WOMEN IN DEVELOPMENT

PN-AAN-466
WU: 31564

Women, Migration and the Decline of Smallholder Agriculture

October 1980

Distributed by
Office of Women in Development
Agency for International Development
International Development Cooperation Agency
Washington, D.C. 20523

WOMEN, MIGRATION AND THE DECLINE OF SMALLHOLDER AGRICULTURE

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Paper Presented to the Board for
International Food and Agricultural
Development, Washington, D.C.

October, 1980

This Report was prepared for the Office of Women in Development, United States Agency for International Development, AID/OTR - 147 - 80 - 94. The views and interpretations are those of the authors and should not be attributed to USAID or to any individual acting on its behalf.

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EXECUTIVE SUMMARY

In the total world food supply picture, small farmers play a crucial role, particularly in less-developed countries and in production of food for the poor. Smallholder systems are being undermined by many forces, and the implications for future food supplies are ominous. Women's participation in the smallholder sector is central; overlooking it can distort development efforts to strengthen this primary source of food and social stability.

Migration is a major ingredient in the decline of smallholder agriculture. The family farm and the community suffer from the loss of labor when young men leave to work as wage laborers in agriculture or in distant cities or countries. With cash remittances, the family left behind must shift production and consumption patterns. A dependency on remittances develops, resulting in loss of self-sufficiency both in food production and material necessities. With this new cash-created dependency comes a breakdown in the worksharing systems that have been a factor in holding the community fabric together, and a reluctance to take up agriculture again if the migrants return.

Agricultural development programs sometimes threaten rural economies as well as smallholder agriculture. When agricultural production is directed towards export, foreign exchange earnings often go for purchased luxury goods and imported food for urban consumers. Modernization and mechanization usually mean less employment in agriculture; for those who continue to work in that sector, a changeover to purchased food from traditional home-produced food frequently results in lower nutritional levels.

Projections of world food supply indicate that there will be serious shortages, particularly for Third World countries. This will mean inadequate nutrition levels for millions of poor people.

There now is a body of development literature documenting women's contribution to agricultural production and making it "visible." The picture that emerges is that women predominate in food cropping, in subsistence agriculture, in hoe cultivation. When production is commercial, based on a mechanized system or on the plow, men are in control.

Neither rural women themselves or agricultural economists judge women's labor in food production by the same standards as men's work on crops that are sold. Besides ignoring women's contributions in planting, weeding and harvesting, economists evaluating agricultural productivity overlook the support tasks performed by women: fetching and carrying, feeding laborers, caring for small animals, producing and reproducing the labor force -- their own labor power, their partner's and their children's.

Recognition of the role women play as food producers still is inadequate for responsible development planning. Major works on agricultural development overlook completely this key factor in production. Yet many studies exist documenting women's capabilities in farm production and management -- if they have sufficient support and inputs. Scholars on migration see the pattern of women staying behind as a strategy to preserve the "patrimony" on the land; to keep the smallholding as a social and economic security factor for the family; to make a home in which to raise and feed the children -- and often to send food to relatives in the towns because their wages sometimes do not cover all their expenses. When men migrate, the women carry on the farming somehow (taking over cash crops as well as raising the food), but when women leave -- unless they can arrange for a surrogate mother/housewife -- the farm is abandoned.

Because of the important role women play in family farming, the forces undermining small farm systems deprive women of an important source of economic productivity. When families produce for a cash market, the income often is attributed to the male's labor, goes to his control and is less apt to be spent on improved nutrition and quality of life for the family.

This paper is not solely an argument for equity or for the recognition of the specific contributions women make to food production. Rather, it suggests that any policies designed to increase food for the poor will not <u>succeed</u> unless they take into account women's role as food producer and, preeminently, as producer of food for the poor.

CONCLUSIONS AND RECOMMENDATIONS

A. Smallholder Agriculture and Food Production

While the productive potential of small family farming systems is increasingly recognized, much remains to be learned. Research and development efforts have concentrated on the crops and technologies of larger and mechanized systems. World food needs demand that greater emphasis be placed on research and development studies on small farming systems with attention to:

1. Improving growing methods and varieties of crops grown on smallholdings, with special emphasis on women's crops.

2. Developing appropriate production, harvesting and processing machines and tools for small fields and terraces -- designed for family use.

3. Designing small systems in which the crops grown are food crops the family needs for improved nutrition.

4. Studying the economics of small farms to measure the value of foods and services provided outside the cash economy.

5. Assessing the social and psychological contributions to health and stability of rural society provided by smallholder farming systems.

6. Describing and analyzing smallholder survival strategies which include a creative mix of off-farm employment, food production, manufacture of items for sale or barter, etc.

When agricultural development projects are designed, consideration should be given to their impact on small farm systems, national food supply and particularly the effects on the supply of foods poor people eat.

B. Women's Contributions in Smallholder Systems

Women's contributions in agricultural production -- especially in food crops -- has been invisible to economists and planners. Equity and successful agricultural development demand:

1. Learning in exact detail, through time allocation studies and other methodologies, what women contribute in smallholder systems.

2. Modernizing strategies in which the value of women's food production and processing roles are recognized, and in which they are given the

resources -- credit, training, access to inputs, tenure rights -- to strengthen and enhance their productive efforts.

3. Mechanisms to foster the organization of rural women so that they can begin to define their own needs, discover or invent ways to help themselves, and pressure the political system for the supports and services they and their communities need.

4. Creation of simple materials on the interface among nutrition, health, food production and food consumption.

5. Training of rural workers beyond "home economics" to give instruction in nutrition and health linked to vegetable gardening and staple food crops.

6. Studies of wild foods, their nutritional contribution and role in family survival strategies.

C. Effects of Male Outmigration on Food Systems/Women's Work

A great deal of study has gone into exploring the impact of migration on urban areas and on individual migrants. Little has been done on the effects of migration on the people, particularly the women, left behind. We need:

1. Detailed analyses of the effects of male absence on women's work load, and particularly on women's food production efforts.

2. Policies and programs to strengthen and enhance women's work in family food production, and to ease their burdens.

3. Assistance to women in carrying out cost/benefit calculations on their own cash-conserving and cash-earning options, so that they can decide the opportunity costs of whatever possibilities may be open to them in food production, wage employment, etc.

4. Cash-earning opportunities for women which combine with their household/farm responsibilities.

I. THE DECLINE OF SMALLHOLDER AGRICULTURE AND WORLD FOOD SUPPLY

Introduction: Hunger and malnutrition among the rural and urban poor in many countries continue despite years of agricultural and industrial development programs and substantial real progress in enlarging the gross product and raising productivity. Apparently there is a failure in the anticipated linkage between general economic development and the advancement of welfare for many in the population. In a reappraisal stimulated by these conditions, development experts are taking another look at smallholder food production systems for values perhaps overlooked in efforts to push world agriculture into large-scale, capital-intensive modes of production. Ironically, this interest arises at the same time there are forces undermining smallholder systems and actually causing the abandonment of land. (Wortman and Cummings [1978] is one reexamination of these issues.)

In this paper, we argue that migration of males to cash-earning opportunities off the farm is one major ingredient endangering smallholder agriculture, and particularly the production of local food. In Part I, we discuss the reasons smallholder agriculture appears to be losing ground, and the effects on the food supply and the nutritional status of the poor. In Part II, the emphasis is on women's role in small farm systems, especially their preeminence in food production. We cite evidence that the absence of able-bodied men puts enormous burdens on the women left behind to carry on the agricultural work and care for their families. As

a consequence, the production unit may decline, and sometimes is abandoned.

This paper is not a treatise on the productive superiority of smallholder over large, capital-intensive agricultural systems.[1] Rather, it suggests that smallholder farms play an important role in producing food for the poor, in rural income distribution, in sustaining family and kinship networks, and as a productive asset for rural women. In many world regions, women grow the family food. If they have access to land, women's economic power may be greater than in wage labor, and they have a security factor on which to rely if their jobs disappear.

We do not advocate that women should choose to raise food instead of income-earning activities in all cases. Often women will decide to do both, if they have the opportunity. Rather, we are suggesting a careful cost/benefit analysis of wage employment and family food production both by designers of projects and the women themselves.[2] There are high economic and social opportunity costs in depending on

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[1]There are many experts, however, who do assert the productive efficiency of small farms. The World Bank (1980: 42) reports "wide-ranging evidence that (comparing similar types of agriculture) smaller farms outperform larger farms in value added per acre." In a Scientific American issue on food, Scrimshaw and Taylor (1980: 88) note that "yields per acre are usually higher on smallholdings than they are on larger farms since families use their many hands to exploit what we have described as the intensive margin." Nor is it always the case that small farms can be consolidated into larger entities. Much of the land abandonment and production decline about which we write is associated with hill and/or poorer land where mechanized systems cannot be introduced, yet where labor-intensive efforts and improved farm practices on terraced hillsides result in productive enterprises.

[2]Women already are beginning to make such analyses. Rogers (1980: 143-47) sees women's desire to strengthen their control over the subsistence sector as a conscious, countervailing strategy to men's virtual monopolization of cash crops; she agrees with Pala's (1976: 22) contention that far from being a retreat to traditional work, women's efforts to build up their control over subsistence sector activities has meant increased numbers of women doing what was traditionally men's work in agriculture. She observes that if women lose even this asset to the demands of men for their land and labor, they may be in a much more disadvantaged position.

cash to buy food. Moreover, the wage-earning equivalent of home-produced food is rising as world food supplies tighten and prices soar -- a trend that will probably continue for many years.

