried out, such as more efficient stoves for cooking and ways of heating more than one thing at a time. Means of relieving women from carrying heavy loads of wood should also be investigated. For instance, the potential for employing hand carts or draft animals should be looked into. The latter suggestion may imply a transfer of responsibility for fuelwood to men, since women usually do not have access to draft animals (see section c).

Literature: Carr (1978), Carr (1981), Kebede (1978), DateBah and Stevens (1981).

c) *Reorganizing women's work*

It is well known that women try to rationalize their work by combining different work tasks. As illustrated earlier, women may bring firewood when they return home from the field; water may be fetched in combination with washing of clothes and bathing of children and themselves. Childcare is almost always combined with other tasks. Possibilities for combining women's work tasks should always be considered in development projects, especially if the efforts planned may imply more work for women. Attempts to give women the opportunities to combine their activities may need great care in planning concerning *where* physical structures (such as buildings, agricultural land, sources for firewood and water) should be located and *how* and *when* they should be utilized.

Efforts that can bring about changes in the organization of work between household members should also be considered. It is well known that the introduction of new technology may change the sexual division of labour, often leading to an increase in the workload of women while reducing that of men. However, the fact that men tend to take over certain tasks when new techniques are applied, may also represent a potential for relieving women of some of their work burdens. If the switch of tasks from women to men does not represent a threat to women's control of resources and decision-making power, this process can be seen as a way in which men can assist women. For instance, if the introduction of draught animals for fetching wood, should mean that men will take over the operation, it could be regarded as a positive development.

Over the long term it may be feasible to work for a change in people's stereotyped attitudes about sexual division of labour. Educational measures may be a necessary ingredient in efforts to change the division of labour between men and women. It should be emphasised, however, that such efforts are not equally relevant all over the world. In societies where women do very little or no work in the field (such as in many Muslim societies and in many parts of Asia) nutritional problems are often not related to women's excessive workload. Usually the labour burden is more equally distributed between men and women in these cases, and from this point of view, the need for changing the sexual division of labour would be less.

Literature: N'diaye (1985).

d) *Cooperative activities*

One way of reducing women's workload is to assist in the establishment of cooperative efforts among women to perform certain tasks in the food chain. There are many examples of cooperation among women in different food-related tasks. Organization of work parties for soil preparation and harvesting is well known in Africa. As discussed in chapter 8, introduction of labour saving technology has been particularly successful in cases where women have been well organized. Machinery for postharvest processing on a cooperative basis has a special potential of being useful to women. Examples are quoted in the literature of mills being run on a cooperative basis and thereby relieving many women of the hard labour of pounding or using other labour requiring techniques for making flour.

Literature: *Caughman (1980), N'diaye (1985), Staudt (1979), Ramakrishnayya (1985).*

e) *Child care facilities*

As earlier mentioned, certain tasks women do are difficult to combine with proper care of small children. Hard work in the field, is one activity where either children may suffer because of lack of proper care, or women's workload may increase if they are to bring their children into the field. When women have to leave their small children at home, they will not always have access to adequate substitutes to take over the child care. In many instances relatively small children are put in charge of the care of their younger brothers or sisters. This problem is especially great for women who are involved in casual work or in other income-generating activities which take them away from home for longer periods of the day. Informal arrangements between women on a cooperative basis or more formal arrangements for child care should be investigated when planning efforts where obligations vis-a-vis children may be a constraint to women's participation.

Literature: WHO (1985).

10.2 Seasonal variations

Problem:

In lean seasons women may experience

that not enough food is available to adequately feed themselves and their families

periods of extremely stressful work that leave them little time for adequate fulfillment of all their obligations in the food chain, especially for cooking and feeding.

Possible Measures:

a) *Alternative cropping patterns and methods of cultivation*

Proper timing of cultivation and choice of crops so that some food will be available during the lean season has always been part of people's own strategies. Development efforts should build on such strategies, and examine potentials for introducing crops that mature quickly and encourage inter- and serial cropping which could fill the gap before the main harvest. Women are particularly central in these strategies, since they generally are responsible for the so-called "minor crops", such as vegetables, pulses, fruits and tubers. Such foods can fill important food deficit gaps at certain times of the year and become important sources of protein, vitamins and minerals. For instance, cassava (or manioc) is a drought resistant crop that women resort to at times when other foods are scarce. The advantage of cassava is that it can be harvested whenever there is a need. Minor crops may also be an important source of income for women. Many authors have emphasized the importance of crops that can serve as subsistence as well as cash crops. This gives a greater potential for alternative survival strategies.

Little emphasis has been put on minor crops in agricultural development assistance, where cereal crops have been in focus since aid was first initiated. Agricultural modernization has often lead to the disappearance of many of the minor crops and therefore created a situation of higher vulnerability to seasonal variations as well nutritionally less adequate diets. Furthermore, the utilization of wild plant resources (such as green leaves)

have a tendency to decrease as a consequence of agricultural development. In the last few years the importance of promoting the consumption of such under-exploited plant foods has been stressed (especially by FAO), because of their relevance to women as well as their nutritional significance in traditional diets. To sum up, the following points should be considered when selecting crops to be promoted.

- Stability of yield: drought and disease resistant qualities are even more important than the potential for high yields.
- Income-generating potential: priority should be put on crops that can be used for direct consumption as well as be converted to cash.
- Low labour requirement: crops that need minimum land preparation, weeding and irrigation should be preferred.
- Ease of storage, processing and cooking: varieties that store well and that do not require much energy for processing and cooking are important for women.
- Nutritional considerations: cultural acceptability and nutritional contribution to the local diet should be considered, especially in light of the requirements of women and children.
- Multi-purpose crops: varieties that can serve many purposes simultaneously should be included whenever possible. For instance: trees that yield both fruit and wood, plants that have many edible parts: roots, leaves and seeds etc., plants, from which unedible parts can be used for fuel or animal feed.

Literature: Fleuret and Fleuret (1980), Longhurst (1983), Dey (1984a), Garribaldi Accati (1983), Ferguson and Horn (1985), Redhead (1985).

b) Introduction of small livestock or other sources of animal protein

Small livestock may be an important source of food and cash, especially during lean seasons. The care of small livestock such as chickens, sheep and goats tend to be women's work throughout the world. Attempts to introduce small livestock for women have however often failed, the major reason being high labour and capital input compared to returns, especially because livestock raising is a risky business. Women may therefore give low priority to proper care of the animals. Furthermore, the lack of veterinary services and extension may add to the difficulty of raising animals. Adequate training and extension services for women are stressed as important components of efforts to involve women in animal husbandry.

Fish farming in fresh water ponds, usually in connection with paddy cultivation has been tried as one way of increasing food availability. One constraint to fish farming as a possibility for poor women, is the lack of access to land where fish ponds could be established.

Literature: FAO (1983c), Safilios-Rotschild (1983), Chavangi and Hanssen (1983).

c) Better preservation and storage techniques

Building up food stocks is essential for a household's ability to counteract seasonal variations in food availability. Food stocks represent not only a surplus which can be consumed during lean periods, but also a potential for cash earnings during times of need.

Postharvest food losses may be enormous in tropical climates. For example, infestations of bacteria, fungi, insects and rodents may reduce food stocks in the household substantially. Some observers argue that food availability is more easily increased by reducing postharvest losses than by stepping up food production. Improved methods for preservation and storage of food are thus important strategies both for increasing food availability in general and for counteracting seasonal variations.

Preservation techniques, e.g. drying, salting, smoking, fermenting and canning, are part of the traditional knowledge in most areas of the world. Such techniques can always be improved and made more efficient in terms of time and resources required. Many aid organizations have produced manuals that give instructions about appropriate tools and techniques for various types of food preservation. The tools and techniques suggested are often based on locally available resources and skills.

Improved preservation techniques for perishable foods, such as fruits, vegetables and fish can also build up a potential for increasing cash income. For example, smoking and drying of fish and fruits and home canning of fruits and vegetables are typical income-generating activities for women. These techniques have lately received attention by aid agencies.

Improved storage techniques for grains is an area which is receiving attention by aid agencies. Better storage possibilities may prevent farmers from selling off grains just because of the risk of losses during storage. In some African countries women and men have separate storage bins. In such cases, it is important that the women's storage problems receive particular attention, since they are responsible for providing food to themselves and their children.

Temporary storage devices for unprocessed crops may relieve women from excessive workload in the postharvest season, as well as prevent food losses. Carr (1981) mentions a maize project in Zaire where maize cribs were to be promoted for storage of maize on the cobs during the peak season allowing shelling to take place during less busy times.

Appropriate storage devices may be beyond the cash limits of women and their households. It is therefore important to reduce the cost by teaching women or other members of their families to build such devices themselves.

Literature: Carr (1978), Carr (1981), ECA (1978), Tinker (1979), Brandtzaeg (1982b).

d) *Establishment of community cash funds or food stocks*

When faced with food shortage in the household, women have traditionally relied on informal social networks for support. Such networks may be based on kinship or neighbour relations. However, as family structures are changing, as part of the modernization process, women are losing their traditional means of support. Usually, women will utilize the possibility for requesting support among relatives and neighbours as a last resort, since they often regard such requests as an undignified means of alleviating a crisis of food shortage. This is especially true if the support networks are not based on reciprocity, but have the image of charity.

Formal or informal support institutions at community level that can function as buffers against food shortages are needed. Poor people often have to resort to private money lenders for loans at very high interest rates in order to buy food before the next harvest. The food providers of the household may thus need credit with low interest rates which may cover purchase of food for consumption during lean seasons. The establishment of women farmer cooperatives that include revolving funds where credit can be taken both for investment in food production as well as for purchase of food is one possible solution. Women's saving clubs – where extra money is saved during seasons of plenty for use during times of need – have also been tried with some success.

The creation of "cereal banks" which buy cereals from farmers after harvest and sell back to them at reasonable prices during the off season may be another means of ensuring food security. This system of building up food stocks has been tried with success in an IFAD project for Gambian women (N'diaye 1985).

Literature: N'diaye (1985), Eide et al. (1986).

e) *Better knowledge about how to combine cheap and nutritionally adequate food*

The dietary pattern of people in the Third World is under constant change, also in the rural areas. This is partly due to changes in production patterns but also to the integration of subsistence farmers into the cash economy. For the rural poor these changes have generally meant a less varied diet and a heavier reliance on market food for own consumption.

Women's traditional knowledge about ways and means to combine foods to compose nutritionally adequate diets may be less and less relevant as different and new foods are introduced. For instance, the switch from traditional staples to new ones (such as the switch from sorghum or millet to maize, or from rice to wheat) may in turn imply that also other changes in the diet have to be made if the nutritional requirements are to be met and the food to be palatable. Greater reliability on purchased foods, makes people more vulnerable to advertisements and signals of high-status. This may lead to an emphasis on relatively expensive foods, sometimes with low nutritional value.

Nutritional education, relevant to the situation as described above may be needed. Such education should take as a point of departure women's traditional knowledge about food and ways of preparing food, and stress the positive elements of this. Foods that can be acquired and prepared with minimal resources and at the same time are culturally acceptable should be emphasized. Foods which can substitute more expensive alternatives should be included in a possible strategy of dealing with food shortages.

It should be pointed out that nutrition education does not seem to be effective when launched alone. There are considerably more chances for success when nutrition education is part of a larger "package", which may, for example, include schemes for improving food production, processing or preparation patterns. Furthermore nutrition education has most often been geared towards women. However, since men, more or less explicitly, are involved in deciding what foods to buy and cook, nutrition education must address both men and women.

Literature: Piwoz and Viteri (1985), N'diaye (1985), Chaney (1985).

10.3 Low productivity in the food chain

Problem:

Women may be less productive in the food chain than men because they have less access to productive assets, including knowledge, and because of their time constraints.

Women's traditional food-related tasks may be laborious and time-consuming and give low returns to labour.

Possible Measures:

a) Improved access to land

A secure access to land for women, is important for being able to make long-term production strategies. In areas where women do not hold land ownership, the choice of crops and the strategies are limited. For example, under such circumstances they are rarely cultivating perennials, such as tree crops. In societies where women work on fields for subsistence production, whereas men are involved in the production of cash crops, it is particularly important that projects are planned so that women do not lose their land to the men. In resettlement schemes women must be allocated land in their own right, so that subsistence food can be secured.

In societies where women's involvement in food production is more seen as "helping the men", there may still be a need for women to have their own piece of land. Even in such societies there may be certain crops that only women grow. This is often the case with horticultural crops, cultivated for home consumption. The provision of land for home or kitchen gardens may be important for securing family nutrition and some cash income for women.

A large problem for women throughout the world is the loss of land-use rights when they become widowed or divorced. It is of course difficult within a programme/project framework to change inheritance laws of a country. However, in instances where new land is allocated to families, attempts should be made to allocate land to both men and women.

Literature: Palmer (1985b), Dey (1984a).

b) Improved access to extension service

There is ample documentation that women have less access than men to production inputs such as seeds, agrochemicals or other inputs e.g. animal husbandry as well as the type of know-how and skills needed for increasing their productivity. Extension services that can help women in providing such inputs and give them the necessary know-how are badly needed. Today most extension services are run by men for men.

Training of female extension workers will be necessary, especially in areas where women usually do not talk to men outside their own households. In addition, male extension workers will have to be sensitized to the problems of women and include women as possible clients for their services. Experience has proved that women farmers, given the opportunities, can be just as innovative and productive as men.

Literature: Staudt (1979), Schumacher et al. (1980), Palmer (1985b), Dey (1984a), FAO (1985), Ramakrishnayya (1985), AFRACA (1983), FAO (1983d).

c) *Improved tools*

Many studies have shown that women have less access to modern and labour saving tools in the field than men. Women are mostly involved in hoe-agriculture, and seldom have access to plow or tractors for land preparation. Besides cultural restrictions on women's use of ox-ploughs or tractors, low command of cash makes it impossible for women to hire men with ox-ploughs or tractors to prepare the fields for them, such as male farmers often do. The establishment of separate cooperatives for women, or the acceptance of women in male farmers cooperatives, may give women farmers access to cooperatively owned farming equipment such as tractors or animal-drawn equipment, chemical sprayers etc.

Transplanting, weeding and harvesting are often done by women, even in areas where men are considered the main food producers. When new technologies have led to increased productivity, the result has often been more work for women in performing these tasks. This may be the case when more acreage is put under the plough, or increased use of fertilizer results in more weeds. Ways and means to reduce women's work burden related to these tasks should be found. More research will be needed in this area before concrete suggestions can be made.

Literature: Carr (1978), Schumacher et al. (1980), Dey (1984a), Dey (1984b).

d) *Alternative cropping patterns and combinations of food sources*

A better and more efficient use of agricultural land, in terms of output relative to labour input and in terms of nutritional impact, may sometimes require a shift in food production pattern. For example, certain crops may give higher yields, higher nutritional value or higher income with relatively less labour than other crops. In highland areas of Tanzania, where maize takes 9 months to mature, it has been suggested by some researchers to put a higher emphasis on potatoes rather than maize. The argument has been that potatoes require less labour and can be harvested two or three times a year in contrast to maize. The prerequisites for such change in cropping pattern is however that the crop introduced is culturally acceptable.

As pointed out earlier, introduction of livestock or fish ponds in addition to agriculture may under certain circumstances represent a more efficient use of land and labour. It can contribute to raising women's productivity as a whole and thereby give women the means to improve the food availability of the household.

Recent research on household gardens has shown that this type of cultivation system may have the potential of producing relatively large amounts of food with marginal labour. Such gardens may also provide firewood, fodder for small livestock or raw material for handicrafts and may thus contribute to raising both the income and nutritional level of the household. In rural areas, people who for practical purposes are considered landless, may in reality often own or have access to a small piece of land, usually around their dwellings. This land may not always be fully utilized, although most people, particularly women, may try to grow some fruits and vegetables or keep small livestock in the backyard. A more intensified use of household gardens can be achieved through ecologically appropriate combinations of plants (tree crops, roots, vegetable and legumes) and animals suited for local conditions. Since gardening is usually the work of women, more effort should be made to examine the opportunities for increasing the production of food crops and animal products from household gardens, especially for the so called landless, but also for the rural poor in general.

Literature: Dey (1984a), Food and Nutrition Bulletin (1985), Chaney (1985), Martin (1983).

e) *Alternative sources of income*

Poor women are always looking for ways and means to earn more cash. Their possibilities for earning cash from their own farming activities may be small, especially if access to land is limited. Sometimes the promotion of income-generating activities may prove to be a better investment from a nutritional point of view than an increase in women's productive capacities within farming. Income-generating projects for women have, however, tended to have low success, because they have been launched on a small scale to individuals, without a proper analysis of market conditions and women's potentialities and constraints for participating in such projects. Experience has shown that women's participation and cooperation are necessary ingredients for a successful outcome of such projects. So are the provision of support services, such as credit, marketing and training facilities.

Women who are involved in food production through casual labour will need special considerations in agricultural programmes. This is because they tend to be the first ones to be excluded when agricultural modernisation is taking place. This may imply a choice of agricultural technologies that does not exclude job opportunities for these women who often are landless. There seem to be a tendency for these to be the first ones to be excluded when agricultural modernization is taking place. Another possibility is to provide alternative sources of income for women that are no longer needed in the agricultural labour force.

Literature: Schumacher et al. (1980), Garribaldi Accati (1983), FAO (1979), American Home Economic Assn. (1981), Wazir (1985).

f) *Reducing women's total workload*

In some instances the responsibilities in regard to household work may prevent women from spending more time in production. Many studies have shown that when women are relieved of domestic work burdens, they tend to spend the extra time gained on income-generating activities. Therefore, measures which can reduce women's workload have the potential to positively influence women's productivity (see point 10.1 in this chapter).

g) *Improved techniques and equipment for processing storage, preservation and food preparation*

Labour saving technology (as discussed in point 10.1 in this chapter) does not only have the potential of reducing women's workload but also of rendering women more productive in their food chain activities. A higher productivity is also dependent on women's access to the resources necessary to increase the flow of food and cash through the food chain. The acquisition of appropriate knowledge and skills will be necessary to successfully utilize a new technology in the food chain.

Literature: Carr (1978), Carr (1981), Tinker (1979), Brandtzaeg (1982b).

h) *Improved water and fuel provisions*

Such provisions may give women more time to spend on food chain work and give the necessary resources for increasing the quantity and quality of the food available to the household (see point 10.1 b).

i) *Cooperative activities*

See point 10.1 d.

j) *Child care facilities*

See point 10.1 e.

k) *Reorganization of women's work*

See point 10.1 c.

l) *Improved marketing opportunities*

An important bottleneck to women's productivity in the food chain will often be the lack of opportunities for marketing their produce, whether it is unprocessed or processed food. This may be due to a variety of factors such as cultural norms against women's involvement in marketing, a saturated market, time constraints, long distance to market, low market prices, non-access to market, lack of credit for more large scale marketing activities, etc. Many of these problems can be solved, given proper attention and priority. Cooperative marketing activities among women seem to have greater chance of success than when women are doing this individually. Such arrangements have the advantage of pooling women's small resources, increasing their negotiating power and reducing the time and labour each individual has to spend on marketing her products.

Literature: ECA (1981), FAO (1983d).

10.4 The low status of women

Problem:

□ Cultural norms and practices affect women's command over resources in the food chain and their priorities in allocation of cash and food.

Possible Measures:

a) Legal changes in land ownership, inheritance and land use rights

Most often, men are the legal owners of land, while women may have use rights to land or only work with the permission of their husbands. As already mentioned, women may thus lose their use rights and access to land at divorce or widowhood. When the husband dies inheritance rules may be such that the land will be transferred to the male members of the family. Legal changes in ownership and inheritance rules are important steps towards securing women's continued access to land regardless of marital status.

It should be mentioned that legal changes may not be sufficient to secure women's access to land. Often traditional practices and norms lag behind changes in the law. Experience has shown that women still do not inherit land, even if it legally is their right. Usually attitudinal changes are needed to change such traditional practices.

As pointed out earlier, land settlement schemes should secure women's access to land by issuing deeds in the names of both husband and wife.

Literature: Palmer (1985a), Dey (1984), Onger-Hosgor (1983).

b) Find ways and means to bring about attitudinal changes among men and women

Better nutrition for women and their children cannot be achieved by only providing women with the material necessities for procuring food. Attitudinal changes are also needed if women are going to get more control of food and cash generated through the food chain activities. A change in women's priorities concerning the use of this food and cash may also be needed. In societies where women are the main providers of family basic necessities a more equitable division of labour between women and men may be needed in order to relieve women of some of the tasks that are now considered to be only their responsibility.