Smallholder agriculture is declining in many developing countries because of forces not necessarily related to its social and economic value (we discuss some of them in the next section). This decline has disastrous effects on nutrition because small cultivators produce many food items in the diets of the poor -- for example, tropical root crops such as yam and cassava, and plantain which grow easily and cheaply on small holdings (Berg 1980: 25). According to a World Bank study (1979: 3), cassava is a major source of calories for 300 million people, many of whom are rural and poor. Food grains such as wheat and corn, while cheap on the world market, are often beyond the reach of the poor because their countries lack foreign exchange to import grains or the ability to subsidize their sale to consumers. Government programs to encourage food production (as in the Green Revolution) have had hurtful consequences; for example, high fixed selling prices to encourage the production of grain can lead to a drop in legume production which affects the marginal diet of low-income groups (Scrimshaw and Taylor 1980: 83).

The decline of the small farm sector causes (and at the same time is itself accelerated by) the outmigration of male farmers and increasing burdens on the women left behind. Women must manage the household and care for the family, but also provide the family food and produce the cash crops. Remittances from family members who have migrated may be irregular and inadquate, and at times may cease altogether.

There is some evidence that women -- most often left without secure title to land, credit, inputs and extension services -- may find the workload so onerous that they take their children and also leave the rural areas for the towns. Not only is the food supply in some countries seriously endangered by migration, but the existence of the small farm sector itself is in jeopardy. In some regions, there are increasing numbers of abandoned farms and unused agricultural lands. In other areas, large farms have swallowed up small farms. Often these large enterprises do not produce food for people of the region or nation, but rather food and other crops for export. For example, fresh vegetables for the U.S. market grow in Mexico on land formerly producing local traditional foods, and Egyptian agriculture has shifted to supply the European market and the Egyptian middle class.

Developing nations can ill afford to lose the crucial contribution small farm systems make to food supply. Agricultural policies sensitive to food and nutrition of the poor must address not only the general problems faced by small farmers, but in particular must devise strategies to encourage and enhance women's contribution to this sector. Lack of understanding of the roles women perform, and lack of support and services to women left behind on the land as men are forced to migrate because of insufficient farm income, exacerbate the decline of smallholder agriculture in many world areas.

Smallholder Agriculture: Sector in Trouble

Smallholder agriculture is the production system evolved by rural families living on the land to provide their basic human needs of food, clothing, shelter, security for the young and the old, and other family supports. It is a complex of interdependencies based upon a variety of

contributions from family members -- physical strength, judgment and experience, intuition and imagination, light labor and heavy labor. Production above household needs is sold, bartered for other kinds of food or family needs, given away or fed to animals to be converted into animal protein food.

The household on the small farm is not always the stereotypical (in U.S. terms) family: father, mother and children. Often elderly parents and other kin live in the household. Other kin who contribute vital support to the family may not live in the household -- they may be away permanently or temporarily doing migratory labor. According to Safilios-Rothschild (1980), in many developing countries adult females head 30 to 40 percent of rural households. One study of village women in Ghana found that 65 percent of women over 18 are solely responsible for their children's daily nutrition and other requirements (Bukh 1979).

The smallholder system is vulnerable on a number of fronts, not all of which will be treated in detail here. Among these are natural calamities such as drought, hurricane and flood; erosion of land and destruction of water resources; mistaken development strategies and issues related to land tenure. This section examines in particular the effects on small farm systems of migration and of competition from large, capital-intensive agriculture. The land tenure situation also is reviewed.

Migration affects rural communities in complex, sometimes contradictory ways. Benefits include relief from overcrowding and underemployment; capital infusions through remittances that make it possible for the family to stay on the land and to relieve some of the drudgery with labor-saving implements; and fallow, or "rest" for overcropped, wornout land. Detrimental effects of out-migration on the smallholder system are the development of dependency on cash from wages or remit-

remittances, and consequent loss of self-sufficiency; loss of labor affecting the capacity of those remaining behind to cope; poorly cared for land and deterioration of agricultural infrastructure such as irrigation ditches; breakdown of work-sharing customs; rejection of agriculture as a way of life with the loss of young adults to the community in their most productive years -- leaving behind women, children and the old.[3]

Ireland is the classic example of migration-caused decline in agriculture. As Power (1979: 134) describes it, "once emigration reaches endemic proportions (as it has in Ireland), a kind of human depression and a social despair sets in," leaving a "devastatingly destructive individualism that makes even the simplest co-operative venture...extraordinarily difficult." Colvin, et al. (1980) talk of the deprivation, sadness, decline and despair which permeate the social atmosphere in regions of male out-migration in the Senegambia, particularly in Mali and Mauritania. The authors also make the point that not only are some regions being emptied out, but that whole countries are becoming peripheral -- with their only export being population:

> Since migrants [from Mali]are predominantly males in their most active ages from twenty to thirty-five years, their absence has a serious effect on the age and sex structure of the population in the

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[3]Many efforts to assess the costs and benefits associated with international migration are underway. There is some evidence that the developed nations have gained more from labor migration. They secure a cheap, flexible labor force, workers in their most vigorous years, and they avoid the social costs of rearing and educating them, however minimally, as well as caring for them in old age if they do return home. Some argue that sending countries also gain: a safety valve for excess population, for example, as well as remittances which ease foreign exchange shortages. Others counter that such "benefits" are illusory since most remittances are spent on inflationary consumer goods, and few countries have figured out how to capture remittances for productive investment.

> areas of origin. This is most notable in the Sonike areas where average male migration is near 40-50%, and some villages experience absentee rates of up to 70% of the active male population. In the absence of men the work devolves on women, children and the old people and deteriorates in both quantity and quality .... The loss of active hands means a net loss of agricultural produce in the area and the remittances tend to be spent for non-productive investments rather than agricultural equipment, fertilizer, water supply, processing, or cottage industry (ibid.: 227).

Colvin and her associates profile similar patterns in the other countries of the Senegambia, in one of the few in-depth treatments of migratory movements and the effects of the migration on regional economic and social structures, with consistent attention throughout on the impacts on the region's women.

In a study of migration from ten rural Mexican communities, Cornelius (1976: 14) found a "point of no return" when demographic and economic decline is beyond reversal (two of the ten communities had reached this point):

> There appears...to be a threshold point in the out-migration process beyond which the costs of out-migration to the sending community outweigh the benefits. As long as close relatives of permanent emigrants remain behind, the flow of remittances is likely to continue and the local economy remains viable. When a large share of these nuclear family members die or move, an irreversible process of decline may begin.

Another example of "flight" can be found among the Garifuna of Guatemala, where traditional male tasks in fishing and cropping were taken over by women when men left for wage labor. Ten years later women also were migrating and sending back remittances. Subsistence farming had practically ceased(González: 1976). Many more examples could be cited from the literature.

According to a United Nations Development Program report (1980: 26), 30 percent of the economically-active male population of Yemen is working abroad,

and some villages are virtually depleted of active males. In poor country after poor country, migration is having disastrous effects on small farm food production. In Jamaica, one sees idle land owned by migrants in New York City or Toronto, unfarmed because it needs soil conservation treatment no tenant or squatter can afford (or qualify for under government programs). In the Dominican Republic, one is told the reason for the idle land is that the farmers are "gone." In the arid Middle East, irrigation systems have deteriorated from lack of maintenance, and in Jordan "schemes to develop the Jordan Valley for irrigation are foundering from lack of manpower" (Birks and Sinclair 1979b: 296). Mueller (1977: 157) notes that in Lesotho, per capita agricultural output is declining each year:

> There is increasing population pressure on the land which is constantly eroding. Though migrants use their land as a base on which to house their families and from which to extract what produce they can, they do not put back into the soil what is necessary to prevent its destruction.

Migration sometimes results in manmade calamities which also destroy food production capacity. Haiti is such a manmade calamity. Hills are denuded, soil eroded, population pressure on land is severe and "continuous mobility and instability" of the rural people is a permanent condition" (Berggren, et al. 1980: 15). In Pakistan, according to Birks and Sinclair (1979a: 118), cash remittances from migrants were spent for water pumps which proliferated; the water was extracted in such volume and the water table fell so rapidly that "doubts now exist over the future of water supplies in that area."

Standing (1979: 46) points out how the introduction of cash exchanges in agricultural systems -- and the necessity to earn cash to pay rent and taxes -- can induce migration:

> Relaxation of feudal forms of exploitation also means that barriers to migration are lowered....the shift from a system of compulsory labour services to rents in kind (such as sharecropping) increases the opportunity for the peasant or some member of the peasant household to become an absentee landholder. For rather than produce his own allotment, the change implies that the peasant is able to acquire the means to pay the rent through migration in search of wage employment, leaving the remainder of the household to produce the family's subsistence.

Then, as is the case in Yemen (Birks and Sinclair 1979b: 297), as returns to working abroad begin to exceed those from agriculture, rural people come to view migrant laboring as their major source of income, "displacing agriculture from the central focus of their economic lives." In Oman, seasonal farming -- particularly labor-intensive winter wheat production, has dropped to one-fourth the area under cultivation twenty years ago because work in the oil fields is so much more lucrative than food production (ibid.). Many migrants also go abroad to escape the grinding poverty of agriculture as a way of life. When they return to the family left behind, they often use their new resources to take up different and easier, higher-status work.

Not only may it be difficult to return to farming because the holding has deteriorated in the farmer's absence, but work-sharing systems which make farming viable may have broken down. Many writers point to the destruction of reciprocity as another major impediment to continued food production during the time of the migrant's absence, and to the revival of agriculture upon his return. In Philpott's study (1973: 103) of migration from Caribbean Monserrat, for example, communal work sharing, which made heavy rural work more festive, has practically disappeared, and land has been abandoned.

The migration of key family members also contributes to the already difficult question of who decides on agricultural improvements. In a major soil conservation/

small farmer productivity effort in Jamaica, the director pointed to the land tenure situation and absentee owners as a major difficulty facing this project. Insecure land tenure can be a disincentive to long-term land improvements such as terracing and other soil conservation practices, development of irrigation capability, and planting of tree crops. Firm tenancy or land ownership usually are requirements for agricultural production credit, as well as credit for land improvement. No one wants to put time and money into land that can be taken away. Moreover, insecurity about future tenancy discourages proper care of the soil and water resources, further undermining the productivity of the land.

That land reform can increase agricultural productivity is known. According to the World Bank's 1980 Report (p. 41), a land reform usually will increase agricultural output after an initial period of adjustment because "small farmers tend to apply more labor per hectare and to use land and capital at least as productively as large farms." Power (1979:151) outlines a series of measures to improve smallholder production:

> If certain bottlenecks in the production system are removed (the critical question is the distribution of land), 5 % growth rates in agriculture can be achieved...and the 5% growth could be based on the production potential of the peasant farmers. These bottlenecks comprise archaic land tenure arrangements, lack of credit; poor research and extension services; unproductive agricultural techniques; shortages of fertilizer and water supply, and an underdeveloped rural-industrial sector.

In addition to questioning the efficacy of large cash-crop food production systems, experts sometimes have doubts about collective or group production efforts. Among others, Cohen (1979: n.p.) points to evidence that productivity is far higher on the kitchen plots of collective workers than on their team

farms. The nagging question, he says, is "whether private land holders actually have more incentive to care better for their land and increase its productivity than those who only share in the output of a group production effort."

Other difficulties not related to migration beset the smallholder. Competition from large capital-intensive systems is a factor. As agriculture around it modernizes, the small farm loses ground if the farmer does not adopt or cannot afford modern agricultural techniques. The emergence of large landowners and/or capital-intensive systems can saturate local markets with increased production from expensive fertilizers, mechanization and technology inputs, driving the small producer without capital or access to credit out of the market. Development models of the past twenty years have reinforced this trend. In the press for export earnings and increased yields, more emphasis has been placed on crops that grow well in mechanized or extensive systems; little or no resources have been invested in research, marketing and processing, or improved seeds and fertilizers for the crops grown on small farms -- preeminently food crops and particularly foods grown for people of the region.

The emergence of large operations not only creates overwhelming competition, but sometimes undermines the viability of small units by siphoning off family members as wage laborers, further precluding the poor from taking advantage of new technologies (Standing 1979: 49). Inflated land prices, created by the larger farmers expanding and by land purchases financed with cash remittances from family members working off the farm inhibit the smallholder from "rationalizing" his or her own farm to viable unit size. At the same time, high land prices may induce a family to sell out and move on.

Smallholder Agriculture in Third World Economies

If agricultural modernization were producing adequate food, and if all people had sufficient purchasing power to achieve good nutrition levels, concern for the demise of the smallholder might be just a sentimental exercise. However, much of the production from large, modern agricultural enterprises in developing countries goes into export, and export earnings often are spent on imported luxuries for the middle classes -- liquor and food, automobiles and gasoline, fashionable clothes and other consumer goods. Decreased nutrition levels for the rural poor are the result.

Modernization and development affect not only large enterprises, but also can put the smallholder into non-food cash crops which would, of course, be advantageous if there were nutritious food to buy at reasonable prices and if small farmers could count on good returns for their products. In the real situation today, however, small farmers would be wise (and need to be encouraged) to keep some degree of food self-sufficiency. If governments make no alternative plans to grow foods which poor people eat, it is hard to see how taking smallholders completely out of food production -- either by substituting non-food cash crops or by neglect so that people migrate and abandon their land -- is a sensible policy.

Food supply projections on Third World agriculture are not encouraging. For example, according to the United Nations Economic Commission for Africa,

> Projections of demand in Africa for food are running ahead of projections of production with disquieting implications for food prices, the need for greater imports draining foreign exchange and particularly for the nutritional status of the poor. Estimates are that by 1985 demand for food will be 77 percent higher than in 1970 while production will have increased by only 45 percent. Concern for the crisis this will provoke has directed more attention to the productivity of small farms and the contribution they can make towards food self-sufficiency (n. d., n. p.).

The serious economic implications for Third World countries because of smallholder agriculture decline are many, as are the implications for human suffering. Some experts now are saying that the small farm sector deserves reappraisal because it has the potential to produce for the urban masses through concentration on indigenous resources of land and labor, without resorting to expensive imported inputs necessary in modern mechanized systems. The full potential of small farming systems for productivity and for stabilizing or invigorating rural societies cannot be known, however, until these questions are explored through research and development efforts comparable to those devoted to large farm systems.

It is evident that there are conflicting trends in the food supply/demand picture in the Third World, and it is precisely here that we need more information. For example, food production may decline when farmers turn exclusively to cash crops or migrate to earn cash, lowering food production at the same time that cash is available from crops or remittances -- and thus creating more demand for food, higher prices and greater need for more cash (and thus for more migration).

If the small farm family shifts from producing subsistence staples in response to the attractions of the cash market, effects on the family's nutrition may follow. Increased income can encourage increased food prices; purchased food is often processed food, and the formerly self-sufficient family may have a higher cash flow and lower nutrition. Families eat a complex variety of foods in rural areas -- some wild, some randomly-intercropped -- that over the years has evolved into a balanced diet. They may find it impossible to recombine and achieve the same balance at a local market. The knowledge of wild foods also can be lost. In Jamaica, urban and rural people eat a nutritious amaranth called "calaloo" as greens. The same plant

grows wild in the mountains of the Dominican Republic where malnourishment is severe, yet its food potential is unknown or forgotten. Rogers (1980: 146) points out how the encroachment of forests and waste-land

> has resulted in the destruction of large parts of the 'ecological matrix' on which so many of women's economic activities depended, such as tending poultry and livestock, straw-plaiting and weaving, or collecting wild plants and spices for home consumption or sale.

As Rogers notes, not only does food for the poor decline with introduction of world market cash crops or with migration, but related home industries fall by the wayside as well. When subsistence-producing families begin to live on cash wages, they develop new consumption patterns. They turn to the market for items previously produced in the domestic unit -- plastic utensils instead of wooden, detergent instead of soap, polyester readymades instead of cotton homemade clothing. Many of these items also are imported, using foreign exchange. Standing (1979: 47) sees the loss of family labor from outmigration as another cause of the decline in home production:

> Though out-migration will not lead to a labour shortage in all households, for very many it will. Often it will do so in a scarcely visible way, because the initial consequence will be that poorer households are merely precluded from taking advantage of new productive opportunities or are forced gradually to abandon traditional domestic pursuits.

In sum, evidence is mounting, as Kreuger (1980: 20) notes, that with government and financial emphasis on commercial agriculture for export, the peasant economy is destablilized and a food producing potential is undermined, in addition to the other social and economic disruptions. As he observes,

> In spite of government programs intended to increase agricultural production, Mexico's food imports have increased... by 167 percent during the last six years.... If these trends continue, by 1982,

> 34 percent of the money from petroleum will be used for food imports and by 1990, 72 percent of the oil money will go for food. The nightmare for some Mexican economists is that Mexico might follow the pattern set by Venezuela of using oil to buy food, a pattern which not only depletes non-renewable resources but also destroys campesino agriculture (ibid.).

In the discouraging picture sketched above, smallholder agriculture can provide a safety factor -- a crucial supplement to purchased food, imported food and food aid. In smallholder "mixed farming systems," a combination of crops is grown to satisfy a variety of food needs, not one or two cash crops which may fail. Small farms utilize a set of survival techniques learned over generations experiencing the vagaries of weather and history. As Jerome (1977: 293) puts it, "The mini-agricultural systems of the subsistence agriculturist demonstrate stability, self-sufficiency, efficiency, productivity, and richness -- characteristics consistent with health and well-being."

There is an appropriateness in the developing world of a food production system that emphasizes human labor increments where labor is abundant. Smallholder production can reemphasize the wide variety of traditional foods and condiments, and counter the faddism of "modern" foods -- often less nutritious, more expensive processed foods which have to be imported.

A vigorous smallholder sector also means that savings in foreign exchange can be achieved through reducing food imports -- both luxury and staple foods. And with some small farm production, modest amounts of foreign exchange can be earned. When there are more farm families with incomes and purchasing power, internal markets for manufactured and craft products can develop in rural areas. King and Byerlee (cited in Zalla[1979: 4]) found that 84 percent of all increases in consumer

expenditures in rural Sierra Leone "are for goods produced in small-scale agriculture, fishing, industrial and service sectors."