Upgrading of women's status through attitudinal change is a lengthy process, where one cannot hope for quick results. However, knowledge about existing sex stereotypes and to what extent these represent constraints to women's opportunities to procure food for the family and cater to their own needs, may provide a useful basis for designing development efforts that can also bring about attitudinal change. For example, training to increase women's knowledge and skills concerning the different steps in the food chain may automatically bring about attitudinal changes and increase women's authority and bargaining power vis-à-vis their men. Cooperative activities among women may have the same effect, since women may together be able to break sex stereotype barriers, that they would not be able to do individually.

A participatory approach to planning and implementation of women-oriented projects where both women and men are drawn into the process, may increase the potential for attitudinal change. When men are involved, they may show a greater understanding and willingness to support their wives activities. Women may often need their men's approval to start new activities.

Literature: Piwoz and Viteri (1985), Date-Bah and Stevens (1981).

c) Nutrition and health education to change current practices which are detrimental to women

In many societies the special nutritional needs of pregnant and lactating women are not recognized. Dietary prescriptions during these physiological states may take the form of food taboos, which tend to render the diet less nutritious, rather than improving its nutritional value. Many women also continue with hard physical work during their pregnancies until the onset of labour. This may increase the chances of abortion or premature delivery, thus being detrimental both to women and the children they bear. Another problem tied to women's low status, is the practice in some countries of giving lowest priority to female children with regard to distribution of food in the household and the use of health services. The effect of such a practice is particularly detrimental in low-income families where food and cash is scarce.

Nutrition and health education aimed at tackling these problems must take into account both the cultural and the material constraints for changing such practices. For example, low food availability in the household may be a constraint to follow nutritional advice which would have contributed to a better diet for women and female children. Likewise, women may have to work hard until the onset of labour, unless they are provided with realistic opportunities for reducing their workload. Educational measures must therefore be introduced as one component in a larger "package", which also contains provisions that make change of practices a realistic alternative.

This type of education implies changing attitudes towards women. As earlier argued such change is a long process and the chance for substantial success relatively small. However, this should not be an argument against embarking on this type of development measure. The process of change must be started if more equal status between the sexes is ever going to be achieved.

Literature: Piwoz and Viteri (1985), WHO (1985).

10.5 Lack of infrastructure and services for women

Problem:

Women's activities in the food chain may be hampered by insufficient local infrastructure and social services.

Possible Measures:

a) *Provision of market facilities*

The lack of market facilities may deprive women of needed cash income. In section 10.3 in this chapter different measures to improve women's marketing opportunities are discussed. In addition, the existence of a local market may give women the opportunity to purchase foods that usually are not available locally but are necessary ingredients in a healthy diet.

Literature: ECA (1981).

b) *Provision of roads and transport services*

Roads and transport opportunities for marketing activities are essential. Women's access to vehicles for transport of their market goods are often lacking. The purchase or renting of a vehicle for transport may be accomplished on a collective basis, thus saving transport costs for individuals.

c) *Provision of extension services*

See point 10.3 b.

Literature: FAO (1983b), Ramakrishayya (1985).

d) *Provision of communal storage facilities*

See point 10.2 d.

e) *Forestation programme*

The lack of firewood is a critical problem in many areas. Women in such places may have to walk increasingly longer distances in order to collect firewood. Community forestation programmes could be an important measure to increase the availability of firewood for women. The possibilities for using trees that also can be harvested for food crops should be investigated. For instance, coconut trees have many uses, in that dry branches, husks and shells can be used for fuel, while the nut can be used for food, and eventually the tree itself can be used for building material.

f) *Provision of water*

Water is needed for almost all the tasks in the food chain. In addition to water for domestic tasks as discussed under point 10.1 b, water is needed for women's productive tasks as well. Water for cultivation and animal husbandry may be a serious constraint to higher productivity in the food chain. The possibilities for developing a communal irrigation system based on simple technology should be investigated. Such an irrigation system combined with proper water management will significantly increase women's productivity at the same time as lowering their work burden.

Literature: N'diaye (1985), Dey (1984b).

g) *Provision of health care facilities and environmental sanitation*

The nutritional impact of increasing women's "effectiveness" in the food chain may be marginal if the risk of infection is high and the possibility for treatment is marginal. Development efforts that aim at improving nutrition through giving women the opportunities to provide more food for themselves and their families, must also include measures that can reduce the rate of infectious diseases, otherwise one may risk wasting their efforts to improve nutrition. The vicious circle between malnutrition and infection can most effectively be broken by attacking simultaneously both the food supply side and the sanitation and health side.

Literature: Millwood and Gezelius (1985), WHO (1985).

Chapter 11. A FRAMEWORK FOR PLANNING OF "WOMEN AND FOOD"-ORIENTED DEVELOPMENT EFFORTS

When planning for improvements of women's food-related work, two main considerations should be taken into account. One is the consideration for women's role as "mediators" of nutrition to their families. This implies that the development efforts must be geared towards promoting women's "effectiveness" in generating food and cash through their food chain activities, so that sufficient and nutritionally adequate food will be available to each individual in the household.

The other consideration concerns women's possibilities of catering to their own basic needs through the food chain activities. Development efforts taking this consideration into account, should seek to create opportunities for women to control more of the food and cash generated in the food chain and prevent women's workload from becoming so heavy that it has detrimental effects on their health and other basic needs.

As pointed out earlier, these two considerations may sometimes be in conflict. This may be the case if increased productivity in the food chain is achieved through a higher workload of women. An overall goal for promoting women's concerns within the food and nutrition sector must therefore include both considerations and be formulated in such a way that they harmonize.

11.1 The goal of Household Food Security

Such a goal has been developed, within the wider context of introducing nutritional considerations into agricultural development, in a research project of which two of the authors of the present report participated (Eide et al., 1985, 1986). The goal *Household Food Security* (HFS) was proposed as the overall guiding principle for agricultural development efforts aimed at improving nutrition. The concept of HFS consists of three elements (see figure 11.1).

i) *Food Adequacy*

is defined as the availability food which both in quantity and quality is nutritionally adequate and safe as well as culturally acceptable for the household members.

ii) *Viability in Procurement*

concerns the way food is procured. The procurement should not conflict with the desired allocation of resources and time of the members of the household for the fulfillment of other basic material needs (such as health, education and shelter). Furthermore, it should promote,

or in the minimum not conflict with non-material basic needs, in particular participation, self-reliance and cultural values.

iii) *Sustainability*

concerns the ability to sustain Food Adequacy and Viability in Procurement, as defined above, in the face of crisis. Such crises could be periods of food shortage, due to seasonal variations or incidences of drought or floods.

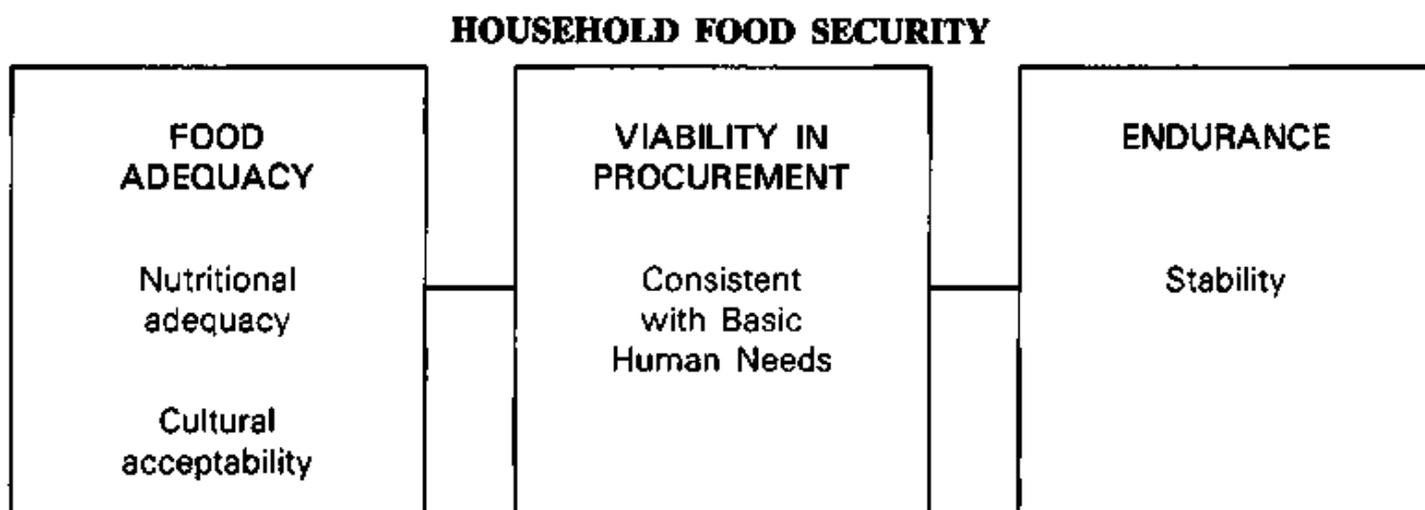


Fig. 11.1 The concept of Household Food Security (HFS).

In other words, employing the goal of HFS, implies that development efforts should not only be spent on means to secure a nutritionally adequate diet for the people concerned; it should also be in accordance with local food habits and cultural values. It also follows from the above that development efforts should be planned in such a way that procurement of food can be achieved without interfering with the fulfillment of other basic human needs. Furthermore, efforts will have to be spent on finding means to prevent or buffer the often harsh effects of crises in food supply or in access to means for procuring food (such as crop failure, loss of income).

Although the goal of HFS implies a focus on the whole household, its relationship to the Basic Human Needs concept will ensure that concern also is given to individuals. This goal can also be employed in women-oriented programmes, if the focus is on women's contribution to household food security and the implications of these activities for the fulfillment of women's basic needs. The "viability in procurement" element of HFS is especially relevant in this respect, and would imply i.a. that the development efforts must be planned in such a way that women's workload will not affect their health or give women less time to spend on other activities of importance for the fulfillment of their other basic needs.

11.2 Problem identification

The first step in the planning of a project involves an identification of the type of problems that the project could address. The HFS may serve as a guiding principle for the problem identification. In other words, the problems to be identified should be related to women's contribution to HFS and the non-achievement of this goal.

Some general problems relevant to women's work in the food chain were listed in chapter 9. Although these problems and the suggested means to overcome them were not explicitly discussed in relation to HFS, they still represent relevant descriptions of problem areas within the HFS framework. To what extent these problems exist in a given area within a particular target group, will have to be investigated in each case.

An initial selection of *groups for special project concern* is needed. Such groups would be households where women have particular problems in contributing to HFS through their food chain activities. Chapter 8 contains a discussion of possible target groups that would be relevant in this respect.

Once the target groups have been selected, further information is needed on the *kinds* of problems such groups may have in achieving HFS. For the purpose of planning it is useful in this context to focus on issues that represent *constraints* and *potentialities* to women's achievement of HFS. Constraints can thus be seen as barriers that may be overcome by certain measures, while potentialities are to be considered as positive factors that can promote HFS given the right conditions. Constraints may be such factors as lack of credit, lack of employment, and power relations preventing access to certain resources and services. Potentialities may be found in the food strategies that women themselves employ which will have a bearing on HFS, and that could be further strengthened by particular measures.

11.3 A guide to planning

Figure 11.2 represents a guide for issues to be addressed in problem identification and in subsequent planning of development efforts. The food chain is employed as an organizing concept. Activities at each and every step should be described and the "flow" of food and cash determined accordingly. Furthermore, the major determinants of the "flow" through the food chain need to be examined at every step in the food chain. These can be categorized in three groups as described in chapter 2:

- i) *Material resources* needed for all women's activities in the food chain, such as land, inputs, tools, labour, infrastructure and social services.
- ii) *Knowledge and skills* necessary for women in performing the activities throughout the food chain, such as knowledge and skills relating to food production, handling, marketing, cooking etc., as well as knowledge about nutrition and health.
- iii) *Organization* of responsibilities and decision-making power. This concerns such factors as division of labour or tasks, control of resources or decision-making power between household members, groups of households or with respect to local institutions.

These three major categories of factors will have to be addressed at two levels: *The household level* and the *community level*. Sometimes it may also be necessary to trace some of the factors within these categories back to the level of national policies and institutions.

This guide allows for a special focus on women, while at the same time making it possible to examine women's situation in relation to the whole household economy as well as to factors beyond the household level. The suggested guide may be used as a "checklist" for the formulation of questions regarding women's problems in contributing to HFS through their food chain activities. Questions about constraints and potentialities along the food chain can be posed in relation to women's access to resources, their knowledge and skills, as well as to the organization of tasks and decision-making between the household members.

Some examples of questions that can be asked about constraints and potentialities for women in contributing to HFS are listed below. The examples concern only the first step in the food chain, namely food production.

Fig. 11.2 A guide to planning for HFS.

levels and areas of analysis and action	HOUSEHOLD LEVEL			COMMUNITY LEVEL			
	material resources	knowledge and skills	organization	material resources	knowledge and skills	organization	
production							
postharvest handling							
marketing							
preservation	WOMEN'S POTENTIALITIES AND CONSTRAINTS						MACRO – LEVEL

storage		FACTORS
purchasing		
preparation		
distribution		

Food production – material resources

Food Adequacy:

Household level

Which of the following factors are limiting to the achievement of Food Adequacy: women's access to land, labour, credit or agricultural inputs? In what way are they limiting?

What are women's potentialities for securing Food Adequacy through existing access to material resources?

Community level

Is community land, water or other productive resources available to women? What are the limitations/potentials for exploiting such resources?

Viability in procurement:

Household level

Does women's use of own labour in food production limit their work in other parts of the food chain? In what way?

Is women's labour in food production detrimental to their health or to their opportunities of catering to their own basic needs? In what way is it limiting?

Endurance:

Household level

In what way do seasonal variations or recurrent crises change women's opportunities to produce adequate foods in a viable way?

Food production – knowledge and skills

Food Adequacy:

Household level

To what extent do women's lack of knowledge and skills concerning methods of food production limit their achievement of food adequacy?

Community level

What (traditional) knowledge and skills exist in the area concerning methods of food production? To what extent are such knowledge and skills exploited? Do they represent constraints/potentialities to achieving food adequacy?

Viability in procurement:

Household level

In what ways do women's knowledge and skills influence women's workload in food production?

Sustainability:

Household level

To what extent and in what ways do knowledge and skills that women possess about counteracting seasonal variations in food production limit/aid achievement of sustainability?

Community level

Are there any local knowledge or practices concerning food production that have proven successful in counteracting seasonal variations?

Food production – organization

Food Adequacy:

Household level

What are the constraints of existing sexual division of labour and decision-making power to food adequacy?

What potentialities exist for changing the pattern of division of labour and decision-making power between the sexes?

Community level

What formal and informal organizations exist at local level for catering to women's needs for agricultural inputs, credit, training etc.?

Viability in procurement:

Household level

To what extent does gender division of labour in production create an excess work burden on women?

Community level

What are the potentialities for starting cooperative activities for women in food production that can reduce their workload?

Endurance:

Community level

Are there organizations or local arrangements that have or can have a buffering effect against fluctuations in household availability?

It should be pointed out that there are alternative ways of employing the suggested guide in figure 11.2. In the above example, questions are asked systematically at each and every step in the food chain and within all the categories suggested. This way of using the guide may in some instances be too rigid and lead to an abundance of questions as well as giving little insight into the processes interrelating the various sub-areas. A possibility is thus to pose questions that will cover many of the suggested sub-areas in the guide. For instance it would be useful to get information on women's strategies for securing food for their families. Some examples of questions about this subject are given below.

Some general questions about women's food strategies

- Which are the main food chain strategies women have developed in order to secure food for their families in the lean season? What are the constraints for using these strategies?
- To what extent and how do women collaborate with men on these strategies?
- How effective are these strategies in achieving HFS for the poor households – in the short term and in the long term? What are the negative side effects, especially to women themselves?
- What are the conditions for these strategies to be most effective?
- How could a development project have a positive effect on the conditions on which the implementation of these strategies depend?
- How could the project deal with the possible negative side effects of these strategies?

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ANNOTATED BIBLIOGRAPHY

by
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INTRODUCTION

This bibliography of selected literature was prepared in connection with the report "Women's Role in Food Chain Activities and the Implications for Nutrition", requested by the UN ACC/Subcommittee on Nutrition and financed by the Norwegian Ministry of Development Cooperation (NORAD). The report includes an analysis of available literature on the topic and discussions and recommendations of practical concern for development work.

The selection of the literature included in this bibliography was based on the main problem areas to be discussed in the report. These are related to women's role and tasks in the "food chain", which includes all activities related to food, such as food production, food processing and food distribution, and the implications for household nutrition as well as women's own status and quality of life.

In the work of this bibliography efforts were made to cover literature which includes both women's food chain activities and women's role in nutrition, particularly those which include attempts to link these two aspects.

Due to limitations in time and resources we have concentrated on two geographical areas: Africa and Asia. Africa was chosen because of women's central role in food production in this part of the world. The inclusion of selections from Asia provided a fuller picture of the multifaceted aspects of women's food-related responsibilities and the nutritional consequences.

Table 1
Types of studies and geographical location
Number of studies

	Africa	Asia	Global
Total number of studies	58	18	39
Field studies	40	14	0
Theoretical or review articles	13	2	27
Project-related articles	14	6	23

The bibliography entails 111 documents. As seen in table 1, 58 of these studies pertain to the African situation, whereas 18 concern the situation in Asia. This reflects the emerging interest in women's role as food producers in Africa. In addition, 39 studies of more global interest have been included. The table illustrates the number of documents which deal with field studies, theoretical or review articles and documents of interest in relation to development projects, according to geographical area. It should be noted that one document may contain several of the aspects indicated in table 1 as well as in table 2.

Table 2 shows the number of documents in the bibliography, which have treated specific aspects of women's food-related work and nutrition. The largest number (88) concerns women's work in food production. These have been selected from a large body of literature on this topic. Women's work in other parts of the food chain is less extensively covered in the bibliography, 50 entries reflecting the scarcity of literature on this subject. None of the studies cover women's work in the entire food chain.

In a number of studies women's food chain activities have been related to women's workload, women's income in food and cash and nutritional conditions, such as food consumption and nutritional status of household members (see table 2).

Table 2
Aspects of women's work and nutrition
Number of studies

	Women's work in food production	Women's work in other parts of food production
Total number of studies	88	50
Women's workload	34	17
Income in food or cash, earned by women	19	17
Nutrition	32	18
Women's health and education	5	6

In a few studies other aspects of women's situation, such as health and education are taken up.

Even though considerable efforts were made to include in the bibliography all the literature available, which has attempted to link women's food chain activities with nutritional conditions of the household, only 31 of the entries met these criteria (table 2). Only a few empirical studies relate data on nutritional status or food consumption to women's agricultural work. Such studies are even more scarce in regard to women's work in fishing or fish processing, where only a few entries are made in this bibliography.

EXPLANATION OF KEY WORDS USED IN THIS BIBLIOGRAPHY

Key word

Abbreviation

Interpretation

Type of production

Agriculture	AGRIC	Articles particularly dealing with or giving examples from women in agricultural production.
Fishing	FISH	Articles particularly dealing with or giving examples from women in fishing, fish marketing, fish preparation.
Animal husbandry	ANIMAL	Articles particularly dealing with or giving examples from women in animal husbandry or women in pastoral societies.

Geography

Africa	AFR
Asia	ASIA
Global	GLOB

Type of study

Field study	FIELD	Reports from actual field studies.
Theoretical	THEOR	Reports with a theoretical contribution.
Project related	PROJ	Effects of development projects.

Overview	OVERV	Superficial overview.
Review	REV	Overview reports with examples.
Food chain		
Food production	PROD	Women's role in food production.
Marketing	MARK	Marketing of agricultural products, fish.
Food handling	HANDL	Food processing, cooking.
Food distribution	DISTR	Measured by food consumption or nutritional status.
Child care	CHI CA	Child care, child feeding, type of help in child care, child health.
Nutrition	NUTR	Food consumption, availability.
Link	LINK	Link between production, marketing, handling, and nutrition.
Technology	TECH	Technology (especially for women) in food chain activities.
Farming system		
Plough	PLO	Plough agriculture.
Non plough	N PLO	Slash and burn, horticulture.
Subsistence	SUBS	Subsistence, semi-subsistence household economy.
Cash crop	CA CRO	Cash crop agriculture.
Irrigated	IRR	Irrigation agriculture, swamp rice.
Agricultural workers	AGRI WO	Women as agricultural workers.
Seasonal variations	SEASON	Seasonal variations in workload, nutrition, income production.
Modernization	MODERN	New technology in food production.
Women's status		
Income	INC	Income from production, income generating activities, women's contribution to income.
Gender relations	GENDER	Division of resources and work, decision-making, norms.
Workload	WO LO	Women's work, time allocation.
Women's health	WO HEAL	Women's health, nutrition.
Islam	ISLAM	Effect of Islam on women's possibilities.