World Food Supply and the Third World Poor

Global food supply has been growing, and some agricultural experts see technological breakthroughs bringing even greater increases. Nevertheless, the poor still are vulnerable because their access to food is governed not only by the world supply, but by their own (and their governments') purchasing power, especially as food prices rise. Most expectations are that the period of cheap world food prices (which held except for short periods of world drought as in 1973-74) is about to end. The great surge in corn production achieved with the introduction of hybrid seed and short-season varieties has leveled off. The recent period of abnormally good weather seems to be running its course. Costs of all inputs are increasing, and the supply of good land and mineral fertilizers is decreasing. Moreover, in the developing world the demand for food is not inelastic as in rich countries. There is growing demand for food from the new industrial wage workers and their families receiving remittances -- new arrivals in the market economy.

World food reserves available for food aid have never been adequately rebuilt since the drought of 1973-74. There are conflicting opinions on what constitutes an adequate reserve to meet emergencies and still not depress world prices to the point of creating disincentives to production. Whatever constitutes an adequate reserve, there are limits in political will and ability of rich countries to provide food through disaster aid, concessional sales, food-for-work programs and the like.

Periodic failures in "world market" crops because of drought, disease and

disaster precipitate steep price rises for all food; even local foods are much more expensive, at least while the crisis lasts. Increasing costs (and uncertainties) of transport because of the rise in oil prices -- as well as unrest and war in oil producing regions -- ultimately will factor into food prices.

Degredation of the world's resources of productive land has awesome implications for food supply for everyone. The worst destruction, however, is on hilly or marginal land where poor people farm. The Sahara is advancing south at a rate of three-and-one-half miles per year. Topsoil long ago eroded off the hillsides of the slash-and-burn agriculture of the Caribbean, Central and South America; the subsoil now is being washed away. Salts are building up on irrigated land, and fossil ground water supplies are waning. New lands opened to replace lost acreage are less productive and more fragile. Disturbing and deforesting them creates new erosion problems of serious consequence.

The dimensions of the food and nutrition problems can be seen in projections made by the World Bank. In studies using data from five developing countries, reported on by the Bank's chief nutrition officer, Alan Berg (1980: 24), estimates based on the most optimistic set of assumptions (high income growth and stable food prices) show a sharp reduction in the proportion of the population that is undernourished, yet over 150 million people still suffering that condition. More realistic assumptions project a depressing picture. Berg says (ibid.) that a key conclusion of this analysis is that "increases in income and in food production are likely to fall far short of what is required to meet basic needs in nutrition."

It becomes clear that increased production will not necessarily ease the hunger of the poor. Most analyses project increases in demand for food in the years

ahead. If these predictions are borne out, foods produced to meet this demand will be the foods wanted by people with money to pay for them. Foods suitable for commercial markets, especially for exportation, are principally those crops grown on large mechanized farms. Many world market crops are not "expensive" in comparative terms -- no farmers in the world receive less for their wheat and corn than do U.S. farmers. But without foreign exchange, the Third World poor have little access to these bargains, nor any assurance that the bargains will always be available to meet demand.

Food crops are produced in the Third World, however, on small plots with few inputs other than labor. While such crops return little to the farm family for their hard work, they are the basic foodstuffs of the family and the poor of the country. They are cheaply produced. These foods are the tropical root crops such as cassava, cocoyam, potato, and yam -- in short, poor people's food. Berg (1980: 25) estimates that the benefits of a 10 percent increase in the production of cassava would be received entirely by the calorie-deficient group, whereas a 10 percent increase in the supply of beef would add three times as many calories to the daily diets of the adequately-nourished as to those of the calorie-deficient. As he further notes, although poor families spend most of their income on food,

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The small or subsistence farmer is usually in the business of growing food for his or her family and selling the surplus above family needs for whatever price can be gotten. Essentially, small farmers provide a subsidy to the landless and urban poor in the Third World, much as the developed world's farmers subsidize the middle class in their countries with cheap food. The exception is in the European Economic Community and Japan where farmers are assured a fair return and public policy is directed to maintaining a viable agriculture.

> ...in many countries more than 40 percent of the population has calorie-deficient diets, and upward of 15 percent have gross deficiencies. Second, the foods they buy differ markedly from those bought by the rest of the population. In Indonesia, for instance, the lowest three income deciles obtain about 40 percent of their calories from cassava and corn; by contrast, the upper three deciles obtain about 14 percent of their calories from these foods. Third, and contrary to common assumptions, poor people tend to have an adequate balance between protein and calories in their diets even when an important share of their calories comes from low-protein starchy staples (ibid.: 24).

Some attention to small farm sector food production in Third World economies would therefore seem to be warranted, in the light of the precarious world food situation; problems of adequate supply and distribution to the poorest strata can be alleviated, at least in part, by some degree of food self-sufficiency provided by smallholder production.

Smallholders in Rural Society Smallholder agriculture is valuable also because it provides the basis for a healthy rural society. The economic contribution in a local market for modern sector goods and services that farm families can make has been mentioned. If the decline can be reversed and adequate support extended, smallholder agriculture might, -- with adequate family planning -- stabilize the rural population and slow down out-migration. A healthy rural society could prepare the young who must migrate by giving them the necessary health, education and emotional strength to be productive members of urban communities. A strategy to enhance smallholder agriculture could support a reserve labor supply in dignity, and prevent premature migration before the urban sector is ready to provide jobs.

The farm families of the United States were raising and educating the future

workers in industry, the professions and business for decades before the massive migration from rural America that occurred from the 1920s to the end of the 1950s. The exodus took place with relatively little pain (except for the landless farm workers from the Southeast) because people left farm homes with good skills, education and health. The story is much the same in post-World War II Japan. A healthy rural society, supported by adequate returns to agriculture in a small farm system, sent the surplus children to town prepared to be productive, competent workers in a modern industrial economy (Shinpo 1973).

In the less-developed countries today, the rural people are leaving their homes from weakness, not strength. In the beginning of migration, those with ambition and energy often leave first, and the community left behind is even weaker because of the loss. Because they feel impotent to confront the forces arrayed against them, Krueger (1980: 20-21) observes, Mexican peasants "migrate to the already overburdened urban areas or to the norther frontier....Such rural to urban exodus causes villages to be abandoned or towns to be inhabited by children and the aged."

In Africa, migrant workers in the mines are men in their most productive years -- those years when, if they were home, they might put energy into improving agricultural practices. Wives left behind are also in the prime of life, but in their childbearing and rearing years. The burden of keeping the farm going on top of family responsibilities leaves them little energy for creative development efforts. Such a cycle becomes self-perpetuating. As Mueller (1977: 78) outlines it in Lesotho, the father leaves to work in the mines. Food production declines, and the family fills the gap with cash remittances on which it becomes ever more dependent.

With fathers absent, sons are responsible for herding the animals and thus are unable to attend school regularly. The absent father cannot instruct the son in animal husbandry; because he hasn't been to school, the boy has neither practical nor academic education and must also migrate for work. (See also Bryant [1977].)

Development does not, however, always strengthen rural society if it is poorly devised. Stavrakis and Marshall (1978: 162) describe the negative changes in local customs brought on by the rapid rise in sugar cane production in a rural Belize community. Cash earnings from labor in the sugar cane plantations were used to purchase food which families formerly had grown in small corn fields and vegetable gardens. This change resulted in women having less control over productive resources and becoming more economically dependent upon males. Moreover, many of the cultural practices of reciprocal food exchanges with relatives were no longer possible without corn production for chicken and pig feed. Thus, agricultural development contributed to undermining family cohesiveness. Such examples could be multiplied. Another example of undermined family life was related by a rural development project director in the south of the Dominican Republic. Increased cash flow did not go into improved quality of life for the farm workers' families, but rather into rum and "another family" for the men -- not an uncommon occurrence. Involving women in development planning and giving them more control over the returns from agricultural production could prevent development results of this kind.

Finally, family farming provides a family with a "security option." People at the margin have learned to devise a package of survival techniques which may include keeping one foot on the land, work at one or two outside employments, bartering and trading and, for those who have migrated, a refuge for times of unemployment.

II. WOMEN IN SMALLHOLDER AGRICULTURE AND MALE MIGRATION

"Invisibility" of Women's Contribution to Agricultural Production

Any discussion of smallholder agriculture must include attention to the crucial roles women perform in what still is the basic food system of the world's poor. It is not our purpose here to document in any detail the range of tasks rural women perform; a growing body of scholarship is making visible the significant contributions of women, particularly to the smallholder agricultural sector.

Boserup (1970), de Wilde (1967), Pala (1976), Paulme (1971), Spencer (1976) and Van Allen (1974) were among the first to summarize the evidence for Africa, and since then case studies on many countries and tribes demonstrate that women's labor contributions to agriculture often equal or exceed those of men -- justifying Boserup's early contention that Africa has a female farming system par excellence (1970: 16). Goody and Buckley (1973: 108) classify 279 societies in Africa (including those bordering the Mediterranean) and marshall evidence that women play the major role in cultivation, or at least an equal role to men, in 71 percent of them.