Women-headed households	WHH	Migration, widows, <i>de facto/de jure</i> women-headed households.
Education	EDU	Women's knowledge and education in relation to nutrition, health. Agricultural extension for women.

SELECTED BIBLIOGRAPHY

Adeyokunnu, Tomilayo (1981): *Women and Agriculture in Nigeria*. African Training and Research Centre for Women, Economic Commission for Africa, Addis Ababa, 43 pp.

The report describes the role of women in agriculture in Nigeria, based on a literature study and field studies in 3 different areas located in the western, eastern and northern parts of the country. Nigerian women are to a great extent involved in food production, farming and trading. The relative emphasis on these activities varies among the ethnic groups. Yoruba women of western Nigeria are more involved in food processing and in trade than in farming, which is the main occupation for Ibo women in eastern Nigeria. However, in addition to ethnic factors, economic stimuli appear to be a major determinant of whether particular groups of women are farmers or traders. Once men are involved in non farm operations, the women take over farm operations for home and for sale. The Moslem religion in the north restricts women's activities. Here, the main occupation of women is trading.

Although many women are engaged in food processing, this is not regarded as the main activity. This is because it is linked to farming or trading. Many women process their own farm produce. Alternatively, many women buy farm produce from others and then process it for sale. Women are often responsible for their own and their children's feeding, clothing, medical and ceremonial expenses. Very often, the women finance their husbands. It was reported that women often gave their husbands money for agricultural purposes.

All respondents indicated that they did not have access to credit. Funds to enlarge the scale of operations in farming, in processing and in trade, were lacking. Health, nutrition and child-care problems encountered included an inadequate number of doctors, nurses and other paramedical personnel; inadequate hospitals, dispensaries; lack of knowledge of modern home management practices and overwork in the home.

AGRIC/AFR/FIELD/PROD/MARK/HANDL/CHI CA

Aklilu, Delavit A. (1983): *Appropriate Technology for Women in Food Production*. Prepared for Expert Consultation on Women in Food Production. FAO, Rome, 17 pp.

This report discusses the impact of technology on rural women. It includes successful and unsuccessful cases and discusses constraints to the implantation of appropriate technology. It is apparent that the case studies indicating successful experiences with "appropriately" introduced technology have some fundamental similarities. This consistency is reflected in the target groups' motivation, in their level of organization and in the provisions made for the participation of the beneficiaries at different levels of the project development, from its formulation and design to its implementation and evaluation. In fact, the project documents of the successful case studies put more emphasis on the organizational effort and institution building than on the efficacy of the technological intervention.

AGRIC/GLOB/PROJ/REV/PROD/MARK/HANDL/TECH/MODERN/ANIMAL

Anbarasan, Karuna (1985): *Factors that influence the Role and Status of Fisherwomen*. Report from the Bay of Bengal Project, FAO, Madras, India, 67 pp.

The report is based on a year's study of the situation of women in three fishing villages in Tamil Nadu. This is one of the pilot studies of the Bay of Bengal Project to gain information in order to improve living conditions of women from small-scale marine fishing communities. Nearly 26% of the fisherwomen in Tamil Nadu are involved in marketing and handling of fish. Fisherwomen's involvement in these tasks depend on their socio-economic status. In families without any productive assets the fisherwomen have to help earn the family income by marketing of fish. Fisherwomen from families which own a variety of nets and boats, are usually not directly involved in fish marketing; they act as supervisors and hire women to do the actual marketing. The report includes a section on the health and nutrition conditions of the fisherwomen. It is stated that nutritional deficiency among fisherwomen is greater than among men, due to the fact that it is

customary for women to eat only after serving men and children, and that fish, the only cheap protein available, is served mainly to men and children. These statements are, however, very poorly documented. The extent of malnutrition in the population is not measured.

The report concludes that earning an income is a necessary, but not a sufficient condition for improvements in women's status. It is suggested that the formation of small women's associations would also be necessary. These could help in redefining the role of both men and women.

FISH/ASIA/FIELD/MARK/NUTR/WO HEAL

Bantje, Han (1980): Seasonal Variations in Birth weight Distribution in Ikwiriri Village. BRALUP Research Paper, No. 43 (New Series) University of Dar es-Salaam. Dar es-Salaam, Tanzania. 23 pp.

Examines seasonal variations in birth weight distribution over a seven-year period in Ikwiriri and correlates these with rainfall, female labour output in agriculture and food availability. The findings revealed that average birth weight responds to the combined intensity of labour output and food availability. It was also discovered that changes in average birth weight were as late as just before delivery. This was very significant since women tend to work almost to the onset of labour pains. The data also revealed that even when food was plentiful but agricultural labour was also demanding, low birth weight was more common. Alternatively, when food was low due to bad harvests but with resulting low level of agricultural activity, birth weights tended to be high. The paper therefore concludes that labour output is the more dominant variable affecting birth weight, and that availability of food would be the more dominant factor only if food scarcity was a prolonged phenomenon.

The implications of this study are obvious. Low birth weight is one of the chief causes of infant mortality. If low birth weight is significantly affected by the mother's labour output, there is a great need to look into the sexual division of labour at the household level.

AGRIC/AFR/FIELD/PROD/WO LO/WO HEAL

BAM, Zambia (1981): Some Observations on Households run by Women alone. In Ward 3 (chief Chungu's area) Luwingu District – Northern province. Luwinger, Zambia.

Female heads of households represent about 12–15% of all households in the area. The main economic activity in the area is 1) slash and burn cultivation of millet, beans, groundnuts, peas, various cucurbits and cassava, 2) semipermanent cultivation of cassava, 3) permanent cash crop cultivation, 4) fishing (petty).

Women were to a certain degree helping in cash crop cultivation, but women from female-headed households only engaged in 1) and 2). Fishing was too time-consuming and single women were not accepted in the groups of married women. Cash crop cultivation was not feasible, since their households did not have enough food to eat. Women from female-headed households needed male assistance for the slash and burn cultivation. Such help was bartered against beer, brewed from millet. Beer brewing was also these women's main source of income. Beer brewing is often a very insecure enterprise, with frequent failures. Skill is needed. Casual employment was hard to get.

On questions about food availability in the households, 15% of male heads of households answered that they did not have enough food, whereas in female-headed households 90% estimated that they did not have enough food.

AGRIC/AFR/FIELD/PROD/HANDL/N PLO/SUBS/WHH

Batliwala, Srilatha (1982): Rural Energy Scarcity and Nutrition; A New Perspective. Economic and Political Weekly (India) 17 (9): 329–333.

This paper emphasizes the need to concentrate the efforts aimed at meeting the energy needs of populations, not only by increasing production, but also by reducing calorie expenditure through appropriate technology. Due to the lack of information on the calorie costs of different tasks which rural people are involved in, estimations of such costs were performed. Calorie expenditure for men, women and children was calculated on the basis of these estimates as well as time-allocation studies from a field study in India. Such data naturally have to be treated with caution. They imply a heavy energy load on women. In this context, appropriate technology may be an important contribution in efforts to bridge the gap between available energy for consumption and energy expenditure.

Bério, Ann–Jacqueline (1984a): "The Analysis of Time Allocation and Activity Patterns in Nutrition and Rural Development Planning. Food and Nutrition Bulletin 6 (1): 53–68.

The paper presents three large–scale time allocation surveys, from The Central African Republic, Nepal and the Ivory Coast, and illustrates the main findings. The author has particularly been involved in the analysis of data from the Ivory Coast (household food consumption and budgetary survey in 1979). It points to the important role played by women and children in the production of food. Comparison between Nepal and Ivory Coast data reveals striking similarities, despite differences in the socio–cultural and economic systems. In both countries, women carry about 2/3 of the total work burden in the household, close to 90% of the domestic activities, and perform more than 70% of the subsistence economy activities.

In Nepal, where time–use data on children were collected for ages down to 5 years, children contribute substantially to the household work (nearly 3 hrs. a day for children aged 5–9, and more than 6 hrs a day for children in the 10–14 year age group). Female children work more than male children. The author points to the dependence on girls' labour being a major reason for keeping girls out of school. Women in Nepal and the Ivory Coast generate less than 20% of the cash income. However, when home production and outside cash earnings are taken together, women's contribution to the total household is substantial. In Nepal it was calculated to be 50% for women, 44% for men, and 6% for children. In the Ivory Coast, it was found that women spend 70% of the external cash earnings, most of this was spent on food. Women's contribution to the household food supply in the Ivory Coast showed that 54% of the calories were provided by them. However, this shows that also men are contributing substantially to the household food.

The data examined indicate that rural modernization for improving productivity tends to increase women's workload and reduce men's. Women's time is seen as a scarce production resource. If new activities are planned, e.g. through a development project, it may imply that women will have to drop some of their present activities or reduce their efforts in these, or the planned activities may not be taken on, due to lack of time. Guidelines for time–allocation studies prior to project planning are suggested. The author points to the usefulness of employing time–use studies for calculating energy requirements. It is indicated that the WHO/FAO reports on protein and energy requirements may have underestimated energy expenditures of women at given activity levels.

AGRIC/AFR/ASIA/FIELD/PROJ/GENDER/WO LO

Bério, Ann–Jacqueline (1984b): The Use of Time Allocation Data in Developing Countries: from Influencing Development Policies to Estimating Energy Requirements. Paper delivered at the International Research Group on Time Budgets and Social Activities. Helsinki, August 1984. FAO, Rome. 35 pp.

This paper analyses time–use data from a national survey in the rural area of the Ivory Coast. Some of the data have earlier been presented in Food and Nutrition Bulletin (Bério, 1983). A more detailed presentation is given of data collection methods and results. The total workload was consistently higher for females than males in all age groups from 6 yrs. and on. The workload seemed to peak at the age of 25–29 yrs. Part of the paper is devoted to the presentation of estimates of energy–expenditure of adult males and females. A "physical activity index" (PAI) is calculated by synthesizing all the individuals' daily activities and their related energy costs. The results show that women in general have a higher PAI than men, and that the women in general have a higher activity than what is estimated to be average values for standard levels of physical activity according to FAO/WHO expert committees.

AGRIC/AFR/FIELD/GENDER/WO LO

Bettles, F.M. (1980): Women's Access to Agricultural Extension Services in Botswana, Women's Extension Unit, Ministry of Agriculture. Gabarone, Botswana.

This paper discusses women's role in agriculture and gives an outline of women's extension programmes in the past and future. In Botswana, crops are mainly grown for food, while live–stock is the wealth and status symbol which provides cash. Traditionally, food production has been the responsibility of women while the men and boys spent most of their time with the cattle. The report discusses the constraints that female–headed households face:

Access to draught power. Since men take care of the cattle, female–headed households have less access. In a land survey conducted by the Ministry of Agriculture, it was shown that

59% of female-headed households had no access to draught power, compared to 28% for male headed households. For the households not having access to draught power one of the main constraints to optimal production is the inability to plough at the best time, being second in line.

Labour. There was a clear relationship between the number of adults present in the household during ploughing season, and rising crop yields.

Less farming equipment in female-headed households.

A post as Agricultural Officer/Women's Extension was created in the mid '70s. Areas of work were: rising awareness of the need to involve women in general extension work, forming farmers' committees, working with existing women's groups, informal groups, and encouraging women to attend courses.

To implement women's extension on a national scale has met with difficulties. Many of the people responsible thought that women were the clientele of community development officers; thus seeing only their domestic role, rather than the economic.

AGRIC/ANIMAL/AFR/FIELD/PROD/GENDER/WHH

Bleiberg, Fanny, Thierry A. Brun, Samuel Goihman and Emile Gouba (1980); Duration of Activities and Energy Expenditure of Female Farmers in Dry and Rainy Seasons in Upper Volta. *British J. Nutr.* **43**: 71–82.

The daily activity pattern and energy expenditure of fifteen female farmers in Upper Volta were assessed in the dry and the rainy seasons. In the rainy season women spent about 4.5 hours daily on agricultural work and walking to and from the fields, whereas in the dry season time was dedicated to cotton handicrafts. In addition to the burden of agricultural work in the rainy season, women spent a considerable amount of time in washing (since clothes got dirty in the fields), and in picking wild leaves and fruits which were mostly available in this part of the year.

The mean energy output rose from 9.7 MJ (2320 Kcal) in the dry season to 12.1 MJ (2890 Kcal) in the wet season. The results suggest that during the rainy season, the energy requirements of female farmers are much higher than usually estimated.

It was shown that the time spent on food preparation, cooking and tending of children was considerably reduced during the rainy season. Cooking was reduced to one meal per day, which was dinner. Breakfast was usually made of the scraps from last night's dinner; the meal at noon was omitted since most women worked in the fields.

These data were compared with other studies including energy intake and changes in body weight for female farmers in West Africa. Such comparisons suggest that the energy output during the wet season is frequently above the energy intake.

AGRIC/AFR/FIELD/PROD/HANDL/NUTR/LINK/SEASON/WO LO/N PLO

Boud, C.A. (1974): "Women's involvement in Agriculture in Botswana. Ministry of Agriculture, Gabarone, Botswana.

Six areas in South Eastern Botswana were surveyed with a view to put forward recommendations for more efficient agricultural service operations. The women are regarded as food producers. Women are the main persons engaged in 47.7% of crop activities. Men clear land and do the ploughing. In households without males, women hire labour or rely on older relatives. Both men and women plant, but more men are involved (65%). The person who plant, also ploughs. The remaining crop activities are almost exclusively women's work. Household work takes up half of women's active day. Men help in wood collection and shopping. Women are the main persons responsible and engaged in house-building. Women in these societies have considerable influence on decision-making connected with agricultural activities, even in activities where women's labour contribution is small. The results show that agricultural extension is reaching rural people only to a limited degree. Where it does make contact, both men and women are reached, but men and households with a male head are favoured.

The role of women is dependent on the composition of the household. 42% of the households were headed by women. In these households women took most of the decisions.

Crops grown: everyone who ploughed planted sorghum. A high proportion also grew maize and beans. Other crops were millet, cowpeas and ground-nuts. Women keep pigs and poultry and a number of women are responsible for small livestock; men herd and tend the cattle. The study concludes that there is an obvious need for extension services to be directed towards women. But for this to be practical, some considerations must be given to ensure that any extension for women encompass all the interrelated parts of their lives, and that farming is not dealt with in isolation.

AGRIC/AFR/FIELD/PROD/SUBS/GENDER/WO LO

Brandtzaeg, Brita (1982a): The Role and Status of Women in Post Harvest Food Conservation. Food and Nutrition Bulletin 4 (1): 33–40.

It is stated that methods and technologies of relevance to women's activities in the food chain have received little attention in planning and research aiming at increasing food availability and nutritional levels. The author argues that tools and techniques used for processing food into edible and digestible products are of crucial importance in this respect. There is a need to study food processing techniques that women use and to evaluate their economic and nutritional significance. Empirical data on local food systems and gender division of labour are presented. The nutritional and technological significance of methods women use in their various tasks in food processing and preparation are discussed. The data clearly show the laborious processes involved in making the best possible use of available food resources. A call is made for the provision of training and opportunities for women to redesign their own tools. Efforts should be made to develop appropriate technologies based on the best in traditional food processing, which will increase the productivity of household work. Local food processing techniques on a cooperative basis are seen as one way of releasing women from time-consuming, repetitive and laborious work.

GLOB/PROJ/TECH/MODERN/GENDER

Brandtzaeg, Brita (1982b): Women, Food and Technology: A Village Study from India. Third World Seminar Publications No. 28, University of Oslo, Norway. 44 pp.

An attempt is made to view the problem of nutrition as part of the total food system in the village of investigation. Data was collected by a combination of quantitative and qualitative methods on labour input and organization, production and processing techniques along the food chain. Time allocation by men, women, girls and boys in all their daily chores are presented, showing that women spent more time than men on activities directly related to food, but their total workload was the same. The data also show that boys and girls below age 14 contribute a considerable part of the total household labour. Data on gender division of labour in relation to different agricultural crops and according to season, show a great deal of overlapping between the sexes when it comes to crops and tasks performed. However, the cultivation of pulses and oil-seeds seems to be entirely women's work. The most striking difference between men and women, however, is the type of techniques they use to perform the same tasks. For example, while women use wooden sticks for threshing, men use bullock carts and rollers. The data demonstrate that women are left with the heaviest and most repetitive work, such as carrying loads of food crops, firewood and water, and that the tools and techniques available to women are more primitive than those utilized by men, and therefore result in lower productivity compared to the work of men.

The field-work included an action component which consisted of setting up a local processing unit for producing a weaning food mixture on a cooperative basis. The processing of grains for the mixture was based on traditional techniques, and also familiar to the villagers. The local cooperative processing resulted in a very positive response from the mothers, who in the beginning had been reluctant to feed this mixture to their children. The weight gain of children 0–3 years old who had received the weaning food was significantly higher than children who had not received it. The author's conclusion is to develop strategies for cooperative action concerning local food processing technologies, since this seems to be the only way that labour saving tools can be economically acceptable to women.

AGRIC/ASIA/FIELD/PROD/HANDL/NUTR/LINK/TECH/GENDER

Bryson, Judy C. (1979): Women and Economic Development in Cameroon. Office of Women in Development, Agency for International Development, Washington D.C. 59 pp.

The paper is based on available literature and the author's own field-work in the Cameroon. It contains a chapter on women's role in agriculture and nutrition. It reviews women's involvement in different types of production. It argues that the division of labour in this area is not according to tasks or crops grown, but on the

basis of fields. Women had their own fields where foods for the daily meals were grown. The men's food store represented reserve supplies. When women had no fields of their own and were supposed to help their husbands, they tended to spend more time on marketing activities in order to get an independent source of income. Women's role in food processing and cooking is discussed with regard to seasonal changes. Links to nutrition are attempted.

AGRIC/AFR/FIELD/REV/PROD/HANDL/NUTR/LINK/SEASON/GENDER

Bryson, Judy C. (1981): *Women and Agriculture in Sub-Saharan Africa: Implications for Development*. J. Dev. Stud **17** (3): 29–46.

The author draws from an comparative study of the division of labour, based on the Murdoch Ethnographical Atlas and her own field-work in Ghana, Burundi, Lesotho and Cameroon. In addition to the division of labour, the article raises the subject of social imperatives sustaining the predominant role of women in food production. It is argued that food production is an integral part of the notion of "motherhood" in African countries. The implications of this and other cultural traits for development are discussed.

AGRIC/AFR/FIELD/REV/PROD/GENDER

Bukh, Jette (1979): *Village Women in Ghana*. Uppsala, Scandinavian Inst. for African Affairs. Uppsala, Sweden. 118 pp.

The introduction of cocoa and the increasing importance of wage labour and commodity production initiated a significant change in land tenure in Southern Ghana. This affected women negatively in several ways.

The migration of males to the urban areas compelled women to undertake tasks that they were not accustomed to, which in turn affected the type of land that they could cultivate, and the crops that could be produced. The persistence of patrilineal forms of inheritance and lineage rights affected the women's access to land to cultivate tree crops, while the small size of the plots made them more risk conscious about adapting new crops like hybrid maize.

The traditional food of these people was yams, which were grown on the fertile forest lands. It was men's work to cut the forest and make the high mounds on which yams were grown. When cocoa was introduced it was grown on the fertile forest land. Women lost the men's labour, and they got less land for growing yams.

The situation for women got even worse when the cocoa production went down and men migrated to the urban areas. Because of an excessive workload, women began to grow cassava instead of yams. The author has estimated the nutrient content of yams and cassava, and argues that the change could have a negative nutritional effect, since cassava is less nutritious than yams.

AGRIC/AFR/FIELD/PROD/NUTR/LINK/CA CRO/SUBS/GENDER/WO LO/WHH

Burfisher, Mary E., Horenstein, Nadine R. (1985): *Sex Roles in the Nigerian Tiv Farm Household. Women's Roles and Gender Differences in Development. Cases for Planners*. Kumarian Press, West Hartford, USA, 62 pp.

This study examines the expected impact of a development project on both sexes. It focuses on the division of labour, income and financial obligations among the Tiv, an ethnic group in Nigeria, and discusses the implications of these divisions for the ability and incentives of each sex to adopt technologies introduced by the agricultural development project. This project was particularly aimed at increasing yields from production and increasing farm incomes through introduction of a technological package.

Based on calculations of women's and men's labour input in different parts of the agricultural cycle, and expected changes due to the project, it was shown that the project could be expected to increase women's farm labour disproportionately to men's. Conflicts were expected to occur with regard to women's labour allocation to different crops and to agricultural vs. non-agricultural work.