In the Middle East, there is evidence that women, especially among the poor, have always played a greater part in agriculture than has been acknowledged (Youssef 1977); with the migration of men from such countries as Yemen and Jordan, women's participation in agriculture is rising (Azzam 1979: 50). Evidence for Asia is not so abundant. Sakala (1980) in her extensive bibliography of South Asian materials includes some annotated entries, but probably the most complete assessment is Nelson's survey of the literature (1979). She deplores the fact that the data which exist are "piecemeal and difficult to put together in any meaningful comparative

fashion" (ibid.: 2). However, Goody and Buckley (1973: 109) note that wherever one finds the hoe in Asia, especially in Southeast Asia, women usually play the dominant role in agriculture. Al-Qazzaz (1977) provides an extensive, annotated review of women in rural areas of the Middle East and North Africa.

In Latin America, most experts estimate that women's participation rates in the agricultural work force are at least 20-30 percent in the Hispanic regions (much higher than official census figures indicate), and very much greater in the Andes (Deere 1977; Deere forthcoming; León de Leal and Deere 1980; Deere and León de Leal, forthcoming).

A recent article by Irene Tinker (1979: 11-24) pulls together information on women's agricultural activity from many recent studies, as does the paper prepared by Chaney, Simmons and Staudt (1979) for the World Conference on Agrarian Reform and Rural Development. There are annotated references in Buvenić (1976) and Rihani (1977), two recent bibliographies on women in development. Rogers (1980) is the most recent summation of data from all world regions, and Zeidenstein (1979) is another good source.

Part of the difficulty in documentation is the fact that in many countries, women's work in agriculture is "invisible," because women's status is misreported as "housewife" in census and other statistics when, in fact, women may spend more time in fieldwork than in housework. Even in Thailand, where women represent 45 percent of the workforce in the official statistics, a Thai scholar (Dr. Amphorn Meesock Kyunying in National Council of Women of Thailand 1977: 36) observes that "so much of women's contribution to family income, especially in the rural areas, is unquantifiable and therefore generally ignored." Nor has the problem been faced of

how to count what is produced and consumed on site -- and to calculate the cash women conserve, especially in growing and processing food.

When women are asked probing questions about what they actually do, however, they do not confine their descriptions to cooking, fetching water and taking care of house and children. In a survey of women in two rural villages in Thailand (ibid.: Appendix II), 73 percent of the women surveyed said their principal occupation was agriculture: either growing rice, tending crops or raising animals. Only 6 percent said that their main job was "housewife." In Jamaica, a survey in the central mountainous region found that 22 percent of the smallholdings are managed principally by women (U.S. Agency for International Development 1977: 56). Even when they are not the principal farm operators, however, spouses of male farmers participate regularly in farm production activities: 47 percent help in most farm operations, while another 21 percent help at least in planting and harvesting (Jamaica, Ministry of Agriculture 1977: Table 156). In countries where a strong tradition exists confining women's role to the domestic sphere, unless survey questions are carefully constructed, women may self-identify as housewives because they, their menfolk and their societies perceive this as their only socially-sanctioned role -- even when they spend long hours in agricultural tasks (Deere forthcoming).

Other scattered statistical evidence now indicates that women's contribution to farming has been and continues to be far more substantial and more crucial to its success, particularly in the small farm sector, than either survey or census data have indicated. Formal counting operations in the past have seriously underestimated the extent of women's participation in a host of productive activities -- because the concepts and categories used to define "work" do not capture what Boulding (1977:78)

calls the "partial, private and voluntary nature of the within-family income transfers" in which women engage. However, interpretation of statistical sources must be cautious. Scott (n.d.: 2-3) has argued persuasively in a recent research note that the drop in women's agricultural participation in the 1972 Peruvian census from high rates registered in 1940 may very well be real and not due to faulty census definitions. Women, she says, over the years have been steadily forced out of cottage industry (which used to be combined with peasant farming in several regions of the Peruvian Sierra); out of coastal agriculture as mechanization of some processes proceeded (women and children were preferred for jobs such as cotton picking, rice transplanting and weeding, before machines were introduced), and out of the Sierra as minifundist agriculture disintegrated. Census data, in fact, show high rates of outmigration of both women and men from highland areas formerly typified by peasant farming and cottage industry.

The same explusion of women from paid employment has occurred in many developing countries; for example, in Brazil census data show that women made up 45.5 percent of the workforce in 1872 (and 35 percent of those in agriculture); by 1920, their numbers had fallen to 15.3 percent of the workforce and only 9.4 percent of those in primary occupations (in the decades between 1960 and 1980, women's participation in the workforce increased to about 23 percent) (Saffioti 1978: 184-86; Population Reference Bureau 1980). In Jamaica, women in the agricultural labor force declined from 49.2 percent in 1891 to 19.9 percent in 1943 (there was an absolute decline in numbers of women farm workers, from 137,600 to 45,600) (Roberts 1947: 87).

In other countries, women carry on "invisible" agricultural work behind the

walls of their compounds -- for example, sorting and storing seed, winnowing and thrashing grain, as well as processing, shelling, husking; grinding and pounding all types of grains and nuts; extracting oil from peanuts, palmnuts and coconuts, and caring for animals. Hill (1972: 121) documents that even under "strict rural house seclusion," women in the Hausa areas of Northern Nigeria own about two-thirds of the sheep and goats. In Egypt, Syria, Morocco, Sudan and the Yemen Arab Republic, large numbers of women participate in agricultural work within and outside their compounds (Azzam 1979: 44-45). In Egypt, contrary to what the 4 percent official figure implies, according to Smock and Youssef (1977: 60), women frequently undertake field work, food processing, seeding, animal husbandry, cutting, weeding, carrying of fertilizer and other agricultural tasks. As the authors point out, men cannot do some of these tasks "without inviting public disapproval for engaging in what is regarded as a woman's job." An official of the United Nations Fund for Population Activities recently observed (Pérez-Ramírez 1978: 17) that it is imperative for women's presence in demographic and other statistics to be "unveiled" in order to provide a more valid base for development programs -- his remarks have general application, and do not apply only to women in Muslim societies.

Division of Labor by Sex in Agricultural Production

In all but the poorest strata, where agricultural and household tasks sometimes are carried out interchangeably by women and men, everywhere there appears to be a division of labor by sex. Such a division is important to document for our purposes here, since most cultures define the food crops grown for family consumption as a female

responsibility, and the cash crops (whether food or fiber) as male.

Boserup in 1970 (pp. 15-35) suggested an initial division between extensive (hoe) agriculture, associated with shifting slash-and-burn strategies and engaged in principally by women growing food, and intensive (plow) agriculture, carried out primarily by men. As agriculture modernizes, a further division appears: men generally are in charge of commercial crops (to which women may, however, contribute substantial amounts of labor), and women concentrate their efforts on the subsistence crops eaten by the family (although some of these may also be sold). While "male" and "female" crops may vary by culture, those to be marketed tend to be perceived as men's, and those destined for the family table as women's (for speculation on how the division of labor in agriculture originated, see Etienne and Leacock [1980] esp. 12-16).

While such classifications may not hold for every culture, some degree of labor division between the sexes occurs almost everywhere. For example, in Ghana the situation is much more complex, according to Smock (1977: 202); there, many female farmers (more than in other African countries) produce a surplus for sale, and women have never been excluded from cocoa farming, Ghana's principal cash crop. However, Smock cites several studies which document trends found in Ghana and elsewhere: female holdings tend to be smaller than male; more females engage in subsistence foodcrop farming, and there is less opportunity for women to expand cocoa farming because they cannot so easily get land. In still other areas of Africa, where the plow is not used, men and women work on a variety of crops (Hill 1972: 121-23). Sometimes the division exists more in perception than in reality: in Andean rural communities, there is much more overlap in tasks and greater

participation of women in agriculture than the men are willing to acknowledge (Bourque and Warren, forthcoming).

Elsewhere, however, increasing numbers of case studies appear to document the notion that in many cultures, men clear the land and do the initial plowing, while women plant, weed and help with the harvest. In Jamaica, for example, on steep hillside farms where it would be difficult to use a plow, the turning of the soil both for family garden and cash crops usually is done with a fork by a male. Interestingly, such work often is called "plowing," perhaps in recognition that a man would do it with a plow if he could. There are many comments when women "plow" with a fork, because the work is considered too heavy for them. In several communities of the Peruvian Andes, women do not touch the plow because of cultural taboos and social pressures (Bourque and Warren, forthcoming). The division of labor in the Peruvian Andes appears typical of many other parts of the developing world:

> Here[in the Montaro valley] women do practically all the farming tasks; hoeing with great clumsy-looking implements, sowing, weeding, spreading the maize crop to dry, herding cows and sheep. The men plough with oxen and turn the earth with the ancient Inca "hand plough," the chaquitaolla (Wilson-Ercoli 1980: 8-9).

Definition of Male and Female Agricultural Tasks

Part of the problem in sorting out the contribution women make in agriculture, and particularly their role in food production, is the fact that women perform a range of tasks which are not defined as strictly "agricultural," but which contribute to the overall farm enterprise. Women may, for example, wash and repair the soiled clothes of the fieldworkers (including their own); they may carry lunch to those doing field work

(including providing their own food); they may prepare the substantial meals which in many labor exchange systems are an important part of the compensation for extra harvest hands; they may go to town to buy seed, a new hoe or machete handle, or to stand in line to pay a tax or secure a document.