An alternative project design with special focus on the needs of women is discussed.

AGRIC/AFR/FIELD/THEOR/PROJ/PROD/TECH/SEASON/MODERN/INC/GENDER

Burton, Michael L. and Douglas R. White (1984): Sexual Division of Labour in Agriculture. *American Anthropologist*, **86**: 568–583.

A cultural ecological theory of the sexual division of labour in agriculture is developed that has universal relevance. The theory is geared towards explaining the linkages between agricultural intensification and the sexual division of labour. In this context, 5 variables are hypothesized to effect the sexual division of labour: population pressure, seasonal time pressure (short cultivation season), use of the plough, are all thought to increase male participation in agriculture; while the dependence on domesticated animals and the cultivation of crops requiring extensive processing are thought to decrease participation of women in agriculture, due to increased labour inputs in domestic work. The theory was tested out by carrying out least squares regression analysis on the proposed variables according to regions in the world. It was found that seasonal time pressure and dependence on domesticated animals were the strongest predictors of female participation in agriculture, while population density was found to have the weakest effect on sexual division of labour.

AGRIC/GLOB/THEOR/PROD/HANDL/MODERN/GENDER

Carloni, Alice (1983): Integration of Women in Agricultural Projects. Case Studies of ten FAO–assisted Field Projects. FAO, Rome, 103 pp.

This paper is based on a series of case studies of selected FAO field projects, that were carried out in 1982. The purpose was to assess the extent to which FAO agricultural projects in various fields have taken rural women into account; to identify the consequences of overlooking women and to suggest design alternatives which would strengthen a project by incorporating women.

The projects selected are potentially relevant in regard to nutrition; poultry, postharvest processing and storage of food grains, sheep and goat production and irrigation.

An analysis of the selected case studies was performed to compare and contrast the experience of the various projects and draw some practical conclusions about various aspects of the process of integrating women. The paper includes a set of recommendations.

AGRIC/GLOB/REV/PROJ/PROD/HANDL/TECH/INC/GENDER/WO LO

Carr, Marilyn (1978): Appropriate Technology for African Women. African Training and Research Centre for Women, Economic Commission for Africa, Addis Ababa.

This report contains examples of labour saving devices, designed to aid women's work, including food production, food handling and cooking.

AGRIC/AFR/PROJ/PROD/HANDL/TECH/INC/WO LO

Carr, Marilyn (1979): Women in Rural Senegal: Some Implications of Proposed Integrated Food and Nutrition Interventions. Office of the Advisor on Women in Development, World Bank, USA, 42 pp.

The Integrated Food and Nutrition Project in Senegal attempts to improve nutrition and health standards in the rural areas by combining expanded training and facilities with measures to increase food availability. This paper examines the sort of problems which may arise during the implementation of such a project and makes some suggestions on how safeguards could be built into the project to increase the chances of success.

In regard to new sources for drinking water, it is discussed how lack of careful planning may reduce time saved by women. For example, if there are no suitable facilities for functions such as bathing and laundry, additional journeys to more traditional water sources have to be made. Furthermore, time saved in water collection may be devoted to doing more work on their husbands' fields; the income from which is less likely to be spent on food.

In regard to food availability: One method of trying to increase food availability is to distribute higher yielding or quicker maturing varieties of seeds. If these are distributed through normal channels in Senegal, they may be used by the men on their own fields and not filter through to the women for use on theirs. The use of new varieties of seeds on men's fields may also result in more work for women without more access to the income.

Problems from past experiences are identified in terms of failures to achieve improved nutrition and health through support to food–related activities. The major problems listed are: inappropriate choice of technology

for drawing water, food processing and storage; lack of economic appraisal of income-generating activities (time and resources spent in relation to income earned); lack of appropriate training and wrong timing in training; lack of consideration of linkages and conflicts between women's different activities (relates to the importance of promoting activities that can serve many purposes); and insufficient consideration of division of responsibilities, control of resources and decision-making power between men and women. Suggestions for strengthening the nutritional outcome of a proposed integrated food and nutrition project in Senegal are made. The suggestions are: 1) water development for small-scale food production and household purposes, 2) provision of grinding mills, 3) vegetable gardening, 4) poultry and livestock raising, 5) food storage improvement, 6) income-generating activities promoting nutrition (e.g. production of clay-pot water filters, foot coverings to prevent hook-worm infestation, ground-nut shell briquettes as substitutes for firewood, and ground-nut oil). Each suggestion is discussed in terms of its nutrition-promoting effects and in terms of factors that have to be taken into account in order to ensure a successful outcome. Training and nutrition education are seen as integral parts of the activities to be promoted.

AGRIC/ANIMAL/AFR/PROJ/PROD/HANDL/LINK/TECH/INC/GENDER/WO LO/EDU

Carr, Marilyn (1981): *Women and Technology in Rurally Oriented Projects. Notes on Women in Development No. 13*, World Bank, Washington DC. 38 pp.

The main hypothesis of the paper is that rural-oriented development projects stand a greater chance of success if more consideration is given to the important role that women have to play in enabling potential benefits to be realized. Technology regarding food production, food processing and household tasks is discussed as well as the impact of technology on income generating activities for women. It is stated that technology can reduce drudgery, but also reduce opportunities for employment, depending on the circumstances. Therefore, the effect that the choice of technology is likely to have on employment for women should be fully considered.

Three areas have been pointed out as the most critical for women's effective participation in technological change:

1) Mechanisms and personnel for ensuring that women receive as well as contribute information about and gain access to improved technologies. This has to do with the experience that development initiatives, introduced to men by men are often regarded as men's domain, and will thus not benefit women. 2) Reducing the burden and increasing the efficiency of women's tasks in the household economy, thus freeing women's time. 3) Ensuring the availability of cash for women.

AGRIC/GLOB/REV/PROJ/PROD/HANDL/TECH/WO LO/GENDER/MODERN/INC

Caughman, Susan (1980): *Women at Work in Mali: The Case of the Markala Cooperative*. Ministry of Rural Development, Republic of Mali and Ford Foundation.

The paper concerns a study of a cooperative started by and for women in the town of Markala in Mali, in order to increase the means and stability of income. In this exercise the workload and responsibilities of women in Mali are described. It is stated that women in Mali are expected, through a combination of custom, social obligation and harsh economic reality, to make substantial contributions to the family budget and maintenance of the household. Tradition governs with great precision the nature and extent of contributions by men and women. Two essential items are always provided by women – food and clothing. Farm women were expected to provide all food ingredients. Women without access to land, such as town women, could in the past expect their husbands to pay the price of the sauce to accompany the staple food. Today most husbands cannot afford to cover the full cost of this part of the food, and women have to supply it. Most of the women in the study were part of polygamous households, where cooking duties rotate among the adult women, giving the women time for income-generating activities. To meet basic food responsibilities, Markala women must come up with important sums of cash each month.

Cooking is estimated to take 1–2 hrs per meal. Millet dehusking and grinding is the most time-consuming process, estimated to 2.5 hrs, per day, if done by hand. Nowadays most of the women did the dehusking themselves and the grinding at the mill, thus saving time.

Women were traditionally responsible for bringing firewood. However, because of the deforestation, firewood had now to be bought. In this process the responsibility for firewood shifted from the women to the men. With wood available for purchase, water nearby, and grain processed in part at mills, Markala women are comparatively free from much domestic drudgery, and could spend the time on income earning activities such

as those performed at the cooperative.

AGRIC/AFR/FIELD/PROD/HANDL/GENDER/WO LO

Chaney, Elsa M. (1985): Women and Food Production: Variations on a Perennial Theme. In: Women Creating Wealth: Transforming Economic Development. R.S. Gallin and A. Spring (Eds.). Association for Women in Development Conference, Washington D.C. pp. 61–64.

Two women's components attached to larger rural development projects in Jamaica and the Dominican Republic are reviewed in terms of their possible impact on women. The two components were centred on subsistence food production through nutrition/gardening interventions. Family-sized vegetable plots, to be cultivated on a rotation basis, and nutritional education were introduced. Both projects aimed at improving women's productivity in subsistence-generating, rather than income-generating activities. Two important questions were assessed: the extent to which subsistence-generating projects may effect women's status negatively, since they do not produce cash income, and the degree to which women's organization contributes to the success of women's projects. It is agreed that intensive gardening is a far more economic use of women's time and labour, than many income-generating activities. Money can be saved by having a garden. It is also argued that nutrition education is more easily taught when linked to food production efforts. The author suggests that rather than remedy women's devalued position by removing them from subsistence food production to income-generating activities, the solution might be to communicate women's important contribution to the rural household to women themselves, their men and children, and the community.

AGRIC/GLOB/THEOR/PROJ/PROD/SUBS/INC

Chavangi, N.A and A. Hanssen (1983): Women in Livestock Production, with Particular Reference to Dairying. Prepared for Expert Consultation on Women in Food Production, FAO, Rome, 14 pp.

In small-holder systems throughout the world, cattle are kept for the provision of draught power, manure, milk and beef. Women have mainly been active in working with milk and milk products, even though they are also involved in ploughing, in collection and spreading of manure and general husbandry and herding.

Women face a number of difficulties related to their formal lack of rights of ownership of cattle or land. Women are often not able to: join dairy cooperatives themselves; receive the returns on sales of processing plants; seek technical assistance or training themselves; or apply for credit.

Furthermore, in some societies it is difficult for women to discuss breeding matters with male technical staff. With increased commercialization of dairy processing, women lose the income it generates. Women managers of herds may have an increased workload due to modern methods, including improved animal nutrition, disease control, management and breed improvement.

It is pointed out that nutritional considerations have to be taken into account in developing efforts in the dairy sector. For example, steps should be taken to make payments for milk to those responsible for managing the herds. It may be found that women want smaller payments at shorter intervals, in order to have cash for family food. On the other hand, improving the marketing opportunities for milk may result in low milk consumption among children in poor families. If children suffer nutritionally when milk sales are increased, some new policies will be required.

ANIMAL/GLOB/PROJ/PROD/HANDL/NUTR/INC

Chenoweth, Florence (1984): Women in the Food System in Africa. Consultant report, Zambia. FAO, Rome. 25 pp.

This report from Zambia is one of the studies of women in Food Systems in Africa, initiated by FAO. It is stated that women's intensive involvement in agriculture, makes them the pillar on which the food system of Zambia is built. In addition to agricultural work, housework and child-care, women are heavily involved in trading of food crops and fish. Women are also involved in fishing from streams and preparation of fish by smoking and drying. The overall burden on women in some parts of Zambia has increased. Due to soil depletion, women have to cultivate larger areas of land. Similarly, in areas of deforestation women must spend many hours in search of firewood. The paper includes evaluation of the credit institutions, extension services and cooperatives in the light of women's needs.

AGRIC/AFR/OVERV/PROD/TECH/GENDER

Chowdhury, A.K.M. Alauddin, Sandra L. Huffman and Lincoln C. Chen (1981): Agriculture and Nutrition in Matlab Thana, Bangladesh. In: Seasonal Dimensions to Rural Poverty. Chambers, Longhearst and Pacey (Eds.) Frances Pinter Ltd., London, pp 52–61.

The authors present data from a longitudinal study in Comilla District in Bangladesh, carried out by the Cholera Research Laboratory during March 1976 to February 1977. Data were collected on seasonal variations in body weight of mothers and children, breast-feeding time, household food stocks, women's agricultural activities, rice prices, wage rates, and diarrhoeal diseases. The findings showed that women's and children's body weight varied according to season, being at its lowest when household food stocks reached bottom level and at the peak when household food agricultural activity was just passed. The paper points out that seasonal peak demands on labour coincide with periods of food shortage, but that the observed weight changes also may be due to an increase in illnesses and lack of time for proper feeding of infants during the peak season.

AGRIC/ASIA/FIELD/PROD/HANDL/DISTR/CHI CA/NUTR/LINK/IRR/SEASON/WO HEAL

Clark, Gracia (1985): Fighting the African Food Crisis: Women Food Farmers and Food Workers. United Nations Development Fund for Women, 41 pp.

The paper discusses the importance of small-farm women in Africa with ample references to other studies. Particular emphasis is placed on the tasks of food production and processing, that repeatedly constrain labour, such as weeding, transplanting, harvesting and transportation of produce. Grain processing is often a very time-consuming task, especially for the traditional crops, sorghum and millet. It is suggested that development aid facilitate technology to ease these tasks. It is also suggested that particular attention be given those crops which are usually cultivated by women, such as cassava, yams, pulses. Since women are often involved in animal husbandry, particularly of small animals, dairy and fish processing, these activities should also be given special attention.

AGRIC/ANIMAL/AFR/REV/PROD/HANDL/MODERN/GENDER/WO LO

Cloud, Kathleen (1985): Women Farmers and Aid Agricultural Projects: How Efficient are we? In: Women Creating Wealth: Transforming Economic Development. R.S. Gallin and A. Spring (eds.). Association for Women in Development Conference, Washington D.C. pp 163–170.

Eight agricultural projects instituted by the USAID in North Africa are examined in terms of lessons to be learned concerning women's participation in development. All projects addressed the total farming system and also targeted resources of female cropping enterprises. The author introduces an analytical framework which distinguishes between men's and women's crop production and relates this to overall project efficiency and to equity between the sexes. It is concluded that the projects where women's access to productive resources was high, were also the projects with the highest efficiency. It is therefore stressed that both equity and efficiency are best served by projects that take explicit account of men's and women's roles in agricultural systems.

AGRIC/AFR/PROJ/PROD/GENDER

Date-Bah, Eugenia and Stevens, Yvette (1981): Rural Women in Africa and Technological Change: Some Issues. Publications for the International Institute for Labour Studies, ILO, Geneva, 14 pp.

The authors warn against treating women as isolated individuals in development efforts; that too much of the development literature on women has failed to consider the interrelations of women's and men's activities. It is suggested that introducing appropriate technology for women should not only be viewed in terms of methods which could lead to an increase in income and a reduction in drudgery, but also as an important means of social change in the life of the rural family. It could, for example, aim at promoting cooperation between males and females. Thus, the men have to be included in the development efforts for women.

The authors point out that already existing traditional women's groups may be good avenues for introducing technological change. It is also pointed out that developing countries possess vast natural resources in the form of solar, wind, hydro and biomass energy. The most appropriate technology for women should not always be based on human or animal power.

AFR/PROJ/REV/TECH/GENDER/WO LO

Dey, Jennie (1984a): Women in Rice–farming Systems. Women in Agriculture **2**. FAO, Rome. 106 pp.

The paper focuses on women's roles in rice production, postharvest work and marketing and looks into the implications for expanding production and raising productivity and incomes under different cultivation conditions. It is based on case studies of traditional rice–farming systems and the impact of development projects from the Ivory Coast, Madagascar, Gambia, Upper Volta, Senegal and Zanzibar. Recommendations for government policy, research, project design, delivery, monitoring and evaluation are given.

AGRIC/AFR/REV/FIELD/PROD/GENDER/WO LO/TECH/MODERN

Dey, Jennie (1984b): Women in Food Production and Food Scarcity in Africa. Women in Agriculture **3**, FAO, Rome. 101 pp.

The paper reviews women's responsibilities for cash crop and subsistence food production, gathering foods, animal production, and food handling within the context of food security. The paper takes into account FAO's concept of food security which has three elements – increased production, stability of supplies, and accessibility of food. Women's roles and efforts are seen as vital to their realization. Measures to increase women farmers' output and efficiency in food production in order to improve food security are proposed.

AGRIC/AFR/OVERV/PROD/HANDL/GENDER/WO LO

Economic and Social Commission for Asia and the Pacific (1985): Women in Fisheries. Report on Socio–Economic Surveys in Fiji, Indonesia, Papua New Guinea and the Philippines. ESCAP, Bangkok, Thailand, 40 pp.

The intention of the paper is to bridge the information gap concerning women's role in small scale fisheries and the socio–economic aspects. It includes reviews of pilot projects for women in Fiji, Indonesia, Papua New Guinea and the Philippines.

The division of labour and the traditional role of women in fishing communities differ widely in the programme areas, owing to different cultural patterns. In Indonesia and the Philippines women are traditionally involved in fish postharvest activities. In the Philippines, more than 50% of the handling, marketing and distribution of the fish is carried out by women. Women are not allowed on board fishing vessels and are therefore generally excluded from catching fish.

In the South Pacific, such social taboos do not exist, and traditions do not prevent women from engaging in fishing activities. In Fiji, subsistence fishing is carried out mainly by women who are also heavily involved in catching shellfish and crustaceans for the market. Women in Papua New Guinea are involved in fishing activities at the subsistence level, particularly with respect to shellfish. They are also heavily involved in the handling, processing and marketing of the catches.

The pilot projects were planned so as to test the potential of income–earning activities for women in these relatively disadvantaged communities. The information points to some encouraging results.

FISH/ASIA/FIELD/PROJ/PROD/MARK/INC

Economic Commission for Africa, African Training and Research Centre for Women (1978): The Role of Women in the Utilization of Science and Technology for Development. Prepared for the African Regional Meeting on United Nations Conference on Science and Technology. UN ECA, Addis Ababa.

The use of technology is discussed in relation to food production and food handling. Examples are given from different parts of Africa. These illustrate how new technology for food production and food handling has failed, because it was designed and introduced by men and not enough attention was paid to women's needs. Examples of some successful projects are also given. However, when technology has been successfully introduced, men have often taken over the operation. The relationship between technology and women's workload and the nutritional status of women and children is discussed.

AGRIC/AFR/REV/PROD/HANDL/TECH/WO LO

Economic Commission for Africa, African Training and Research Centre for Women (1984a): The Role of Women in the Solution of the Food Crisis in Africa. Prepared for the Third Regional Conference on the Integration of Women in Development, Arusha, Tanzania, UN ECA, Addis Ababa. 29 pp.

Factors contributing to the poor performance of African food production are discussed in relation to women's roles. Important factors are: the rural/urban drift which has changed the structure of the rural population, particularly because of the unprecedented number of young people and men moving into the towns; the low level of production technology; inadequate and irregular supply of inputs; unencouragingly low prices of food products; and import policies, which bring prices down, because African currencies are over-valued. Strategies for greater and more rational participation of women are laid out. These focus on technological improvements, training and research, water for domestic use and irrigation, and the problem of firewood.

AGRIC/AFR/REV/PROD/TECH/GENDER/WO LO

Economic Commission for Africa, African Training and Research Centre for Women (1984b): Marketing in Ghana, UN ECA, Addis Ababa, 62 pp.

The report is based on field studies from 11 markets in Ghana and concerns women's involvement in marketing of foods, including farm produce and fish. It gives the socio-economic background of market women, why they chose this occupation and the degree to which their special needs, such as day care centres for children, cooking facilities etc. are fulfilled.

The traders have to stay about 10 hours a day in the market-place. All the market-places had problems with poor sanitation and inadequate ancillary and utility services. The traders, who were mostly mothers, had to bring their children up in this environment. On the average, the traders had to care for four children while doing business. Only three of the markets had day care services. 81% of the mothers who had no day care centre, insisted that they needed this service. Many of the traders had credit problems.

AFR/FIELD/MARK/CHI CA/WO LO

Economic Commission for Africa, African Training and Research Centre for Women (1985): The Arusha Strategies for the Advancement of Women in Africa. UN ECA, Addis Ababa, 51 pp.

The Arusha strategies are the African regional input to "Global Forward-looking Strategies on the Advancement of Women", presented to the Nairobi conference. It discusses women's dual role; their role in production and their nurturing role. Among the strategies are those dealing with food production and self-sufficiency.

AFR/OVERV/PROD

FAO (1981a): Social Impact Analysis. A Model and Strategy for Implementation in Development Assistance. Human Resources, Institutions and Agrarian Reform Division, Home Economics and Social Programmes Service. Rome, Italy, 22 pp.

In order to predict and minimize negative consequences of development projects it is suggested that social impact analysis is incorporated from the initial identification and preparatory stages of the projects. The social impact analysis is designed to discover sex, social and inter-generational inequalities, and trade-offs in regard to access to resources, and to monitor these in the course of the project. Unexpected positive consequences which may need strengthening and unexpected negative impacts which must be counteracted can be discovered.

A large body of data within the following categories is suggested, split into age, sex and broad socio-economic groups: demographic data, agricultural data, data on access to resources, income data, nutritional data, organizational data.

It is suggested that Indicators are selected from this broadly based range of baseline data to suit the need at different stages of the project.

AGRIC/GLOB/PROD/PROJ/NUTR/INC/GENDER

FAO (1981b): Women In Development. Checklist for Project Development Missions. Office Memorandum. Population Programmes, ESHH, FAO.