Women themselves might not always define these tasks as part of the agricultural endeavor, and their partners would be even less likely to do so. Bourque and Warren (forthcoming) suggest that men have a "male-centric" view of agriculture, defining it narrowly as those tasks directly related to the farm enterprise: plowing, planting, harvesting. In the Andes, for example, women may dig out the silt from the irrigation channels, lead the burros out to the fields on irrigation day, and carry out the noonday meal -- but only opening the sluice gates to let in the water, a carefully-regulated male task -- would be defined as "irrigation" (ibid.).

Alongside their agricultural tasks, women in developing countries also labor in the household. It is difficult in peasant economics to separate what household tasks are "agricultural," and which fall outside the definition (if indeed, any do). In some sense, almost all of women's household duties -- including their primary role in bearing and rearing children -- contribute to the production and reproduction of the agricultural labor force (and subsidize the industrial workers as well). Nevertheless, such tasks generally are not defined as part of the farming endeavor. Ironically, several studies now show that even when time spent on household tasks is not counted, women's agricultural labor time on family food and cash crops often outstrips the hours men spend farming. (For a resume of studies on women's work load in rural areas, see Rogers [1980: 155-58]. De Wilde [1967: 85] early observed that considering their domestic labor, women usually experience higher labor

peaks than men in Africa. Detailed studies measuring the hours women spend in performing household/agricultural labor are few, but a pioneering work is that of Zeidenstein and Abdullah[forthcoming]. Several of the selections from a book edited by the International Center for Research on Women forthcoming after its "Women and Poverty" seminar several years ago also deal with measurement of women's work load.)

Women's Preeminent Role in Food Production

What several recent efforts to document the role of women in agriculture have argued is that women are entitled to participate in development because they represent one-half the persons in rural society. Women already are "integrated" in development, this argument goes, because they are productive, contributing members of peasant households -- what is wanting is formal recognition of what they already do, along with efforts to enhance their contributions and ease their burdens (Papanek 1977: 15).

We are sensitive to arguments of equity -- there is no good reason to shut out half the human race from development programs and projects because they are female. What is of primary interest here, however, is the specific contribution women make to food production. Quite aside from any considerations of justice, we would argue that any policies designed to increase food for the poor simply will not succeed unless they take into account women's role as food producer and, preeminently as producer of food for the poor. As the Economist put it recently,

> More is at stake than "women's rights" in getting to see the "invisible woman". As subsistence farmers, it is women who provide the food that the poor actually eat. If development is a process meant to benefit the poor, then it would follow that planners should pay more attention to the subsistence sector, to its economic contribution and to the people who work in it (1979: 70).

Documentation on women's preeminent role in food production in Third World countries is growing. The United Nations Protein Advisory Group (1977) drew together extensive evidence for Africa, and Rogers (1980: 158-66) cites the evidence for other world areas as well. There also are references in most of the individual country studies cited in this paper. What is clear is that in many cultures, even where women take part only occasionally in labor on the field crops, they often have exclusive responsibility to produce the bulk of what the family eats. Indeed, as Bryson (1979: 57) reminds us, crops with the highest nutritional value often are the "minor crops" -- vegetables and legumes -- grown in some areas only by women.

There is some evidence that women's preponderant responsibility in providing family food in some of the world's poorest nations may have increased over the past few decades, as men's opportunities diverted them from food production -- first to trade in ivory, wood, wool and other products; later to grow commercial crops for market sale, and most lately because men often can find better off-farm employment jobs as migrant laborers. Hay (1976: 91ff) has a good description of how the out-migration of men turned the economic strategies of women towards increased foodcropping, over a long period in Kenya's history, and Bukh (1979) documents the same pattern in an Ewe village in Ghana -- men gave up cultivating yams for the family diet, and started to earn cash, first by growing cocoa and later by migrating, leaving food production mainly to the women. Smale (1980) found that male migration goes far back into the history of Mauritania, and is endemic in both pastoral and sedentary production systems in that country. Women cultivators are laboring more now, she says, as male migration accelerates. Colvin, et al. (1980) find similar patterns in the Senegambia.

There is other evidence of women's increasing responsibilities to grow food. Weil (1976: 183) says that traditionally, Mandinka wives in The Gambia participated in a minor way in food production, particularly garden crops, but since World War II, " women have borne the burden of food production, until today they are responsible for the major portion of household food as male Gambian farmers have become dependent upon an increasingly commercialized market and production system. Rogers (1980: 142-43) cites several sources that attribute the original emphasis on cash crops for men to a concern of colonial authorities that men were underemployed in relation to women; the male occupations of war, hunting and herding all diminished under colonial rule. Other societies have been highly mobile for generations: Lowenthal (1972: 2-13) documents the fact that Caribbean and West Indian countries have been emigrant since European settlement. Most are characterized by "a paucity of men," he says; sometimes there are only two men to three women, or even one to two (ibid.: 219):

> The scarcity of the able bodied makes it hard, if not impossible to cultivate family farms, cope with marketing and transport, and keep up community organization....as the labour force dwindles, field crops give way to cattle and coconuts, pasture succeeds tillage, and wilderness encroaches on pasture....commual work groups and reciprocal labour services fade away (ibid.: 220-22).

In the tropics and subtropics, family food production is carried out on a continuous cycle, and is an intricate art based on "lore" passed from mothers to daughters since unrecorded times. Every food crop has its own schedule and place in the rotation; there is no real beginning or end (the fact that most food crops are annuals or biennials, and that many cash crops are perennials may have some important implications for women and men in relation to who migrates, to be dis-

discussed in more detail below). Food production involves gathering and preserving the seed for each crop; carefully calculating the best time and place to plant according to the season and mix of crops; preparing the seedlings and seed beds; watering, weeding, cultivating, harvesting. After that, some items must be processed and stored -- or prepared for sale -- and the cycle of each crop begins again.

Women until recent times also added substantially to family food through gathering and processing many wild species of fruits, nuts, vegetables and herbs. In some world areas, women still add substantially to family diet through reaping these "free goods," where encroaching cash-cropping, deforestation, or ecological decline have not destroyed the environments in which such species flourish, or where notions of what are "modern" foods have not led to neglect of traditional food sources. Cloud (1978: 69) mentions wild plants and fruits as an important fall back while crops are ripening or as a reserve in years of crop failure. Rather than ignore such contributions, Kyunying (National Council of Women of Thailand 1977: 36) suggests that they be counted as family income. In Thailand, she says, women make a significant contribution through

> such things as tender sprigs of vegetable picked from the hedge and cooked for dinner, or fresh eggs from laying hens kept underneath the house, or a few fish from a nearby pond. Without such things, taken so much for granted, half the rural population would be in danger of malnutrition.

Interesting discussions of women's special knowledge stock or "lore," related to both cultivated and wild species of foods and their properties, are contained in two papers by Elise Boulding (1977 and 1978).

There is another set of tasks which falls to women, intimately connected to

food production systems of the poor. In the National Academy of Sciences recent study , Post-Harvest Food Losses in Developing Countries (1978), we see the following photos: girls and women sun drying rice in central Java; rice threshing in Indonesia; winnowing paddy in Burma; corn husking in Cameroon; sun drying salted catfish in Cambodia; and selling fermented cassava flour in Kinshasa market, Zaire. Defining post-harvest losses as those that can be measured by loss of weight, loss of quality and loss of nutritional value, the authors point to a potential 10 percent loss in durable (cereal) crops, and a 20 percent loss in perishable (vegetables, fruits, fish) crops (ibid.: 17; 168). Yet, they say efforts to reduce food losses between harvest and consumption are almost entirely neglected because there is no awareness on the part of governments of the seriousness of food losses, nor of the fact that simple interventions could reduce them significantly (ibid.: 160-161).

The NAS recommendations include the notion that traditional, non-market, largely subsistence food production offers particularly important opportunities for food conservation since "efforts to reduce loss at this level will affect large numbers of needy people" (ibid.: 171). Pointing to extension services as a basic mechanism for education and training in after-harvest food conservation, they cite a "mismatch" between trainers and people being trained: the extension workers are male, but it is women who are most involved with food between harvest and consumption:

> In some countries this is particularly evident where women--who are producers and marketers of basic foods as well as the family members responsible for food preparation -- are bypassed by male extension workers. Women may regard many of these activities as ones of which men can have no useful knowledge. Unless women can be trained and employed as extension agents and given full backing (including the same career opportunities as men), many of these producers and marketers will not be reached (ibid.: 160)

In most peasant cultures, women also play a substantial role in marketing surpluses from both cultivated and uncultivated sources as a means to earn cash. There are data from a number of studies which indicate that women use this cash to buy other foods for the family, or in some other way "invest" it in family welfare; some experts say that males are not so much inclined to do so.

Also missing from most analyses is any consideration of what women save in terms of family expenditure with the food they grow, gather and store. "Income conservation" is not a concept considered by agricultural economists, and crops/animals consumed by the family sometimes are not even counted in family income; only what is sold for cash is calculated in the total. Most often, these important items in the family diet contributed "in kind" are hidden income-transfers made by the women which increase what economists call "disposable family income."