This is a checklist to be used when identifying, designing and developing the following types of projects: projects to increase food production; fertilizer projects; projects for development of water resources; projects to develop animal industries; fishery projects; forestry projects; agricultural cooperatives, and price policy

programmes.

AGRIC/GLOB/PROD/PROJ/FISH/TECH/MODERN

FAO (1983a): Women in Food Production. Report of the Expert Consultation held in Rome, 7–14 December. FAO, Rome, 149 pp.

This is a report from a meeting attended by experts from 31 countries. Based on an assessment of existing data and assumptions about women's roles in development, the group recommended, *inter alia*, changes needed in policies, programmes and implementation. Point No. 3 in the recommendations pertains to the link between food production and nutrition: "Programmes and projects should be developed which further food security at the household level. These should be based on analysis of the linkages between factors such as land–use, crop choice, and pricing policies on the one hand, and income and nutritional levels on the other."

GLOB/OVERV/PROJ

FAO (1983b): The Need for Improved Agricultural Extension Services for Women Engaged in Agriculture. Prepared by the Education and Extension Service for Expert Consultation on Women in Food Production, FAO, Rome 7–14 December, 13 pp.

This report includes a review of FAO's involvement in agricultural extension and training in developing countries, and the limited success achieved in reaching small–scale farmers, including women. In the discussion of how FAO can help to bring about necessary changes to improve extension services for men and women the following points were highlighted:

- The solution to the problem of extending information to women in agriculture is not going to be solved by training a few (or many) women to work as agricultural extension agents. What needs to be discussed is how male and female agricultural workers can reach small–scale farmers who are often women. Women have to be involved in solving this problem.
- Rural young women need to be given the opportunity to enroll in agricultural training institutions through active recruitment.
- A participatory approach is suggested.
- Individuals with farm background are best suited to work as agricultural agents. Too often non–farm youth are recruited.
- The use of local people to extend information beyond the extension agent, is an idea which should be supported and encouraged by FAO. Rural women can help each other and the extension service can be supportive by providing training and knowledge to build an information network among women.
- Home economics agents are constantly faced with questions related to work within the food chain, including production. It would seem desirable to include production courses in their curriculum as well as home economics courses in the curriculum of agricultural agents.

AGRIC/GLOB/PROD/PROJ/REV/TECH/GENDER

FAO (1983c): The Role of Women in Food Production with particular Reference to small Animals at Village Level. Prepared for the Expert Consultation on Women in Food Production. FAO, Rome, 17 pp.

In most rural households it is ordinarily women's responsibility to feed, care for, sell and use the products of the small animals they own. This includes poultry, rabbits, goats, sheep and pigs. It is pointed out that these animals and the produce from them, such as eggs and milk, could increase the supply of protein, certain vitamins and minerals available to the family.

However, it can not be assumed automatically that rural families will eat what they produce. The paper discusses different reasons why women keep small animals, such as to ensure a readily available source of cash, to use them for sacrificial purposes or in funeral ceremonies, to obtain manure, to show hospitality to

guests, and for family consumption.

A review of case studies from the Ivory Coast, Benin, Togo and the Congo is included.

Among the recommendations based on experience from these projects are:

- to reduce dependence on external resources;
- to ensure adequate market outlets for animal products;
- to provide training at different levels;
- to improve credit distribution;
- closer collaboration between different levels of the administration and the field, and between different projects;
- to improve agricultural practices in order to reduce women's workload and free them to organize animal production;
- to take existing traditions into account when attempting to introduce animal production in areas unfamiliar with it.

ANIMAL/AFR/PROJ/REV/FIELD/PROD/NUTR

FAO (1984a): Promotion of Women's Activities in Marketing and Credit. An analysis, Case Studies and suggested Actions. (Preliminary working document.) Food and Agriculture Organization of the United Nations, Rome.

A desk study commissioned by FAO's Marketing and Credit Service. The objective was to provide suggestions for forms of support to women engaged in food and agricultural marketing. The study contains an identification of the types of problems women face in marketing and in obtaining credit for this activity, and case material from Africa, Asia and the Caribbean is presented. General guidelines for financing, training and technical assistance are suggested, in addition to guidelines related to small producers' marketing of special products, such as dairy products, small livestock, fish and vegetables. Concrete proposals are finally made concerning research, training, credit and support services.

GLOB/PROJ/OVERV/MARK/INC

FAO (1984): Some Considerations for Future Action regarding Women in Food Production and Food Security. Prepared for Government Consultation on the Role of Women in Food Production and Food Security, Harare, Zimbabwe, 12 pp.

A set of suggestions proposed to overcome some of the constraints on women's role in food production, processing and marketing. These are related to the following fields: general policy; resources and credit; agricultural practices and technologies; inputs, marketing, extension and training; village-level organizations, and research.

AFR/AGROC/PROD

FAO (1984): The Role of Women in Agricultural Production. Women in Agriculture 1. Human Resources, Institutions and Agrarian Reform Division. FAO, Rome. 38 pp.

This paper deals with the degree of participation of women in agriculture in different parts of the world. It discusses the linkage between women in food production and nutrition in regard to seasonal changes in labour demand. Reference is made to data from Gambia which indicate that pregnant women may actually lose weight during the peak season, while data from Thailand show a doubling or a trebling of the incidence of miscarriages, as well as premature reduction or termination of breast feeding during rice planting and harvesting.

It is stated that improvements in childhood nutrition are more strongly associated with increases in mothers' incomes than they are with increases in aggregate income. The issue of rural women is discussed in the perspective of WCARRD. Suggestions for action are given.

AGRIC/OVERV/GLOB/PROD/NUTR/HANDL/TECH

FAO (1985): Women in Developing Agriculture. Women in Agriculture, 4. Prepared by Human Resources, Institutions and Agrarian Reform Division, FAO, Rome. 104 pp.

The concern of this paper is mainly with women who work on the land as smallholders, tenants or landless workers, with special focus on those who depend primarily on small-scale farming. Of special interest is the chapter dealing with the effects on women of the changes that are taking place in farming technologies, crops, livestock, forestry and fishery production systems; marketing institutions; and agrarian structures. Different types of spin-off effects that intensification of agriculture might have on food security at the household level are discussed. These are related to changes in women's workload, income-earning opportunities, local availability of food and postharvest preparations.

AGRIC/FISH/ANIMAL/REV/GLOB/PROD/HANDL/GENDER/WO LO/TECH/MODERN

Ferguson, Anne E., and Nancy Horn (1985): Situating Agricultural Research: Class and Gender Issues in Project Advisement. In: *Women Creating Wealth: Transforming economic Development.* R.S. Gallin and A. Spring (Eds.) Association for Women in Development Conference. Washington D.C. pp. 86-90.

The paper draws on research material from Botswana and Cameroon, being prepared for the Bean/Cowpea Collaborative Research Support Program (CRSP), Michigan State University. The role of women in the two countries is described in terms of 1) gender differences in the division of labour in agriculture at the local level, 2) the political economy of agricultural enterprises (including intra-household relations and control of resources between genders), 3) women's income-generating activities. Guidelines are offered in terms of how the women's perspective can be built into the promotion of bean and cowpea varieties that will strengthen health and nutrition. These guidelines take into account the household's needs for subsistence food and the need for seed varieties that may be time and labour-saving to produce and process.

AGRIC/AFR/GLOB/PROJ/LINK/INC/GENDER/WO LO

Galvin, Kathleen (1985): Food Procurement, Diet, Activities and Nutrition of Ngisonyoka Turkana Pastoralists in an Ecological and Social Context. Ph.D. Thesis in Anthropology Graduate School of the State University of New York, Binghamton, USA. 379 pp.

This thesis gives information on seasonal patterns of food procurement, diet intake, subsistence activities and nutritional status in different age and gender groups. Seasonal estimates of daily energy expenditure and time budgeting were done for these groups as well. It was shown that both adult men and women bore the brunt of seasonal nutritional stress. However, women and adolescent girls showed the greatest seasonal fluctuations in body size and compositions, while men were somewhat less affected by season, but indices of nutritional status were always lower than those of women and adolescent girls.

ANIMAL/AFR/FIELD/PROD/NUTR/LINK/SUBS/SEASON/GENDER/GLOB/WO HEAL

Garibaldi Accati, Elena (1983): Women's Role in Horticultural Production in Developing Countries. Prepared for the Expert Consultation on Women in Food Production, FAO, Rome. 19 pp.

Horticultural crops, mostly vegetables and fruits, are described as very valuable, both nutritionally for the population cultivating them and as a source of foreign currency if exported. There is a tendency all over the world for women to be employed in horticulture, where they perform the hardest tasks. Women are less productive than men; this is largely a result of discrimination in the utilization of modern technology and has nothing to do with biological differences between the sexes.

The organization of work may differ. In parts of West Africa women grow vegetables in communal gardens. Here, vegetable gardening is not a principle activity for the farming household, so women turn to the task after they have finished their rice harvesting and housework. As a result, sowing and planting are often delayed, creating shortages of vegetables for many months. As a contrast to the communal gardening, the tradition in Kenya as in all East Africa is that women work on their own family plots; individualism is much more developed here than in Senegal.

For Asian women, there is an inadequate data base to judge what women in horticulture really do and need. In Bangladesh, the man's economic role is tied to paddy production, the women's tasks are tending vegetables and fruits at their homesteads, harvesting spices, storing and sprouting the seeds of pulses and oil crops. A similar division of labour exists in Sri Lanka where women, in addition to growing vegetables and fruits, are active in growing plants for perfumery materials, such as citronella and lemon grass oils.

When women work as wage-earners in horticulture, they are concentrated in the least permanent and worst paid activities; in fact it is stated that such wage labour may accentuate the subordination of women.

It is pointed out that horticulture can be profitable and suitable for women if they are properly trained and provided with support services. Women may be particularly well suited for jobs in seed production and crop development. Recommendations for both national and international levels are given. These are concentrated on manufacture of equipment to ease women's workload; education and agricultural extension to women; policies which take into consideration women's role in horticulture; the role of women's organizations as intermediaries between government programmes and the rural poor; "development with equity" in project implementation.

AGRIC/GLOB/REV/PROD/N PLO/SUBS/TECH/MODERN/GENDER/WO LO

Gladwin, Christina H. (1985): Changes in Women's Roles on the Farm: A Response to the Intensification of Capitalization of Agriculture. In: *Women Creating Wealth: Transforming Economic Development*. R.S. Galling and A. Spring (Eds.) Association for Women in Development Conference, Washington DC. pp. 139–142.

A hypothesis is proposed to explain the present increase in women's participation in extensive farming systems: Women's agricultural contributions decline with the capitalization of agriculture and increase with its marginalization. This hypothesis is thought to represent an alternative to the hypothesis, first substantiated by Esther Boserup, that female contribution to agriculture declines with agricultural intensification. The author believes that agricultural capitalization is the phenomenon that more correctly explains the transition of women's role in agriculture, rather than agricultural intensification. A re-examination of crosscultural studies from the Third World is done, and data presented from personal interviews in North Florida which support this hypothesis.

AGRIC/GLOB/THEOR/PROD/MODERN/GENDER

Government of Swaziland, Ministry of Education and UNICEF (1978/79): *The Survey of Roles, Tasks, Needs and Skills of Rural Women in Swaziland*. The Government of Swaziland, 36 pp.

This report is based on a survey in 6 different areas in Swaziland. The agricultural labour force in Swaziland has become predominantly female, owing to the fact that young men and school drop-outs have migrated. Most of the women showed a negative attitude towards this migration, the remittances from the husbands were rarely enough to maintain the household. Increased work and the process of decision-making often make it difficult for them as producers. Some women had to travel long distances to get papers for credit loans signed by their men.

AGRIC/AFR/REV/PROD/WO LO/WHH

Guyer, Jane (1984): Naturalism in Models of African Production. *Man* **19** (3): 371–388.

Different models of agricultural production attempting to explain sexual division of labour in Africa are reviewed. These models are based on naturalist premises about domestic organization and division of labour by sex. Three problem issues are discussed in detail: 1) the relationship between root and cereal production and sex-related social organization of labour; 2) the effect of women's child-care constraints on their agricultural work patterns; 3) the hypothesis that agricultural production belongs to the domestic sphere and therefore has little connection with the politico-jural domain. The author draws on published research from Africa and her own field data from Nigeria and Cameroon in her discussion.

The notion that the root/cereal distinction explains unequal participation by men and women is challenged. The author rather finds support for a distinction between indigenous staples and New World crops for the difference between the sexes. The indigenous staples being characterized by complex and ritualized labour organization, whereas crops more recently introduced tend to be individuated, sex-specific and with no symbolic force. Review of available research suggests that it is not the crops themselves which determine domestic labour allocation, but historical processes. The author's own data seem to undermine the

assumption that women's child constraints determine their work contribution and production techniques in agriculture. The major constraint is rather seen to be the differential access to supplementary labour by men and women. The relative independence of domestic production from political processes is also disproven. The domestic sphere is not seen as a stagnant sector, but as a dynamic one, changing characteristics according to processes taking place in the politico-jural domain. Possible methods for a social history and analysis of African production are indicated.

AGRIC/AFR/FIELD/THEOR/REV/PROD/CHI CA/SEASON/GENDER

Hamilton, Sahni, Barry Popkin and Deborah Spicer (1984): *Women and Nutrition in Third World Countries*. Praeger Press, USA, 143 pp.

This is a review of a number of aspects related to women's nutritional status such as its functional consequences, its determinants and programme and policy implications. Women's allocation of time to productive and reproductive work is discussed in relation to nutrition, drawing on evidence from a number of studies in different countries. The type of work women do is discussed in regard to the impact it has on their calorie needs, their income-generating potential and the time available for food preparation. Seasonal variations in regard to women's work and nutritional requirements are discussed.

AGRIC/GLOB/REV/PROD/HANDL/DISTR/NUTR/LINK/SEASON/WO HEAL

Hamman, Mona and Nadia Youssef (1985): *The Continuum in Women's Productive and Reproductive Roles: Implications for Food Aid and Children's Well-Being*. Paper presented at the UNICEF/WFP Workshop: "Food Aid and the Well-being of Children in the Developing World", 26 pp.

The authors of this paper argue that women's roles/activities are seen as dichotomized in development programming, whereas in practice they fall in a continuum of labour/time allocations, to both productive and maternal-related tasks. The paper calls for greater integration of women's productive and reproductive roles. Food aid, combined with other forms of development assistance, must be directed to improve and expand female productive capacity (health, nutrition and economic productivity) with the objective of maximizing women's potential contributions to and benefits from the attainment of national development goals as well as creating more optimal conditions for ensuring the well-being of children.

To this end food aid can be seen as a form of "pre-investment" in women's productive capacity and should be accelerated in the following situations:

- during peak seasons when female labour expenditures are the highest;
- during the "hungry season" when food and cash reserves are lowest.

Instead of being a disincentive to local food production, the authors state that food aid can play a catalytic role in agricultural growth.

AGRIC/GLOB/PROJ/OVERV/PROD/NUTR

Hammer, M. (1985): *Women in the Food System in Africa*. Mission Report from Ethiopia. FAO, Rome. 96 pp.

This is one of several studies about women in the food system in Africa initiated by FAO. The food farming system in Ethiopia encompasses the following components: the seed farming complex, the enset farming complex, shifting cultivation and the pastoral complex. Plough cultivation started in Ethiopia early in the 16th century, and men have traditionally been responsible for ploughing. This is, according to the author, the reason why women at first glance do not appear to work in the field as in other African countries where horticulture is more predominant. However, this study shows that women are heavily involved in weeding, harvesting and carrying seeds and bundles to and from the fields. Some women are even involved in land preparation and threshing. Wage labour on private holdings is now forbidden, and thus agricultural production would now be impossible without the contribution of women. However, women's role in farming is not well recognised in society. During interviews farmers would call their wives "housewives", whereas the women would call themselves farmers. None of the women had ever been addressed by extension services, only by home economists. It is stated that over 40% of the children show some degree of malnutrition, while 10% are affected with advanced forms.

AGRIC/ANIMAL/FIELD/PROJ/PROD/NUTR/WO LO/GENDER/PLO/AFR

Haswell, Margaret (1981a): Energy for Subsistence. The Macmillan Press Ltd., London, 100 pp.

This book is based on fieldwork in Gambia between 1947 and 1979. It revolves around energy expenditure for agricultural work and energy consumption of members of agricultural households. There is a chapter on seasonality in agricultural production and the role of women. Women farmers spent about 1.5 times the energy spent by men in agriculture, due to more hours worked. The energy spent by women in agriculture was very high in June to September, when the energy intake was at its lowest. This caused much hardship on the part of the women, who reportedly collapsed from overwork and lack of food as they returned from the fields during the periods of most severe hunger. The author emphasizes the urgency of reducing the energy expenditure load carried by women. It is suggested that this can be realized through increased use of technology.

AGRIC/AFR/FIELD/PROD/NUTR/LINK/N PLO/SUBS/WO LO

Haswell, Margaret (1981b): Food Consumption in Relation to Labour Output. In: Seasonal Dimensions to Rural Poverty. Chambers, Longhurst and Pacey (Eds.) Francis Pinter Ltd., London, pp 38–41.

Energy expenditure according to season was estimated for women's work in swamp rice agriculture in a village in Gambia. Highest energy expenditure was found during the preharvest "hungry season", leaving many women in a state of energy deficit. Women's average energy expenditure in producing rice was compared with the energy output of rice, and an energy output/input ratio was established. Family food stocks were related to consumption at postharvest and preharvest times. Whatever criterion used, it was found that the majority of people did not produce sufficient grain to be self-sufficient. Poor households had a low level of production often because of shortages of labour caused by male migration.

AGRIC/AFR/FIELD/PROD/NUTR/LINK/IRR/SEASON/WO LO

Henn, Jeanne Koopman (1983): Feeding the Cities and Feeding the Peasants: What Role for Africa's Women Farmers. World Development, **11** (12): 1043–1055.

This paper argues that the failure to recognize women's crucial roles in food production tends to produce interventions in the food sector which can erode traditional farmers' ability to respond to the increasing urban demand for food and even threaten their efforts to adequately feed their families. In order to analyze the constraints on women's farming two basic types of traditional African farming systems are described: the extensive women's food farming practiced by the Beti peoples in Southern Cameroon, and the intensive men's and women's food farming of the Haya people of northwestern Tanzania.

Studies of these people have shown that despite social and agronomic problems, traditional female food farming can expand output if some of their constraints are lifted. In the case of the Beti, women increased their food production when they had good access to large urban markets. In the case of the Haya, unmarried women showed entrepreneurial, planning and marketing abilities in the creation of successful coffee and banana farms.

It is concluded that Africa's current food problem reflects a widespread failure to integrate traditional food farmers into the modern economy in ways that increase both their productivity and their welfare.

AGRIC/AFR/FIELD/PROD/MARK/MODERN/TECH/GENDER

International Fund for Agricultural Development (1985): Rural Women in Agricultural Investment Projects 1977–1984. Report prepared for the World Conference of the United Nations Decade for Women, Nairobi, Kenya, 37 pp.

The report reviews the role of women in food production. This is linked to nutrition, with reference to a number of studies showing that the participation of women in income-earning activities – food production and others – have had important implications for child nutrition. The report continues to review women's integration in IFAD activities, which have become quite large. Out of a total of 160 projects approved since the Fund's establishment in 1977, 58 projects identify women as explicit beneficiaries and 52 include special features designed for them. The share of projects identifying women as explicit beneficiaries has increased from 10% of those approved in 1978 to 54% in 1984. It stresses the importance of including women's considerations early in the project process and the need for monitoring and evaluating systems with regard to women's integration. IFAD has addressed women's domestic roles in five ways: drinking water supply, day-care, labour-saving, technology, nutrition components and home economics components have varied greatly. They

have not always been promoted as a response to the type of nutritional problems existing in the community.

It is recommended that women's role in the food system needs special attention when the project has an explicit nutritional objective and when men and women have separate purses; men and women have distinct roles as food providers; women grow most of the family food and the project will effect their access to land or time available for this purpose; overwork during the peak season affects women's health and their ability to care for their children properly; poor health is responsible for low absorption of nutrients and this can be traced to lack of hygiene in the handling of food by women.

AGRIC/GLOB/PROJ/REV/PROD/NUTR/INC/WO LO

Ifeanyichikwu Okafor, Theresa (1981): The Role of Women in Village Development: Income Earning and Participation in Massaka, SW Cameroon. Pan African Institute for Dev., West Africa, Cameroon.

This is a case study about women's activities. The productive activities (in regard to food) are the following:

- agricultural production of foodstuffs for consumption in the home and for sale;
- forest hunting of snails and caterpillars;
- forest gathering of consumable fruits, tree barks, leaves and roots.

Division of labour and responsibilities between men and women:

- acquiring of land or farm plot is the responsibility of men;
- clearing the bush, more men's work than women's – women did the clearing of simple bush;
- digging the soil and molding beds, is mostly done by women with the use of a hoe (shorthanded blade) – there was a saying that women have soft waists and can bend for long hours without feeling pain;
- planting – women plant different foods whereas men plant coffee and cocoa;
- weeding done by women during the rainy season;
- harvesting – both men and women harvest cocoa and dry it, men split the cocoa;
- transportation – both men and women are involved.

Food crops are solely marketed by women, who personally carry them to the market. The distance to market, the physical ability of the woman and the amount of food feasible for the market, are all determinant factors of the quantity carried to the market. Money derived either from sale of products or labour is considered as women's income. This money is usually used for household goods and foods which are not produced in the village. Women decide what kind of food to prepare, general cleanliness of the house, what food crops to grow, food storing and marketing. The man decides on what price to sell the cash crop and what house to build. Due to shortage of time, women usually prepare meals twice a day, in the morning and in the evening. When the woman has to go the farm very early in the morning the morning meal is prepared the night before.

AGRIC/AFR/FIELD/PROD/HANDL/SUBS/CA CRO/GENDER

Jackson, Cecile (1985): The Kano River Irrigation Project. Women's Roles and Gender Differences in Development. Cases for Planners. Kumarian Press, West Hartford, USA, 66 pp.

The impact of an irrigation–settlement project on the lives and working conditions of three groups of women is discussed. The three groups are: Muslim settlement women, Muslim farmstead women, and Pagan women. Among the Muslim settlement women seclusion was practiced. These women were not responsible for food production or collection of water and firewood. Many were, however, economically actively earning an income from harvesting, food processing and the sale of snacks through their children. The profitability of these enterprises had increased as a result of the project, due to higher yields, and an influx of construction workers and migrant labourers. Thus, the project brought expanded economic opportunities to secluded women. These women kept their income separate from the men, divorced frequently and had great independence in

their work relations. Many of them owned land through inheritance or purchase.

The Muslim farmstead women, three quarters of whom were not secluded, had increased their incomes through wage labour on the irrigated wheat fields in the project area. However, these women had to commute to the project fields, and this placed a heavy burden on them, since they still had domestic work to do.

The Pagan women who were responsible for food production, suffered negative effects from the project. They were allocated the least desirable lands for production of their own crops, while involved in much extra work on their husbands' farms. Beer brewing, which used to be a source of income for these women, was made more difficult due to the scarcity of fire wood.

The paper suggests an alternative project design to increase the positive effects.

AGRIC/AFR/FIELD/PROJ/PROD/MARK/HANDL/INC/GENDER/WO LO/ISLAM

Jakobsen, Oddvar (1978): Economic and Geographical Factors influencing Child Malnutrition; A study from the Southern Highlands, Tanzania. BRALUP Research Paper, No. 52. BRALUP Dar es-Salaam and Dept. of Geography, University of Trondheim, Norway. 105 pp.

Identifies two main causes for underweight which affected 50% of the children: the traditional habits and taboos that bar women, specially pregnant women, from protein rich food and give men first right to the food pot, and even more importantly, the socio-economic structure that makes peasants sell their crops in exchange for non-foods or foods with low nutritional status or turns subsistence farmers into day labourers, thus changing the power structure in the family in favour of men at the expense of women and children.

Crucial "decisions" about the family economy that effect malnutrition are singled out: (a) decision of men to work the land or leave it in favour of migration. This forces the women to do all the agricultural work while at the same time not benefiting from the husband's migratory work. The only sources of cash for women are beer brewing or work as day labourers. Failing this, they sell food crops; (b) men's decision to allocate the amount of land and labour to industrial and food crops with no respect for family food needs; (c) the decision to sell or store food crops; (d) the expenditure pattern – men's preference for items which bring future income or prestige, e.g. cattle, wives, houses, radios etc. The dietary needs of children are expected to be met by the mother. Monetization was less conducive to better nutrition since areas with regular cash income were more likely to neglect food production.

AGRIC/AFR/FIELD/PROD/RICE/NUTR/LINK/WO LO/GENDER

Katona-Apte, Judith (1983): A Socio-cultural Perspective on the Significance of Sex Roles in Agriculture. In: Nutritional Impact of Agricultural Projects. Papers and Proceedings of a Workshop held by the United Nations ACC/Sub-Committee on Nutrition, pp. 28–43.

The topic of this paper is the possible negative nutritional impact of agricultural development projects, using women's role-related activities in agricultural production as the angle of approach.

The socio-cultural factors which link agricultural development to nutritional status have been classified into three categories: (1) increase in cash income results in nutritionally undesirable expenditure patterns; (2) changes in the perception of food needs within the household result in less food availability for women and children; (3) women's available time for child care and other household-related tasks is decreased. These factors are discussed in relation to three types of societies, classified according to the role women play in agriculture: (1) women do not participate in agricultural production; (2) women work actively in the fields along with their husbands; (3) women work separate fields and crops.

It is shown that the three selected factors have different implications in these three types of societies. Recommendations for planners are given on the basis of these implications.

AGRIC/GLOB/THEOR/PROD/NUTR/LINK/GENDER/WO LO

Kebede, Hanna, African Training and Research Centre for Women (1978): Improving Village Water Supplies in Ethiopia. A Case Study of the Socio-Economic Implications. UN Economic Commission of Africa, Addis Ababa, 56 pp.

This is a preproject study, discussing the advantages of improved water supplies in one village in the lowlands and one in the highlands of Ethiopia. The anticipated effects on women's work and nutritional status of the children are discussed. Villagers were asked what they would do with the time saved through the project. In the lowlands, where the project expectations were highest, most of the men thought that the extra time would be spent on housework, whereas the majority of women would like to spend it in cottage production as well as on housework.

AFR/FIELD/PROJ/NUTR/TECH/WO LO

Kershaw, Greet (1976): *The Changing Roles of Men and Women in the Kikuyu Family by Socio-economic Strata*. In: *Rural Women: Development or Underdevelopment*. Ed. Wipper, Audrey. The African Studies Centre, Michigan State University, pp 173–194.

The changing roles of women are discussed from traditional (precolonial) to modern (colonial and postcolonial) days. The discussion is based on data from the author's own fieldwork in several periods, in addition to old records and studies. The period has been characterized by increased stratification. The author argues that the roles have changed in different directions, depending on which stratum the women belong to. The changing roles of women in 3 different strata are discussed. The focus is the relation of decision-making power between men and women and between units in the community.

In the largest group of families, those with little or no land and only marginal access to positive aspects of modernization, the women have increased their workload, and gained in decision-making power. In this group the majority of families do in fact cultivate land on a tenancy basis. Both husband and wife work for wages whenever possible. The women's wage is used to supplement the staples grown, and only rarely does it stretch to buying more protein-rich foods, such as beans or meat. The family diet is based heavily on starches.

In the middle group, the strongest evidence of continuity with the past still exists. Although both men and women have lost certain areas of decision-making, other areas have compensated for their loss. In these households the land is held by right and householders cannot be dispossessed against their will. The men work for wages. Depending on the amount of land, the wives either stay at home and work their land with casual labourers, or they work full-time in seasonal or casual employment. In this group women often grow protein-rich foods, such as beans, which require more labour and care, and they can ask their husband to grow perennial crops.

The third group, comprising the largest landowners, have enjoyed the greatest benefits from the modern period. Women have lost their decision-making roles in favour of men, but they have acquired more decision-making in social spheres. They belong to the wealthier members of society. They need not worry about food and they have learned to expect proper medical care and education for their sons.

AGRIC/AFR/FIELD/PROD/TECH/AGRI WO/MODERN/GENDER/WO LO

Khare, R.S. (1984): *Women's Role in Domestic Food Acquisition and Food Use in India: A Case Study of Low-income Urban Households*. *Food and Nutrition Bulletin*, 6 (1): 69–76.

The role of women in intra-household food management is discussed in relation to issues critical to food and nutrition policies and their analysis. A whole range of constraints, determining women's possibilities to procure and allocate food within the household are taken up and discussed on the basis of a study of low caste, low-income women in an urban area in India. The author points to the influence of income patterns on domestic food acquisition and time spent on cooking and feeding and hospitality. An insecure and insufficient income implied a precarious food budget and a corresponding greater effort spent on procuring both food and fuel. A more secure and sufficient income meant a greater involvement of women in cuisine and hospitality. The goods and service exchange arrangements between households are seen to provide an extra margin of security and survival for the urban poor. The government ration shops in India were operated in such a way that they represented some constraints to the household in terms of food availability and food quality, the problem of getting ration cards and long waiting lines. The low-income women spent their time and energy on meeting the family needs. They disliked spending excessive time and energy outside the home, in a marketplace or on a job, since they felt it would lead to family neglect. Women's decision power increased as they got children and grew older. The presence of an older woman in the household, especially the mother-in-law, seemed to give younger women with children more time, and result in better nutritional care of the children. The collection of data of how women spend their time included other information showing that different groups of women used their time more or less effectively. For instance, older women spent more time

marketing than younger women. But the older women spent a lot of this time gossiping, while the younger women got their shopping done and then went home. It is therefore emphasized that time and energy data should be carefully interpreted within the given contextual and cultural significance.

ASIA/FIELD/PROJ/INC/WO LO

Kobes, J. and Scott, G.L. (1982): Women and Population, Health and Nutrition Interventions. Notes on Women in Development, No. 28, World Bank, Washington D.C. 31 pp.

The article discusses women's role in regard to health. Special emphasis is given to women's multiple roles, such as their economic and domestic ones. The authors emphasize the need for more research into the synergistic impact on health status of variables such as fertility, nutrition, food production, food storage, food processing, water, sanitation, fuel and income. The paper asserts that health care systems in most countries will have to be redirected away from predominantly curative and urban-based services to expand preventive and promotional activities that are closely linked to agriculture, irrigation, water supply, sanitation and education.

It is suggested that the design of health programmes should recognize problems women face in obtaining health care, special health problems of women due to their working conditions, the need to mobilize women as active providers of health care. It is also stressed that the ways in which men effect health conditions should not be overlooked.

GLOB/REV/PROJ/NUTR/CHI CA/WO HEAL/GENDER

Kumar, Shubh K. (1985): Women's Agricultural Work in a Subsistence-oriented Economy: Its Role in Production, Food Consumption and Nutrition. Paper presented at the XIIIth International Congress of Nutrition. International Food Policy Research Institute, Washington DC, 16 pp.

This paper examines the nature and significance of women's agricultural production in a mainly subsistence-oriented area in the Eastern Province of Zambia. Three types of households were investigated: Joint production between men and women (type I), female-headed (type II) and polygamous (type III), and the implications of these characteristics for agricultural productivity, seasonal food consumption and child nutritional status were examined. It was found that any generalizations about cropwise specialization by sex were impossible to make. In type I households, although women are involved in joint production of major cash crops, they do not undertake such production on their own. However, in type II households, women were found to grow cash crops on their own. Total labour input per acre and crop productivity were found to be the highest in type I households. Type III households had the lowest labour input and the lowest yields, but the latter was explained by a larger planted area, and declining yields being common with larger farm size. The food supply, in terms of duration, was the highest in type III households and the lowest in type II households. Children and women in type III households did not exhibit any decrease in nutritional status from the postharvest season to the lean season, as did the type I and II households. Analyses of farm production, seasonal food consumption and child nutrition are done to indicate the household-level factors that are responsible for influencing these three variables. One interesting finding was that female-headed households (type II) have a significantly higher level of child nutrition at any *given* income level.

AGRIC/AFR/FIELD/PROD/NUTR/LINK/SUBS/SEASON/WHH

Leslie, Joanne (1985): Women's Work and Child Nutrition in the Third World. International Center for Research on Women. Washington D.C. 54 pp.

The author reviews 41 empirical studies that a) relate women's work to child feeding practices, and b) relate women's work to child nutritional status. It is concluded that there is no clear-cut relationship between women's work and child nutrition. This relationship appears to be both positive and negative, depending on a variety of factors, including the type of work/employment, income level, possibilities for child care substitutes and time that the working mother spends away from home. It especially points to the effect that women's work will have on raising income that can be spent on food and the negative effect it will have on time for child care and feeding. The findings are discussed in relation to implications for policy and future research.

AGRIC/GLOB/REV/PROD/CHI CA/NUTR/LINK/AGRI WO/INC

Linares, Olga (1985): Cash Crops and Gender Constructs: The Jola of Senegal. *Ethnology* 24 (2): 83-94.

Subsistence crops tend to serve many purposes and are seen as a social "glue" that insure old practices surrounding their production and utilization. Even if subsistence crops sometimes are sold for cash, there is a profound difference between such crops and cash crops grown exclusively for an export commodity market. The author stresses the importance of understanding not only the social organization around particular crops in a historical perspective, but also the changing meanings and symbols of such crops that contribute to the definition of sexual identities. The production of rice, palm-wine and ground-nuts among the Jola of Casamance, Senegal, is discussed in relation to patterns of production from precolonial times until today, the rituals surrounding these crops, the sexual division of labour concerning their production, and the gender-related activities connected with the sale of rice, palm-wine and groundnuts. Two different villages, of which one has a Muslim population, are compared in terms of gender differences. It is concluded that gender relations connected with the production and utilization of rice and palm-wine, are based on reciprocity and close cooperation between the sexes. These crops reinforce a whole set of cultural constraints having to do with gender parity, social symmetries and equal access to land and labour. Groundnuts, on the contrary, which are cultivated only in the Muslim village, were introduced by the colonial power and associated with male productive activities. The increasing emphasis on this crop has eroded rice production, and thereby undermined the rituals that secured over-production, reciprocity and redistribution of rice in the village.

AGRIC/AFR/FIELD/PROD/CA CRO/GENDER/ISLAM

Longhurst, Richard (1983): Agricultural Production and Food Consumption: Some Neglected Linkages. *Food and Nutrition* 9 (2): 2-6.

This article points out linkages between on-farm production and food consumption, important to consider in the formulation of agricultural policy. Three interrelated aspects of these linkages are discussed here, taking as a point of departure the farm family's own strategies to ensure food for all its members.

The first aspect deals with *seasonality*. The timing of production so that some food is available during the traditional "hungry season" has been part of people's own strategies. The author calls, among other things, for the introduction of crop varieties that mature quickly and encouragement of inter-cropping and serial cropping that could help to fill the gap before the main harvest. He particularly mentions the need to provide assistance to women in their farm tasks as well as child care and feeding, since women are burdened with heavy farm work at seasonal peaks. The second aspect discussed is the cultivation of so-called "*minor crops*". Minor crops, such as vegetables, pulses, fruits and tubers, are considered to fill important food deficit gaps at certain times of the year. It is pointed out that such crops most often are grown by women, both for subsistence and for cash. The third aspect is the *role of women* in farm production. Women are seen to be the "pivot between production and consumption". It is stated that there has been little attention paid to the interrelationship between seasonality, minor crops and women. The author believes that a major component of an agricultural strategy should be to strengthen women's indigenous institutions or organizations. He further stresses the need for better understanding of the links between production and consumption, and suggests an approach that examines the farm as a system including interrelated activities concerned with production and consumption.

GLOB/PROJ/PROD/NUTR/LINK/SEASON

Mascarenhas, Ophelia (1983): Implications of Constraints in Women's Control and Utilization of Resources for the Food and Nutritional Status of their Families. Paper presented at the TFNC/UNICEF Workshop on "Hunger and Society", Tanzania, Dec. 1983. 30 pp.

Sums up findings from a study of 5 villages in Iringa, Tanzania. The findings are discussed in a conceptual framework geared towards elucidating women's utilization of resources – land, labour time and skills – on the basis of the conflicting needs at household, community and national levels. The impact of women's access to and use of resources on household food availability and child feeding, have been studied in relation to the division of labour and decision-making power between the sexes and other socio-economic factors. Changes in women's workload and access to resources have been examined in relation to seasonality. Some of the most important constraints to improved nutritional conditions, were thought to be women's lack of time, because of excessive workload, which resulted in under-use of available agricultural land and underfeeding of children. Child care facilities, improved technology for women, and nutritional education through community participation are suggested to combat the causes of malnutrition.

AGRIC/AFR/FIELD/THEOR/PROD/HANDL/CHI CA/NUTR/LINK/TECH/N PLO/SUBS/SEASON/
INC/GENDER/WO LO/WHH

Mascarenhas, Ophelia (1984): Women's Allocation of Resources and its Implications for the Nutritional Status of their Children. Report to the WHO/UNICEF Nutrition Support Programme for Iringa, Tanzania. 16 pp.

This study constitutes a second stage of a previous survey of which data on intra-household allocation of resources and women's role in food procurement was collected (see Mascarenhas, 1983) from 5 villages in the Iringa district. The majority of the households included in the sample participated in the previous survey. The main aim was to provide data on child diet and nutritional status which could be linked to the 1983 findings on women. The final analysis of data revealed a relationship between child nutrition and food self-sufficiency. Food was used both for subsistence and cash. No definite overall negative effect was found between food converted to cash and child nutrition. Women's participation in casual agricultural work seemed to have a positive or a negative effect on child nutrition, depending on the socio-economic conditions. The need to increase productivity in agriculture was stressed as the most important means of improving child nutrition. The research findings were discussed with the village people and the paper ends with a series of recommendations for the further development of the UNICEF/WHO Nutrition Programme in Iringa. The recommendations stress the need for more research into intra-household conditions and suggestions are made for income-generating food crops and labour-saving technology for women.

AGRIC/AFR/FIELD/PROJ/PROD/CHI CA/NUTR/LINK/TECH/PLO/SUBS/AGRI WO/INC

Mencher, Joan P. (1985): The Forgotten Ones. Female Landless Labourers in Southern India. In: Women Creating Wealth: Transforming Economic Development. R.S. Gallin and A. Spring (Eds.) Association for Women in Development Conference Washington D.C. pp. 119-128.

Findings from research in 20 villages of the rice-producing districts of Tamil Nadu and Kerala States are presented on income-generating work done by landless women and the amounts of income contributed to household maintenance by men and women from landless households.

In the districts of investigation the proportion of landless female labourers to male labourers is very high, in most cases amounting to about 1 : 1. It was found that the women contribute a higher percentage of their earnings to the household, than the males. In absolute terms, women contributed 53 to 1.21 times the amount contributed by men. Even so, women's wages were generally lower than men's, and the availability of work for women was also lower than for men. The poorest households are thus households without any male earners. Intra- and inter-village variability in number of days on a yearly basis that women obtain work, is discussed, and the lack of work opportunities for women is emphasized. The author states that mechanization and union demands for higher wages have contributed to an increase in female under-employment. A call is made for programmes that combine training of new practical skills for women with organizational, decision-making and business skills as well.

ASIA/FIELD/AGRI WO/MODERN/INC/GENDER

Messer, Ellen (1983): The Household Focus in Nutritional Anthropology: An Overview. Food and Nutrition Bulletin 5 (4): 2-13.

The paper reviews different approaches within the anthropological tradition to studying food-related activities and food habits at the household level.

In light of the literature reviewed, the author discusses important topics for investigation of relevance to policy and programme interventions. Factors determining intra-household food distribution; the role and nutritional consequences of women's work in food production; and household factors, material and ideological, influencing child care and feeding are taken up. It is suggested that nutritional anthropologists and other medical and social scientists examining social factors in nutrition, revise their concept of the household as a focus in nutritional studies and employ other conceptual units of domestic groupings in their analyses. The following groupings, related to people's activities around food, are suggested as units of analysis: eating units, food budget units, child rearing units and social networks important in securing food availability.

GLOB/THEOR/REV/PROD/DISTR/CHI CA/LINK/GENDER

Nardi, Bonnie (1984): Infant Feeding and Women's Work in Western Samoa: A Hypothesis, some Evidence and Suggestions for future Research. Ecol. Food. Nutr. 8: 241-249.

The hypothesis that the key reason for decline in the age of weaning in Third World Countries is an increasing workload for women, resulting from increasing involvement in cash economy, is advanced. This hypothesis is considered in light of data collected in an anthropological field study of a rural village in western Samoa. Women in the research area maintained a complex schedule of activities, including subsistence agriculture, fishing, marketing, handicraft manufacture, food handling, housework and child care. Women have taken on a variety of new tasks and, according to the author, it is likely that their work time has expanded. Women reported that they generally initiated weaning because of their demanding work schedules and that they could accomplish more when assured the freedom by leaving their babies with other caretakers.

AGRIC/FISH/ASIA/PROD/MARK/CHI CA/NUTR/WO LO/LINK

National Swedish Board of Fisheries, Secretariat of Development Cooperation (1984): Family Oriented Activities and Extension in Fishing Community Development; Nutrition in Fisheries Development; Non-formal Education in Fishing Community Development. Fisheries Development Series, **13** and **14**, Gothenburg, Sweden, pp 120 and 33.