In sum, home-produced food has economic value that deserves recognition. Food prices are going up everywhere in the world, and there can be little realistic expectation that they will decline; there will be ever greater demand for food because of population growth and because of the improved economic situation from successful development efforts, where this occurs. This means that even if peasant families achieve an improved cash position, they may not be able to translate cash into improved quality of life if the people of the region become totally dependent upon the market economy for food. At the same time, any food produced by the family will have increased cash value. Moreover, the potential for inflation in food prices in the local situation is enormously increased as new cash-crop income competes for a smaller quantity of locally-produced food -- again enhancing the value of home production.

Additional factors contribute to higher food prices. Local market prices must reflect increasing costs of distribution and delivery tied to rising crude oil prices. There is another energy cost to the family -- the human time and exertion, as well as fuel costs, expended in getting food home over difficult terrain. It follows then that in evaluating energy expended in home food production, energy expended in the alternatives must be considered. While it is difficult to measure exactly the cash savings in a family food production effort, the validity of the argument is evident.

Recognition of Women As Food Producers

Until the early 1970s, "progress" in agriculture sometimes implicitly included the notion that women would retire from the fields to their proper domain of the household. When capital-intensive agriculture was at the center of development strategies, such a stance seemed logical: production would be increased through judicious applications of modern inputs and technology; thus, the woman's labor would no longer be necessary to the farming enterprise, and the surplus children also could migrate to the cities where new industries would absorb them.

In recent times, however, planners have been looking once again, as we noted above, to the viability of small farm systems. The swollen cities with their jobless millions, sometimes approaching 35-50 percent of the population, and the urgent need to feed both urban and rural people without going broke on food imports, have contributed to a growing body of new thinking about the small farm sector. Many development scholars and practitioners believe such systems deserve reappraisal and study, as well as assistance, because they could make the crucial difference in a nation's ability to feed itself.

What is curious in this reappraisal exercise is the virtual absence of recognition for the role women play in smallholder agriculture, particularly in the production of family food. Indeed, whole books and entire articles now have been written (and reviewed) on world food supply/small farming systems without a single mention of the fact that it is women who produce much of the food grown in the Third World. Even men who have observed these systems at firsthand apparently cannot "see" women doing agricultural work. Recently, in a presentation on small farm systems in Ecuador, the plant biologist (male) kept underscoring the wealth of agricultural knowledge that fathers pass to sons -- without once noting that the slides he himself had taken pictured principally women and girls doing the farming, and that some of this knowledge no doubt passes from mothers to daughters as well. As an Economic Commission for Africa study (n.d.: n.p.) puts it,

> in nearly all the documents concerned with productivity of the small farmer, the assumption is that this small farmer, who is to produce more food, is a man -- "the farmer, he"....this is a false assumption since it is predominantly the women who produce the food crops, in addition to helping their husbands to weed their cash crops, harvest them and carry them to market.

Wortman and Cummings (1978) are among the latest scholars to create a stir in development circles with an otherwise landmark book on small farms and food production -- a book which nevertheless fails to note that it is women who grow the food in most small farm systems, and which lacks any recommendations on how women's efforts might be enhanced so that they could it better. Earlier, Lappé and Collins (1977) followed the same pattern, leaving women out of their more controversial but widely-disseminated Food First. It is fair to point out that there are a few exceptions. One book, a multi-country World

Bank study (de Wilde 1967), which made many references to women's lack of incentive and male control over women's earnings. Connell, et al. (1976) also cite extensive evidence of women's participation in food production.

The failure to acknowledge women's role as food producers has practical consequences, nowhere demonstrated more clearly than in the tendency to exclude women from extension services and access to agricultural credit and inputs (Staudt 1975-76 and 1978). This omission becomes particularly evident in resettlement schemes which ignore women's agricultural role. Cloud (1976: 5) documents how women in a resettlement project in the Volta River basin began to leave because they soon found the situation intolerable; no land was provided to them for kitchen gardens so they were unable to fulfill their obligations to provide sauces for the millet, nor was there access to wells, grain mills and market places, all regarded as essentials. Many of the women insisted on leaving (see also Economist 1979: 70).

Other examples are frequently found in the literature. In a case related by Palmer (1980: 42), men in an irrigated rice resettlement project wouldn't eat the rice, yet their wives were not given enough land to grow staples and had to sell rice plants to buy sufficient for their needs. In another resettlement of highland Indians in the lowland plains (the San Julián project in Santa Cruz, Bolivia,) the staff appeared, according to the evaluation carried out by Stearman (1978: 12-13) "to have little real interest in the question of integrating women in the orientation program, and actually feel that females [including female staff] may be detrimental to the project." Yet, the author (an anthropologist) says:

> In the rural highlands, women play an active role in family decision-making, agricultural activities and marketing. They have a great deal to say about the control and expenditure of family income; they

> are the primary caretakers of livestock; women select the seed for planting and participate in all phases of agricultural production; and women comprise the bulk of marketing networks.

Many women, suddenly divested of their traditional responsibilities by the San Julián project, and expected to "content themselves only with cooking, washing and housekeeping, which for a highland woman who has experienced broader horizons is in effect an insult," say they cannot get used to life in the project, and they return to their home villages (ibid.: 13).

Several studies indicate, nevertheless, that women are good farmers and managers when they have the resources they need to support and enhance their efforts, and sometimes even without such assistance. Bryson (1979: 49) says that Cameroonian women have achieved a "near miracle" in modern times by keeping pace with food requirements of the growing populations in both rural and urban areas, in spite of the lack of improvement in their techniques and the difficulties of working the soil with simple implements. In two parts of Africa which typify areas of extensive male outmigration, Staudt (1979: 10) mentions studies by Moock and her own research in Kenya that suggest the "productivity gap" between the sexes may not be as marked as anticipated: in one study, women produced the same amounts with less inputs than men farmers -- they made up in efficiency and hard work what they lacked in resources. Fortmann's (1979: 2) data on maize practices also shows no significant differences between men and women farmers -- female participants were as "modern as male, and male non-participants as traditional as female." Rogers (1980: 106) notes that often women are expected to raise funds for their development projects, although valuable as indicators of motivation, she says, these activities demand an inordinate amount of time to raise even minimal amounts, restricting the time and

energy available for more directly productive work. Sometimes women cannot get funds even when rural development projects are undertaken in their districts, and funding for male activities is abundant.

On the other hand, there also are indications in the literature that women abandoned and left without supports may become less efficient, discouraged farmers (as men left without the partnership of women are prone to become). In a village of Botswana where one-third of the households were headed by women, those with male heads produced an average of 1.9 bags of sorghum, compared to 1.2 for female-headed households (Report on Village Studies 1972: 140 and 152). Bukh's (1979) shows how women, because they have less access to capital and technological knowledge, are forced to lower their productivity and to grow crops of lower nutritional value. Women in the Ewe village she studied, for example, replaced yams (which require a much longer growing period and more labor) with cassava, which is much lower in protein. Staudt (1978) treats this issue at length.

While we should not like to overdraw the point, we want to suggest that there is good evidence that because women are society's nurturers par excellence, there may be a solid basis for the nearly-universal relation between women and the cultivation of food crops. In much of the developing world, the family's life and good health depends upon the food women provide; families and women themselves are reluctant to separate definitively from the security of a food-growing plot. In Africa, a common practice is for the men to migrate and leave their wives and families behind to live from the subsistence cultivation. Bledsoe (1980: 181) observes that many young men in Liberia who work for wages marry to obtain subsistence food -- their salaries are insufficient to maintain them.

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Anthropologists have determined that women contributed significantly more to family subsistence through food gathering than males did through the hunt in tribal systems. Rohrlich-Leavitt, et al. (1975) gives a resume of the evidence, as do several of the articles in Etienne and Leacock (1980). Women were the probable inventors of horticulture; in times past when men went out to hunt, they often returned empty handed; women in warm climates, however, gathered and/or cultivated upwards of 80 percent of the food consumed by tribal peoples.

Moreover, it is striking in the literature how often the woman on a small-holding is the nurturer also of future generations -- or indeed, keeps hold of a small piece of land precisely to be able to carry out such activities. Goossen (1976: 50-51) portrait of older women in Guadaloupe could be duplicated on any Caribbean island, in many an African village, or in the South American highlands where daughters who have gone to the coast to become domestic servants often send their children back to the home village:

> The fostering of grandchildren, nieces, nephews and godchildren is indeed universal among older women who participate in the local culture and its values. Husbands and sons may spend their money on a car or in the local bar, but a woman usually has her own small landholding and earned income, and she uses these to fulfill her responsibilities as mother, foster mother, grandmother, god-mother (ibid.: 50).

Women with their acute powers of observation and their centuries of accumulated experience in growing things are preeminently fitted to care for the wide variety of plants and animals found on the typical small farm. 'Modernized " farm systems (there is no implication here that small farms also cannot be modern) are based on much simpler farm procedures, depending today on near-mechanical

prescriptions for planting, fertilizing, irrigating and harvesting (usually) one or two crops. In contrast, the small farm appears to the observer -- used to straight rows and exact spacing -- as chaos. The small farmer with a mixed cropping system interplants, using some varieties as shade for others, and hedging his/her bets against disaster by including more than one type of the same crop.

Good diet depends not only on producing food, but on producing the right kinds of food. Women are open to learning to grow the proper food crop combinations to make a complete diet. The authors have collaborated recently on several experiments with "Family Food Production Programs," built around growing a planned cycle of nutritious vegetables keyed to the starchy staple crops found in many parts of the world. Prepared in the proper amounts and combinations, vegetables/staples provide a complete diet with only occasional animal protein. In Jamaica, a Family Food Production Program has trained 20 young extension women who are high school graduates, most of them from the hillside farms around Christiana where the project headquarters is situated. Intensive nutrition and health education are linked to teaching gardening skills to the farm women, with attention also being paid to the nutritional value of wild plant species.