This report discusses case studies within the Bay of Bengal Project (BOBP). These are concerned with improvement of the living conditions for disadvantaged women in fishing communities in India, Bangladesh and Sri Lanka. These studies revealed that women were engaged in fish trade (Tamil Nadu, India; Bangladesh), fish drying (Bangladesh), net making (Tamil Nadu). Only 8% of the women interviewed in Sri Lanka were involved in any of the fishing activities.

The BOBP tries to achieve an improvement of the conditions of the fisherwomen through: (1) education and training to improve access to subsidies and welfare for the most disadvantaged among the target group; (2) through education, training and management support to create alternative employment; (3) through awareness-building and community organization to improve the situation of low income groups through a more equal distribution of production assets.

A nutritional focus has been attempted in the BOBP. Some of the pilot projects include nutrition-related activities such as nutritional education, growth monitoring of children, vegetable gardening, small animal raising.

It was pointed out that fish can be considered as relevant to nutrition in two ways: (1) the direct effects of fish as food; (2) the indirect nutritional effects of income from fisheries.

Contradictory effects of improvements in fishing communities are pointed out, e.g. if men get a sufficiently high income, their women will stop working and become housewives only, which gives higher status. This might decrease their power to make decisions. Another example is motorization of women's transport of fish, which could lead to decreasing local fish supplies.

FISH/ASIA/FIELD/PROJ/MARK/NUTR/INC

N'diaye, Kartouma (1985): Less Work but more Rice: IFAD aids Gambian women. Development Forum, UN, July–August.

The paper presents an IFAD-funded project in Gambia, aimed at women in rice production, which started in 1982. The project goals are to increase rice production while improving income, nutrition and welfare among smallholder farm families. Local participation in project planning and execution was facilitated. Problems faced by the women before the project started were: exhausting field labour, low yields, malnutrition and disease among them and their children. The double role of women, producing food and caring for children, was considered a constraint to production.

The project has facilitated nursery care, better access to fields, mechanization of farming, better water management for irrigation. So far the result have been a tremendous increase in rice production, increase in vegetable production (due to time saved in rice production) and growing optimism among the women. A more stable supply of rice to households has been secured through the establishment of cereal banks, which buy and resell rice to farmers at reasonable prices. Impact on nutrition and health is not discussed.

AGRIC/AFR/FIELD/PROJ/PROD/HANDL/CHI CA/NUTR/SUBS/INC/WO LO

Nerlove, S. (1974): Women's Work load and Infant Feeding Practices: A Relationship with Demographic Implications. *Ethnology*, **13**: 207–214.

On the basis of the Standard Cross-Cultural Sample by Murdoch and White, the relationship between early introduction of supplementary infant-feeding and maternal participation in subsistence activities is analyzed. It was found that among women who begin supplementary feeding before infants reach one month, a high degree of participation in subsistence activities (agriculture, hunting, fishing, animal husbandry) is more common than among women who begin supplementary feeding later.

Though weaning starts late in many Third World societies, supplementary feeding may often start extremely early. Out of the 83 societies in the sample, 30 begin supplementary feeding before the age of 1 month, 23 between the ages of 1 and 6 months, and 27 after 6 months. This is significant as early supplementary feeding may be associated with high incidence of diarrhoea in societies with poor hygienic conditions.

AGRIC/FISH/GLOB/PROD/CHI CA/NUTR/LINK/WO LO

Nestel, Penelope S. (1985): Nutrition of Maasai Women and Children in Relation to Subsistence Food Production." Ph.D. Thesis. Nutrition Department, Queen Elizabeth College, England. 261 pp.

A study of the causal relationships between subsistence food production, food availability, food expenditure, food consumption and nutritional status among pastoralists in Maasailand in Kenya. The study included a women's component, aimed at checking the hypothesis that women's decision-making and participatory role relating to food, would influence food expenditure patterns and nutrition in the household. It was found that women had very little control over food resources, because these resources were owned by men, who also made decisions regarding the use and purchase of food. The main resource in question was cattle, and women had exclusive right to and control of milk and hides from their allocated cows. These products were used for subsistence or for obtaining cash. The cash income was mainly spent on food for the family. It is suggested that increasing financial integration will improve women's access to and use of cash, and thereby influence the nutritional status of the family.

ANIMAL/AFR/FIELD/PROD/MARK/MARK/LINK/SUBS/INC/GENDER

Palmer, Ingrid (1977): Rural Women and the Basic Needs Approach to development. *International Labour Review* 115: 97-107.

The effect of modernization on rural women is discussed on the basis of documentation from Africa and Asia. The conclusion is drawn that present methods of introducing commercial crops and technological improvements in agriculture often have the effect of increasing women's work burden – while lowering men's, and at the same time reducing women's rights to income or resources generated by family labour. The author explains this phenomenon as being due to the unequal exchange relations between men and women, which tend to marginalize women. The monetization of production and market incorporation tend to handicap women in their quest for cash earnings, since they are pushed further into the subsistence economy, doing household work and producing food for self-provisioning. Institutions that follow increased monetization and market incorporation have also given prominence to men. In this way new exchange relations between the sexes are brought into existence, resulting from unequal distribution of institutional and economic power to the detriment of women.

The use of a basic-needs approach to development must therefore not only address itself to poor households, but also penetrate the exchange relations within the household. It is emphasized that a basic-needs strategy for women, must deal with two facets: one is women's role in the satisfaction of their family's basic needs; the other is the needs of women themselves. It is suggested that a basic-needs approach addressing women should include upgrading of women's non-remunerative work and strategies to ensure women have more authority over family earnings and raise the productivity of household work. It should also include strategies to "open up" production and exchange relations between the household and the community by creating institutions based on relations outside the household.

AGRIC/GLOB/THEOR/PROJ/MODERN/WO LO

Palmer, Ingrid (1981): Seasonal Dimensions of Women's Roles. In: *Seasonal Dimensions to Rural poverty*. R. Chambers, R. Longhurst and A. Pacey; Inst. of Development Studies, Frances Pinter (Publ.), London, pp. 195-201.

The conflict between seasonality of production and the seasonality of women's productive labour is discussed. A seasonal cycle is envisioned in which child care and agricultural work compete for the mothers' time and energy.

The impact of agricultural intensification on women is dependent on the different circumstances in which this intensification takes place. Examples are given from Gambia and Kenya where labour demand in agriculture underwent a sharp rise when paddy was introduced as a new crop. In areas where paddy cultivation has long been established such as in Malaysia and the Philippines the introduction of higher yielding crops and chemical inputs is likely to bring about a more modest increase in both labour demand and in its seasonal distribution. The effect on women is seen as dependent on the degree of mechanization and existence of a landless class which can offer a cheap supply of labour.

It is pointed out that gender typing of tasks is more subject to change than might be supposed from its observed rigidity. When there are large rises in labour productivity due to mechanization, a task which was formerly done by women is often taken over by men. Thus, income-generating opportunities of landless women may be seriously threatened.

It is stressed that in relation to planning, there is a need for information on social relations of production between men and women and between landed and landless people.

AGRIC/GLOB/REV/PROD/TECH/SEASON/MODERN/GENDER/WO LO/CHI CA

Palmer, Ingrid (1985a): *The Impact of Agrarian Reform on Women. Women's Roles and Gender Differences in Development.* Population Council, Kumarian Press, West Hartford, USA. 55 pp.

The situation of women after agrarian reforms, such as land distribution between households, land adjudication settlement schemes, and producer cooperatives and collectives in different political and cultural settings is discussed. Land reforms in Iran resulted in improved cultivation practices, but inflexible sexual division of labour meant that female family labour was intensified. With land adjudication in Kenya very few women had land registered in their names. Settlement schemes in many different parts of the world seem to have common characteristics regarding women: land rights to male heads of households; precarious position of widows; no rights for divorced women; clear demarcation of land between men's cash crops and a small plot for women's food production for the household; improved farming practices (on cash crops) imposes a much heavier work burden on women; women lose sources of personal income; removal from traditional support networks comes at the most difficult time in their life cycle. When producer cooperatives and collectives are formed by land reform, women have not always been granted membership. The active support of a women's organization working to obtain equal conditions for women seems to be crucial in this regard.

Suggestions for alternative designs for agrarian reform:

- Joint husband/wife rights. When this is not feasible, an alternative is to award women reserve powers; to prevent sale or rent of land, and to retain control of part of the land upon divorce.
- Women need equal access to cooperative and extension services if distortions in household resources are to be avoided. Credit for improving women's own-account farming could be on the basis of credit worthiness rather than collateral.
- All adult members of the land reform beneficiaries' households enjoy equal membership in the collective.
- A women's caucus in farmers' associations, in addition to women's general membership, would help to overcome the problems of speaking up and of men's hostility.

AGRIC/GLOB/REV/PROD/SUBS/CA CRO/MODERN/INC/GENDER/WO LO

Palmer, Ingrid (1985b): *The Impact of Male Out-migration on Women in Farming. Women's Roles and Gender Differences in Development.* Kumarian Press, W. Hartford, USA, 78 pp.

This is an overview, prepared on the basis of case studies from 7 countries in Southern Africa and the Near East. The author challenges two commonly held and opposing views on the impact of male out-migration on the rural household. The first claims that the impact is pure gain for both the rural household and the community. The second view assumes private gain to the migrant and his household, but a social loss. The author points out that neither of these views offers insights into how women left behind see their options and make accommodations.

The case studies from Southern Africa report a number of problems that women left behind encounter in their agricultural work. The remittances appear to be inadequate to cover the need for labour. In Swaziland, difficulties faced by women farming on their own were reflected in the decline in farm assets in female-headed households. A study in Botswana showed that female-headed households plant a smaller percentage of their holdings, and plough the land less frequently than male-headed households.

The studies from the Near East show a somewhat different picture. In this region remittances, after an initial difficult period, are usually large enough to cover hired ploughing services. At that time, there should be no financial reasons why farm output levels cannot be maintained. However, the real impact depends on a number of factors. In Yemen, wives are left in the custody of male kin, and because low-yielding food production is unable to compete with food imports, remittances are diverted into high consumer spending. In Pakistan, women in extended families purchase more food and sometimes they invest in a buffalo or small livestock. Women in nuclear households tend to hire labour and gradually withdraw from most field tasks as remittances allow. The returning migrants see their future in non-agricultural, usually urban-based self employment. This is in part due to few opportunities to buy land.

AGRIC/ANIMAL/AFR/ASIA/REV/PROD/WO LO/ISLAM/WHH

Palmer, Ingrid (1985c): *The Nemow Case. Women's Roles and Gender Differences in Development. Cases for Planners*, Kumarian Press, West Hartford, USA, 53 pp.

This is a hypothetical model study, synthesizing a variety of well documented field experiences. The intention is to establish a conceptual framework and present methods for assessment of the impact of development projects on women. The study concerns an integrated rural development project, encompassing irrigation for increased rice production and modernization of the fishing fleet for increased off-shore catches. The aims of the project include, i.a., improvement of nutritional levels by raising incomes and increasing the local supply of fish. There is no special emphasis on women in the objectives of the official document.

The paper discusses the impact of the project as depicted, and an alternative project approach with emphasis on women's role and rights in regard to land ownership, membership in farmers' associations, extension service, decision-making power and division of labour. Instead of ending up with uneven gains in the satisfaction of basic human needs at the family level, no incentives to limit family size, no improvements and possibly some decline in women's roles between generations, the alternative approach would result in enhanced ability to meet basic human needs at the family level, incentives to limit family size, to consolidate economic gains transferable to the next generation, maintenance and possibly some enhancement of women's role and status. Even though women's heavy workload is mentioned as being in conflict with other attainments such as education and community activities as well as time for child care, this is not elaborated on in the alternative approach.

A methodological approach to the evaluation of the impact of large-scale development projects on women is given in the appendix.

AGRIC/FISH/GLOB/THEOR/PROD/NUTR/INC/WO LO/PROJ/TECH/MODERN/GENDER

Pinstrup-Andersen, Per (1983): *Export Crop Production and Malnutrition. Food and Nutrition* **9** (2): 7-14.

The possible nutritional impact of export-oriented agriculture is analyzed in this article. A number of factors which may explain the impact of export crop production are identified. These factors are discussed in relation to four different paths through which export cropping influences food intakes: 1) food availability at national local level; 2) ability of the household to obtain available food; 3) desire to obtain food to which the household has access; 4) intra-household food distribution. The article is illustrated with a model incorporating the four paths and the corresponding factors which are relevant as mediators of the nutritional impact of export crop production. The author argues that a greater emphasis on cash crop production may imply a more efficient use of scarce resources. Rural poor may increase their income and the nutritional impact may be positive, provided that an effort is made to increase local food production at the same time by intensifying cultivation on available land. Promotion of home gardens or other means for the household to produce food along with increased cash-crop production are seen as possible policy measures in this respect. Export crop production may also generate employment for the rural poor. Some of the factors discussed have special relevance for women, especially those related to points 3 and 4 above.

It is mentioned that women's control over income may decrease with expanded cash cropping. The demand for women's time may be altered for the same reason. It is suggested that government intervention focus on

two issues: the ability to acquire food and household food acquisition behaviour.

AGRIC/GLOB/PROJ/LINK/CA CRO

Pinstrup-Andersen, Per and Marito Garcia (1984): Household vs. Individual Food Consumption as Indicators of the Nutritional Impact of Food Policy. Paper presented at the workshop "Methods of measuring Intra-household Resource Allocation", Tufts University (International Food Policy Research Inst., Washington, D.C.) 32 pp.

This paper compares results of various approaches to the estimation of nutritional effects of changes in household incomes. The results from attempts to establish a direct causal relationship between household income changes and changes in the weight for age of children (blackbox approach) are compared with results from various other more disaggregated "step-wise" approaches. The paper includes a comparison of approaches that use data on food consumption by individuals and those that do not.

The analysis is based on data collected twice from 800 households (for food consumption, 130 households) in a field study in the Philippines.

In this study, assessing household calorie adequacy as an indicator of the degree of calorie adequacy of preschoolers introduces large errors. It was a better indicator of the calorie adequacy of pregnant and lactating women.

Household incomes per capita appear to be a better proxy for the weight of preschoolers than household calorie variables.

Results from an analysis of the impact of change showed that changes in household incomes have no impact on the nutritional status of sample preschoolers. Incorporating household food acquisition as an additional link into the causal chain supports the conclusion of no nutritional effect. If food consumption by the preschoolers is used as the indicator, then the analysis shows a positive impact with a reasonable degree of probability.

The methods used, particularly that of food consumption and the assumptions made in the analysis are not sufficiently described to judge the validity of these findings.

ASIA/FIELD/NUTR/LINK

Piwoz, Ellen Gail and Fernando Viteri (1985): Studying Health and Nutrition Behaviour by Examining Household Decision-Making, Intra-Household Resource Distribution, and the Role of Women in these Processes. *Food and Nutrition Bulletin*, 7 (4): 1-31.

The article addresses three objectives: (1) to identify aspects of household dynamics that influence intra-household distribution of resources; (2) to describe a method for carrying out community and household-level surveys to identify determinants and consequences of household behaviour; (3) to identify decision-making and resource allocation factors that influence health and nutrition behaviour in order to design educational interventions. The authors recommend that patterns of decision-making and resource distribution are studied in relation to "power bases" within the household. This refers to power relations between household members determined by gender and generation. It is postulated that nutrition education must address these relations in order to achieve behavioural change. The impact of general education and income-generating activities on women's control of resources and decision-making power is reviewed. The authors find evidence for improved control and decision-making power of women when their education and income are raised.

Relevant questions to ask in a community level survey are suggested. These are intended to help determine whether the nutritional problems are caused by inadequate resource supply to households or by inequitable distribution of resources within the household. Models and relevant questions for examination of intra-household food distribution are suggested and discussed in relation to nutrition education. The authors conclude that a broadening of the objective for nutrition education is needed, which takes into account the role and status of women and the division of labour and distribution of resources within the household.

AGRIC/GLOB/TECH/REV/PROD/DISTR/CHI CA/LINK/INC/GENDER/WO LO/WO HEAL/EDU

Popkin, Barry and Florentino Solon (1976): Income, Time, the Working Mother and Child Nutrition. *I. Trop. Pediatr. Environ. Child Health* 22: 156-66.

The article is based on field work in the Philippines, including a 24-hour recall survey, assessment of nutritional status, information on socio-economic status and mother's participation in the labour force, where market-related activities play a major role. The results show that the independent effect of the mother's market labour force on household food expenditures is positive; weekly food expenditures increased by 1–5%. On the other hand, child welfare was found to suffer. Calorie, protein, iron and vitamin A intakes of children whose mothers worked, were lower than those with mothers who did not work. The greatest differences occurred in relation to vitamin A. The explanation given was that most of the vitamin A intake came from vegetables. The manner in which these carotene-rich vegetables were prepared was rather time consuming. Thus, they would be served less frequently to children of working mothers. Socio-economic factors were also important determinants of the effect of mothers' participation in the labour force on children's nutritional status. In the low income households the mother who worked was associated with an increase in vitamin A malnutrition among children as measured by the prevalence of xerophthalmia and intake of vitamin A. The opposite was the case for households in higher income brackets. Furthermore, the working status of the mother was also associated with a decline in breast feeding.

The determinants of the effects of mothers' participation in the market labour force on the health and nutritional status of the young children were: the extent to which the job is compatible with child care; the quality of child care provided by those who substitute for the mother; the availability and extent to which market purchased goods and services can substitute for the mother's time, and the availability and quality of social services which provide substitutes for the mother's time.

ASIA/FIELD/MARK/HANDL/DISTR/CHI CA/NUTR/LINK/INC/WO LO

Popkin, Barry, B. (1980): Time Allocation of the Mother and Child Nutrition. *Ecol. Food. Nutr.* **9**: 1–14.

The article is based on a field study of about 600 households in 34 rural barrios in the Philippines. Mothers' participation in the market labour force was related to time spent on child care and household work as well as household food consumption and children's nutritional status. Mothers' participation in the labour force seemed to have no (or a slightly positive) effect on children's intake of energy and protein, but a negative effect on nutritional status.

The author points out that the reason for this negative correlation might be that it is the poorer mothers who work outside the home.

ASIA/FIELD/MARK/CHI CA/NUTR/LINK/INC/WO LO

Potash, Betty (1985): Female Farmers, Mothers-in-Law and Extension Agents: Development Planning and a Rural Luo Community in Kenya. In: *Women Creating Wealth: Transforming Economic Development*. R.S. Gallin and A. Spring (Eds.) Association for Women in Development Conference Washington D.C. pp. 55–60.

Women's role and status in farming is described for a Luo community in South Nyanza, Kenya. It was found that women do most of the farming and are responsible for the family subsistence. Women secure land rights only through marriage, and are introduced to farming by their mothers-in-law. Husbands sometimes have their own plot for cash crops, however women usually also do the farming on these plots. Because of the bad food distribution system in the area, women have to produce the full range of subsistence food.

The increasing monetization has increased women's workload, since income-generating activities are necessary, such as petty trade, brewing, agricultural labour and growing of cash crops. Women control the income they earn, if it is spent on household expenses. Men spend their income not only on the household, but for prestige as well. It is argued that agricultural innovations should primarily be aimed at women who do most of the farming. New technology will have to be labour-saving and suited to small subsistence plots. Recommended changes would have to include techniques for cultivating the entire range of staples. Cash earning opportunities should also be created. The present agricultural extension system is discussed in light of the recommendations above, and suggestions are offered for improving policy planning and changing the role of extension workers. The author is critical of the present national policy to increase involvement of men in farming, arguing that this will threaten women's ability to feed themselves and their children.

AGRIC/AFR/FIELD/PROJ/PROD/SUBS/GENDER

Rajagopalan, S., P.K. Kymal and Pu-ai Pei (1981): Births, Work and Nutrition in Tamil Nadu, India. In: *Seasonal Dimensions to Rural Poverty*. Chambers, Longhurst and Pacey (Eds.) Frances Pinter Ltd., London, pp 156–162.

The authors have studied the relationship between the change in birth rate according to season and the seasonality of women's agricultural work. It was found that the peak in birth rate came right before the heaviest period of agricultural work begins. It is suggested that this may affect infant nutrition adversely, by limiting time available for breast feeding. Older infants may well be weaned at this time, while the newborns get less than the optimum time at the breast.

AGRIC/ASIA/FIELD/PROD/CHI CA/LINK/WO LO

Richie, Jean (1977): Impact of Changing Food Production, Processing and Marketing systems on the Role of Women. FAO/UNFPA Projects at the UN Economic Commission for Africa, Addis Ababa, Ethiopia, 18 pp.