Rogers (1980: 106-7) points out how "home extension" in some rural areas is becoming more relevant to the real needs of rural women and families. In the Zambia, newly-formed women's groups expected to be taught sewing, yet "they changed their attitude radically as food became scarcer and more expensive, and became keen on learning agricultural techniques" (ibid.). We also found women in Jamaica and the Dominican Republic becoming aware of the economic value of their subsistence activities. As in the examples Rogers cites, female home extension

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workers in effect, if not in name, were becoming agricultural extension workers.

Centrality of Women's Role in the Small Farm Operation and Male Migration

Whether strictly subsistence in nature, or whether some of its production enters the cash economy, the small farm operation in some ways centers more profoundly around the woman and her tasks than around the man and his work. Women's contribution appears to be more necessary, and this is nowhere more evident than in the patterns of out-migration from rural areas in much of the Third World today. It is well established in the demographic literature than men go first, leaving their womenfolk behind. Sometimes immigration countries do not encourage or permit the migration of families; however, even when families would be permitted to go along, the men often leave wives and children behind. In the case of small farms, it is most often the man who goes off to seek employment.

As León de Leal and Deere (1979: 77) note in their study of four Colombian rural communities, "as the family loses access to the means of production, men are proletarianized, either locally or by migrating to other zones in search of work; generally women will remain behind on the fam tending the crops and animals." In the Syrian Arab Republic, a rural community survey (United Nations Development Program 1980: 10) discusses the plight of women left behind because of male migration: "from rural to urban areas in search of construction or other employment; and from rural areas to neighboring countries short of labor." Several authors speak of female "shuttle migration," that is, women who move back and forth between town and countryside. In Obbo's (1980) sample of women migrants to Kampala, there were some Luo women whose husbands had been away twenty years:

> The responsibility of maintaining the rural base fell heavily upon the shoulders of women. They shuttled between city and country at least two to four times a year, the number of visits depending on the range of their responsibilities in the village. Some women visited their husbands in between weeding, planting and harvesting food and cash crops, leaving their relatives to take care of the homes. Others with no relatives visited their husbands in the city only twice a year, and spent the rest of the time farming and taking care of the younger children (ibid.: 84).

It is true that women migrants now outnumber men on migration indices in several world regions; nevertheless, before jumping to the conclusion that most of these women have gone off leaving partners and families to fend for themselves, we need to do much more research on the age composition of the female migrants and on the composition of the families left behind. (For two state-of-the-art papers on women in international migration, see International Center for Research on Women [1979] and Chaney [1980].) Certainly we saw many female farm operators in the Jamaican hills, and many farm families whose daughters had gone to Kingston; rarely, however, does one encounter a farm family with no adult woman. On the one hand, female-dominant migrant streams may be fed by the out-migration of daughters; on the other hand, when a woman migrates without her male partner and her family, she most often leaves behind an elder daughter, another female relative or a grandmother to look after the family.

We do not want to assert that every smallholder operation centers around a wife/mother surrogate (whether the male is present or absent); indications are, however, that in the long run this is almost always the case. Babb (1976: 4) speculates that this is so because women are less dependent upon men than men are upon women: women's greater role flexibility means that they have at least some familiarity with agricultural work, she says. She notes that in the highland

Peruvian communities she studied, "greater sympathy and assistance" seem to be directed toward the lone male than to the woman on her own, perhaps because of men's greater "helplessness" and higher public status. Babb adds a humorous saying from the people of Huaro (taken from the field notes of Nuñez del Prado): a yunta (yoke of oxen) will replace a husband, but only another woman can replace a wife.

From the above discussion, it follows that the first person to migrate from the smallholder plot often is the adult male, and demographic studies confirm this tendency. In some cases, however, young daughters may be the first family members sent because they have less claim on the land and often can find work as domestic servants in the towns. Daughters as long as they remain single are counted on to provide cash for the farming operation from their wages; they often preserve close links with their families on the land. If sons leave, as many do, there is a loss of labor. In some cases, this may not be crucial if plots are small, but in other cases some farming operations may have to be curtailed. Indications are that the wife goes only when she has a mother surrogate to whom she can pass on her responsibilities; in some cases adult women can get jobs in the cities and towns more easily than either youths or adult men, although such jobs tend to be low-paid and low-prestige occupations.

Because we customarily think about migration almost exclusively in terms of those who go, the women left behind have received scant attention. Several migration experts (among them, see especially Keely [1979]) have pointed out that there seems to be an implicit assumption in sending countries that the family structure, particularly if there is an extended kin network, is quite capable of

absorbing the shock of migration and taking up the slack when husbands, fathers and sons depart. The scattered evidence we have about what actually happens when adult males migrate for extended periods indicates that family structures are, in fact, strained -- sometimes to an intolerable degree.

When women are left alone through absence of husbands, fathers or eldest sons, they may have difficulty coping with both the household responsibilities and work on the land. Where they do the bulk of the agricultural work in any case, women may not find male absence so burdensome. But often women must take on unaccustomed tasks in the cash cropping -- including not only the cultivation (which they sometimes do in any case), but the planting and marketing decisions.

Nor are women always able to get the help they need when they need it. Reciprocity of labor exchange in the countryside often functions on a male network; women's networks exchange goods and services, but not work in the fields. Labor is difficult to hire, and is in demand on other farms at the same time. Extended family systems -- for example, male relatives left behind in the rural areas -- may no longer fulfill their support functions. In one African tribal group, for example, brothers of absent males who are, by custom, supposed to extend help to their sisters-in-law are no longer doing so. (Gordon 1978: 8-9). Women are bearing the burden of their own and their partners' responsibilities, often able to count on help only from their mothers and sisters.

If they do not get the support and assistance they need, women may cut back on agricultural activity or abandon little by little many of the farm operations. There are some indications that agricultural productivity is decreasing in areas of heavy out-migration of men. Land goes out of production, or

the same land is used over and over again because there is no one to clear new land. Terraces fall and are not repaired. Waterways and irrigation systems silt up and are not dug out; other repairs are put off or neglected altogether. Sometimes women fall back into just sufficient subsistence production to feed themselves and their households (ICRW 1979: 116-18; Mueller 977: 76-77; Birks and Sinclair 1979: 220; Myntti 1978: 42). On the other hand, some studies show that women aren't given enough responsibility -- for example, to make timely decisions on what to plant or on the sale of crops. At times they must defer to male relatives, or the decisions must wait until the absent male comes home.

Connel, et al. (1976: 142) cites evidence from a number of studies on the effects of male outmigration on agriculture; he challenges the notion (asserted in several reports) that output will not generally suffer until one-third to one-half of the men are gone. Such estimates are based on unproven assumptions, he says, and cites one study in Western New Guinea where the people left behind had abandoned settled agriculture and reverted to gathering wild sago (ibid.). Rogers (1980: 166-74) also has a good survey of the impacts on agriculture (and the burdens on women) of male migration.

We can only speculate here on the reasons why, in almost every case, the smallholder enterprise must have a wife/mother or replace her with a surrogate within a reasonable time, in order to survive. Because these are no more than explorations on the topic, we have put our speculations in the form of questions to be asked in further research:

1. Do women stay behind on the land because they are more involved than men in annual crops (garden, family food), while male agriculturalists plant principally perennial and long-term crops like yam (which takes twelve months to produce) -- thus affording men more time to seek seasonal employment elsewhere?

2. Do women stay behind because they are more apt to be able to manage the cash crops (or are perceived to be able to do so), while the men find it difficult to cope with the many-faceted set of tasks the farm woman does?

3. Do women stay behind because they are more likely to be in charge of farm animals which either have to be liquidated, or else left in the care of a responsible adult?

4. Do women stay behind because working class husbands cannot support them and their children in the city and, moreover, need their contribution of foodstuffs from the family plot to survive themselves in the towns? Is there a reluctance to lose the security factor which the land represents?

5. Do women stay behind because someone has to remain to preserve title to the land and to keep the "patrimony" together -- the livestock, house and buildings (however humble), fencing, cleared land, irrigation channels, terraces? Once let go, such infrastructure even on a small, poor farm is hard to replace.

6. Do women in some cases stay behind because they feel they have a better life in the country and a viable, worthwhile role to perform? Do women feel that the land gives them control over some resources they might lose in the city, resources which might not be compensated by wages they could earn? Is cash in the city always preferable to access to land and to the assets such access implies?

Whatever their reasons for remaining, there are many evidences that women are overwhelmed with work in the countryside and too poor to take advantage of modern inputs, technology and training which might lighten their workload. They are left out of credit, agrarian reform and extension schemes. In the case of women left alone, such omission has even more serious consequences than for women with male partners who qualify for all of these supports.

When women find they cannot make it, especially in cases where the

absence of the male partner is prolonged, they may in the end decide to leave the land themselves. In this way, the last links to the family plot may be broken, and if the male member does return, he will join his family in the town or city to which they have gone.

Conclusions and Recommendations

Our conclusions and recommendations follow the Executive Summary, pp. iii-iv.

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