The author expresses the view that agricultural changes in Africa have resulted in the polarization of interests of African men and women, with consequences for women's work in food production. Reference is made to the dual economy, where men control cash and women produce food for subsistence. This has often resulted in a drop in the percentage of the family income allocated to women, since men considered cash crop earnings as their own property.

The subordinated role of women is reflected in their food intake. Surveys carried out in Nigeria and Ghana are cited. These indicate that women consume a lower proportion of their requirements than men. Short birth intervals and inadequate food supplies often result in children with low birth weight. Among the measures suggested for alleviating the situation, it is pointed out that training for farm and home tasks can not always be divided among sexes arbitrarily. Family-focussed extension programmes should strive to train men, women and youths in improving home and farm management. Both men and women need training in agricultural skills, nutrition, population education and improved use of family and community resources. The need to discover and promote low-risk techniques to increase the production of food crops and release labour for cash crops is emphasized.

AGRIC/AFR/OVERV/PROD/NUTR/WO LO

Rizvi, Najma (1983): Effects of Policy on Intra-household Food Distribution in Bangladesh. Food and Nutrition Bulletin 5 (4): 30-34.

The Bangladesh Food Security Plan includes schemes for increased staple food production, price support, market arrangements, and public food distribution. The author discusses the effect of this plan on household food availability and intra-household food distribution. Factors affecting this distribution are discussed, and the preferential treatment of males is emphasized. The author concludes that the Food Security Plan has had very little impact on poor people, partly because the planners have not taken household food behaviour and discrimination against women into account. It is argued that collaboration among economists, nutritionalists and anthropologists is needed to construct a food policy plan.

AGRIC/ASIA/PROJ/PROD/DISTR/GENDER

Safilios-Rothchild, Constantina (1981): The Role of Women in Modernizing Agricultural Systems. Paper prepared for WID/AID, USAID, Washington DC., 31 pp.

The author goes through available literature and examines the type and degree of participation of women in agriculture in different regions of the world. Agricultural modernization is discussed in relation to how it may affect the women's situation. It is concluded that the amount of female agricultural wage labour is increasing in parts of Asia and that the wages the women earn are essential for family survival. Women farm managers are also involved in cash production, but have inadequate access to extension services. They are, however, as innovative and knowledgeable about correct agricultural practices as men, if they have equal access to agricultural information and inputs.

A typology (a matrix) is introduced as a planning device. This categorizes rural areas according to high and low land availability and high or low labour supply. These four different categories are further subdivided into high or low percentages of female-headed households. It is suggested that efforts to modernize agriculture in areas with land scarcity and a high labour supply (such as many Asian countries), must plan for crops that are labour-intensive. Introduction of agricultural technology that displaces female labour must be accompanied by labour absorption strategies. A high prevalence of female-headed households make these strategies all the more important. In countries or areas with no land scarcity but with labour scarcity (such as in Sub-Saharan Africa), women are mostly unpaid family workers or farm managers of small independent holdings. A high prevalence of female-headed households makes it even more important to direct existing agricultural

extension services towards catering for women. Labour-saving devices for women, both in productive and household work, are extremely important. The paper concludes with a discussion of different forms of women's cooperatives, which are considered essential if women are to benefit from agricultural development.

AGRIC/AFR/ASIA/GLOB/PROJ/REV/PROD/TECH/AGRI WO LO

Safilios-Rothschild, Constantina (1983): Women in Sheep and Goat Production and Marketing. Prepared for the Expert Consultation on Women in Food Production, FAO, Rome, 15 pp.

The role of women in sheep and goat production and marketing varies considerably not only from region to region and from country to country, but often even by ethnic group within the same country. It is stated that, in general, small ruminants tend to fall within women's rather than men's realms in most Sub-Saharan African countries. The milk and meat from the small ruminants could be important for family nutrition. The reasons why women keep goats and sheep were explored. The primary reason seems to be the desire to have a source of cash to pay school fees, health care costs, general family expenses and as an investment or as social security against misfortune and for meeting familial and social responsibilities rather than for consumption at the household level. It is stated that despite this evidence, policy makers persist in promoting goats' usefulness only in terms of nutritional improvements for small and marginal farmers.

ANIMAL/GLOB/PROJ/REV/PROD

Savané, Marie Angélique (1981): Implications for Women and their Work of Introducing Nutritional Considerations into Agricultural and Rural Development Projects. Food and Nutrition Bulletin 3 (3): 1-5.

This article is concerned with the meager results of projects aimed at integrating women into development, and how rural development can be redirected to benefit women. The author maintains that although some of the women's projects have succeeded in their main objective – that of reducing the imbalance between men and women in access to resources – they have never succeeded in calling into question the subordination of women in these societies and changing the division of tasks between the sexes. The lack of success for nutrition and health programmes was attributed to the fact that women have never been considered full-fledged producers. It is maintained that meeting the nutritional requirements of each member of the community means changing the structures of production, the method of assigning the land, production techniques, the division of labour between the sexes, and the distribution of resources and incomes. The new orientation will have to take into account women's roles in both reproduction and production, defining the relationship between the two.

SAVANÉ/AGRIC/GLOB/PROJ/OVERV/PROD/NUTR/GENDER/EDU

Schumacher, Ilsa, Jennifer Sebstad, and Mayra Buvinic (1980): Limits to Productivity: Improving Women's Access to Technology and Credit. Paper prepared for Office of Women in Development, USAID, USA. 66 pp.

The authors state that the issue of technology is not a question of women with or without technology. Women are and have always been users of technology. The key issue is rather the kinds of technologies women use for different kinds of activities and the position of women in the production process, such that they can acquire and utilize "new" technologies.

Four main reasons are given for the fact that women have not been in a position to have access to "new" technologies:

1. The dual economy and the sexual differentiation of labour. This point refers to the fact that women have typically been involved in subsistence activities and men in cash crop activities.
2. Women's leverage for demand. Due to lack of education, capital and land, women have been unable to create an effective demand for their technological needs.
3. Programmatic focus of National Governments, Bilateral and International agencies. Most agricultural technologies are targeted at men. Women are most likely to receive technologies pertaining to their roles as mothers rather than as producers.
4. Women as subjects of technology: national level planning. Governments cannot effectively address the technology needs of women.

Recommendations are given for improving women's access to technology.

In regard to credit, women are already extensively involved in informal credit systems including money lenders. Thus, financial institutions must take into account women's active role as borrowers and the existing constraints limiting women's participation in formal borrowing systems. Examples of successful credit programmes for women are given.

AGRIC/GLOB/REV/PROD/HANDL/TECH/MODERN/GENDER

Spiro, Heather (1985): *The Ilora Farm Settlement in Nigeria. Women's Roles and Gender Differences in Development*. Population Council. Kumarian Press, West Hartford, USA. 50 pp.

An evaluation, with particular emphasis on women, of a settlement scheme in Western Nigeria. Colonization of a number of settlement schemes have been implemented since 1959. Their main objective was to stem the rural/urban migration of educated young males and females by establishing a carefully planned modern and mechanized farming system which would provide a good income. However, these settlements have had a high rate of settler turnover, and desertion has besieged the settlements from the start. Many women, particularly, were dissatisfied and have left the scheme. Most of the settlers were Yoruba, among whom the women spend much of their economic lives independent of their husbands. Wives and husbands have distinct financial responsibilities. Thus, direct access to security assets is important for both men and women. It is the husband's responsibility to provide staples (maize, yams, cassava), to house their families and provide basic items of clothing. Women are expected to supply sauces, stews and snacks plus additional clothing. However, in practice women often contribute beyond their traditional requirements. Yoruba women earn their income mostly through trading and farming.

In the scheme it was expected that male farmers would provide the "family income", women were included as unpaid family labour. In addition, they were given small plots of land by the husbands for their own farming. Women had to do much more farm work than the planners had estimated. In addition many women did trading, which was less advantageous than in traditional villages, because of absence of markets in the village, and less transport facilities. Women did not secure land, because the male heads of households held the ownership.

Suggestions for improvement of the situation of women in the schemes included:

- joint ownership of land, or when this is not possible, allocation of separate plots for women;
- permanent periodic market;
- small-scale processing technology;
- collective work for women was not suggested, because the settlement was not built on groups which traditionally function together.

AGRIC/AFR/FIELD/PROD/HANDL/TECH/INC/WO LO

Spring, Anita (1985): *The Women in Agricultural Development Project in Malawi: Making Gender Free Development Work*. In: *Women Creating Wealth: Transforming Economic Development*. R.S. Gallin and A. Spring (Eds.) Association for Women in Development Conference Washington D.C., pp. 71–75.

Experience from work done under the Women in Agricultural Development Project (WIADP) in Malawi during 1981–1983, is summarized. The WIADP was run through the Ministry of Agriculture and was associated with the country's National Rural Development Programme. The activities of the WIADP fell into four types: documentation of women's contribution to small-holder agriculture, data disaggregation by sex, action projects, and strategies for including women in the Rural Development Programme. The role of women in agriculture and their participation in RDP extension services in Malawi is discussed on the basis of data collected in a national agricultural survey. The action projects showed that women were interested in agricultural training and that women farmers improve their cultivation practices with training. The WIADP has also tried to legitimize the use of male extension workers. By collecting sex-disaggregated data as part of their job, the RDP extension workers were introduced to the process of thinking about the need to reach both women and men, and the planners were acquainted with the significance of women's contribution to agriculture.

Staudt, Kathleen (1976): Women Farmers and Inequities in Agricultural Services. In: Rural Women: Development or Underdevelopment. Ed. Wipper, Audrey. The African Studies Center, Michigan State University, pp. 81–94.

The extent of discrimination of women in the delivery of agricultural services is explored, based on data from a field study in Western Kenya. The reasons for such discrimination were then analyzed by examining a number of factors that could possibly account for it.

It was shown that women farm managers experience a persistent and pervasive bias in the delivery of agricultural services, such as number of visits from agricultural instructors, training and loan acquisition. Indeed, the bias was shown to increase in intensity as the value of the service increases and it makes no difference whether the women have a high economic status, large farms, or have shown willingness to adopt agricultural innovation. In spite of these inequities, women managers appear to be as productive and as adaptive as male farmers.

The majority of the agricultural instructors did not express overtly prejudicial attitudes towards women, who were apparently avoided because of customary patterns whereby men spoke to men and women to women.

AGRIC/AFR/FIELD/PROD/TECH/MODERN/GENDER

Staudt, Kathleen (1979): Women and Participation in Rural Development: A Framework for Project Design and Policy-oriented Research. Rural Development Committee, Center for International Studies, Cornell University, Ithaca, NY. 78 pp.

A framework is developed with the intention of identifying the range of options available for equalizing women's opportunities with men's in rural development. This is to be built on an analysis of women's "opportunity structures". The concept of "opportunity structures" defines access to valued resources and possibilities for mobility. The central issue put forward to realize equalized opportunity is project staff accountability to women. In order to activate accountability to women, it is deemed necessary to build some incentive for staff to interact with female clientele. Different approaches to accomplish this are discussed.

AGRIC/GLOB/PROJ/REV/PROD/GENDER

Stoler, Ann (1977): Class Structure and Female Autonomy in Rural Java. *SIGNS*, 3 (1): 74–89.

The paper, which is based on fieldwork in a Javanese village, considers two questions: (1) by what means and to what extent have women gained and maintained access to economic independence and social power in Javanese rural society, and (2) what are the effects of increasing demographic pressure and economic stratification on production relations and the role of women within them? It is maintained that the colonial impact on sex roles, with the sexual inequalities that emerged in other colonial situations, did not occur in Java.

In contrast to Africa, where male labour was recruited for cash crop production, as women could and did carry out the subsistence activities themselves, the labour recruitment in Asia utilized the entire family labour.

Women's role in the harvesting system, market system and domestic production and interhousehold exchange were analyzed. The analysis of the Javanese harvesting system revealed that it is not participation in collective social labour which gives women economic power, but rather a woman's ability to mobilize the social labour of others.

Increased use of technology in paddy cultivation and processing have displaced women. Poor women have in this regard not been released from agriculture but rather forced out of agriculture and obliged to seek non-agricultural employment. Rice pounding for a wage was formerly a major and regular source of income for women from poor households. It is pointed out that women from small landholdings and landless households have been traditionally involved in alternate income-producing activities outside of rice cultivation. They have in fact a larger set of viable alternatives to agricultural labour.

The author emphasizes that women cannot be viewed as a homogeneous group in a village society. Such a view would obscure fundamental differences in their access to and control over productive resources.

Storgaard, Birgit (1976): Women in Ujamaa Villages. In: Rural women: Development or Underdevelopment. Ed.: Wipper, Audrey. The African Studies Center, Michigan State University, pp. 135–155.

The article is based on a field study from a rural area in the Bukoba District in Tanzania. It is argued that the potential for fundamental change in the position of women was missed at the introduction of the new mode of production. The traditional division of labour was brought into the ujamaa villages in spite of attempts to avoid it by choosing different patterns of production. Because a private sector was built into the model, a pattern similar to the traditional one could easily be transferred, whereby female labour became tied mainly to this sector. Women are still regarded as "hoes of their husbands". Women work at home in food production and household work; men work away from home in non-agricultural work or in communal work. Women's position with regard to private land has undergone no changes; the private land is owned by the men as heads of the households.

Even though ujamaa has the potential of increasing the status of women, this has not yet materialized.

AGRIC/AFR/FIELD/PROD/HANDL/SUBS/CA CRO/GENDER

Tinker, Irene (1979): New Technologies for Food Chain Activities: The Imperative of Equity for Women. Office of Women in Development, AID, Washington D.C. 43 pp.

It is argued that in order to alleviate world hunger and malnutrition, women must not only be included in development planning, they must be central to it. This has, to a great extent, been overlooked. Two biases in contemporary economic theory which create psychological road-blocks to the inclusion of women as equal partners in development are discussed. The first is the continued perception of a dichotomy between the modern and the traditional sectors, between the economic activities done for money and those done as a volunteer or citizen, between productive work and welfare activities. The second bias concerns the stereotypes of appropriate roles for women which interrelate with and are reinforced by definitions of economic activity. It is pointed out that there is a great inconsistency in what type of work is considered productive and included in economic accounts from different countries.

It is stated that new settlement schemes have had a particularly deleterious effect on the situation of women. Reference is made to several development efforts which may have contributed to increases in income but where food availability and nutritional levels have tended to fall. Reference is also made to development efforts which have been successful either by contributing to income-generation or to time-saving for women.

The author stresses that women are better equipped than men to deal with the effects of low income and landlessness. Men have a smaller set of alternatives when options are limited.

The technologies for food processing are discussed within two categories: firstly, mechanical technologies which reduce the expenditure of human or animal energy; secondly, improved methods of preservation and storing food. Preparation of food is discussed in the context of its income-generating potential.

AGRIC/GLOB/PROJ/REV/PROD/HANDL/TECH/INC/NUTR/LINK/SUBS/MODERN/WO LO

Tobisson, Eva (1980): Women, Food and Nutrition in Nyamurigura Village, Mara Region, Tanzania. A report presented to Tanzania Food and Nutrition Centre, 127 pp.

Focuses on implications of shifting subsistence production to a specialised one in order to participate in cash crop production, with particular emphasis on the conditions of women and children. Shows that both colonial policies and postindependence strategies for rural development have reinforced the subordination of women relative to men in the productive sector. At the same time these policies have increased the workload of women, negatively affecting not only their participation in decision making activities and communal work, but also the nutritional status of the family.

A great deal of data is presented on the diet and health status of Nyamurigura Village; particular diets of pregnant and lactating mothers; the relations of production between men and women at household level and the problem of the direct and indirect exclusion of women from political discussions, decision-making and communal work.

AGRIC/AFR/PROD/CHI CA/NUTR/LINK/CA CRO

Tommy, J.L. (1980): *The Role of Women in Paddy Production: A Comparative Study in Decision making Aspects of Women in Agricultural Production in Moyamba District, Sierra Leone.* Dep. of Agricultural Economics and Extension, Njala University College, Sierra Leone.

The study showed that although women generated a major part of the rural household labour, they had little control over matters that affected their labour input in paddy production. The survival rate of infants under one year born to women who operated heavy farm tools while pregnant appeared to be lower than among those operating lighter or less frequently used tools. A high percentage of the women included in the study were reported to have poor nutritional status.

AGRIC/AFR/FIELD/PROD/NUTR/LINK/TECH/GENDER/WO LO

Tripp, Robert (1982): *Farmers and Traders. Some Economic Determinants of Nutritional Status in Northern Ghana.* *Food and Nutrition* 8 (1): 3–11.

This article describes the relationship between some economic factors and nutritional status of children in a farming community in northern Ghana. Women's economic roles in this society are domestic, agricultural and commercial. It was found that agricultural activities of men or women were less important to children's nutritional status than the trading activities. Of all variables tested, the trading activity of the mother was the one most significantly associated with the nutritional status of the child. Women generally earned small amounts of money from trading, compared to men, but this money was more readily used for the nutritional welfare of the children. The women had complete control over their earnings, which they could use to buy food to supplement that provided by their farming activities and those of their husbands.

TRIPP/AGRIC/AFR/FIELD/PROD/MARK/NUTR/LINK/INC

Wazir, Rekha (1985): *Women and Landlessness. Women in Agricultural Production and Rural Development Service; Human Resources, Institutions and Agrarian Reform Division; FAO, Rome.* 41 pp.

Through surveying the literature, the author analyses the women's situation within the landless group of rural poor. The objective of the paper is to identify relevant research issues and make policy recommendations. The problems of definition and measurement of landlessness in relation to women are discussed. The author points to the need to widen this definition to include issues relating to rights and access to land for women, and the necessity to standardize concepts and measurements if cross-country comparisons and intra-country monitoring are to be carried out. A socio-economic profile of landless women in the various regions of the world is outlined, discussing particular issues such as employment, time utilization, income, access to basic needs, access to credit, and seasonal fluctuations of these parameters.

Government policies, such as agrarian reforms, agricultural modernization and export-oriented strategies, are reviewed in relation to impact on landless women. All such policies seem in general to have affected women negatively. Special government programmes for rural poor are also reviewed, and also in these programmes women do not seem to have benefitted.

Women are not seen as passive recipients of government policies, but as executors of their own survival strategies. Possible economic, demographic and organizational survival responses of landless women are listed. The break-up of the joint family and the increase of female-headed households are cited as responses to changes in the agrarian structure. The paper ends with a list of research priorities and policy recommendations concerning landless women. Income-generation, women's organizations and labour-saving technology for women's non-remunerative work are listed as important policy measures.

AGRIC/GLOB/PROJ/OVERV/AGRI WO/MODERN/INC

World Bank (1980): *Lesotho; Agricultural Sector Review. The Role of Women. Notes on Women in Development No. 7.* Office of the Advisor on Women in Development. World Bank, Washington DC. 47 pp.

This paper maintains that the state of the agricultural sector in Lesotho is both a determinant and a consequence of male migration to South Africa. In 1976, the proportion of rural households with a migrant was 60%. Migration has given many rural households a relatively high income, but at a high social cost. The remittances received from the migrants are irregular. Agricultural productivity is clearly affected by the limited resources women control and their uncertainty as to when and how remittances will be received. It is difficult to meet expenditures on-time on the farms.

While there was previously a clear division of labour by sex for agricultural tasks, absence of males has forced women to take over or assist with many male tasks, such as assisting with ploughing and planting. Agriculture is also affected by the fact that women are not permitted to make decisions. The overall pattern is that a male farmer, even an absent migrant worker, retains the power of decision in respect to his farm. Only when the woman is the legal head of a household can she make all decisions at appropriate times in regard to all farming requirements.

Twenty percent of children under 5 years, and five percent of the mothers, are chronically malnourished. There is also a reportedly high rate of nutrition-related obesity among women.

AGRIC/AFR/FIELD/PROD/NUTR/GENDER/WO LO/WHH

Young, Kate (1980): A Methodological Approach to Analysing the Effects of Capitalist Agriculture on Women's Roles and their Position within the Community. In: *Women in Rural development: Critical Issues*. ILO, Geneva, 7 pp.

The assumption is challenged that more market-oriented agricultural development will push women into the subsistence sector, leaving them with the responsibility of producing food for domestic consumption. The author suggests that the effect of such development is rather to make women central in the production of crops destined for the market. Their new role would be to function as unremunerated familial labour in systems of small-scale production of market crops. An approach is suggested to studying a given production system and women's role within it, and how the process of integration into the market changes inter-gender relations. The approach is illustrated by using the author's field data from Mexico.

AGRIC/GLOB/THEOR/CA CRO/MODERN/GENDER

