Chapter 5

WOMEN, BREAD, AND BABIES: Directing Aid to Fifth World Farmers

It has been strongly suggested in the previous chapter how important women farmers are to development. This chapter will focus entirely on the woman farmer. The subtitle, "Directing Aid to Fifth World Farmers," is a reference to that special set of spaces in every society where women carry out their productive roles. The fifth world[1] is the product of gender-based dualism. It can be found on every continent: in the family farms and kitchen gardens, the nursery and the kitchen. The fifth world also sends its fingers out to the least paid work spaces of business, industry, and the service sector. Within the rural and nonindustrialized parts of that fifth world women breed babies, produce milk to feed them, grow food and process it, provide water, fuel, and clothing, build houses, make and repair roads, serve as the beasts of burden, and sit in the markets to sell the surpluses.

The ancient myth that woman's only place is in the home, by the side of a man, and caring for children with the means he brings to her is so persistent that western development experts have been able to go into the third (and the oil-poor fourth) world countries to give development aid without noticing the fifth world at all, as was suggested in the previous chapter. Because the changes associated with modernization and urbanization have put unbearable stresses on women in many developing countries, their productivity is breaking down. Declining food production and increasing numbers of babies are the concomitants of the failure of that stressed 50 percent of the active labor force in these countries to receive aid. In the absence of help from male partners in the provision of food for their families, and from development experts with intermediate technology labor-moderating innovations, the only source

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of aid for a farm woman is her children. The producer must breed her own help. It has taken the fiasco of the first development decade to raise the questions which led to the declaration of International Women's Year and the placing on the world agenda of the situation of women as producers and breeders.

The very nature of the fifth world almost precludes effective work with this agenda item, since much of the knowledge and expertise required to deal with the problems lie in the fifth world, with women, and the agenda-setters, who are men, do not recognize either their expertise or reservoir of skilled labor. One crucial problem is how to create an effective set of communication linkages and a basis for recognizing and pooling the separate knowledge stocks of women and men before it is too late. "Running out of women" is far more serious than running out of oil, or other natural resources. Eventually decision makers will recognize this fact.

THE FIFTH WORLD ON THE FARM

This study will focus on the uncovering of the fifth world in Africa, as a demonstration of the urgency of more effective allocation of resources in dealing with hunger and overpopulation. Africa is today bearing the cruelest load of suffering in the current food supply crisis, though the manifestations of the crisis are to be felt on all continents. However, the African woman, in her person and in her capabilities, holds the key to the solution of both the food and the population crises. It is particularly appropriate to begin uncovering the fifth world on the continent where women do on the average of 70 percent of the agricultural work, and where practically 100 percent of agricultural aid has gone to men.

The reason for the preponderance of women in agriculture south of the Sahara is that these are areas where farming follows the pattern of shifting cultivation. Small pieces of land are cultivated for a few years until productivity declines, then new land is cleared and the old is left fallow. The only role for men in this system of farming is tree felling. Up to forty years ago this type of farming predominated "in the whole of the Congo region, in large parts of Northeast and East Africa and in parts of West Africa" (Boserup, 1970: 17).

As development programs have introduced cash crops and the plough, the newly mechanized work has been taken over by men. Women are left with the unmechanized parts of the new type of farming--weeding and carrying water--as well as with continued work on the subsistence plot (with the old primitive tools) to feed the family. Cash from cash crops rarely goes to the women to use for feeding the family.[2] As a result, "modernization" has meant even longer working hours for women than before, including more

hours of weeding and water carrying. Not only do larger fields need more water, but also new poultry and livestock projects need it as well. The subsistence farm woman as a result is exhausted and ill from work and childbearing, yet continues to bear children in the hope that some will survive to help her with her labor in the fields. Since in general men and boys take priority in being fed when food is short, and in getting meat and special foods, the women and girls have the added burden of being undernourished as well as overworked. Babies, both male and female, suffer from the poor quality of the breast milk that comes from a malnourished mother. Courses in nutrition will not solve her problem, even if she had the time and energy to attend them. It is in her role as food producer that she most desperately needs help.

Yet it is in this role that help is most consistently denied. It is to men that agricultural training programs are offered, men who are given access to loans and credit. It is they who are brought into cooperative development schemes and encouraged in the use of improved seeds, fertilizers, insecticides, and tools. Finally, men are brought into the cash-crop cultivation and also given priority in employment in the industrial sector.

Rural Women's Time Budgets

To give an overall idea of the relative amounts of time spent by women and men on agriculture in the traditional rural and early modernizing economy in Africa, the following estimates are reproduced from an Economic Commission for Africa (ECA) Report (United Nations, 1974a). The estimates are given in terms of the unit of participation for women's labor based on available data on the percentage of labor associated with a particular task which may be attributed to women. To make clear the meaning of the unit of participation, I will cite the ECA example for Bukoba in Tanzania, where "it is estimated that men work 1,800 hours per year in agriculture and women work 2,600 hours. This totals 4,400 hours, of which 60 percent is women's work. Women's 'unit of participation' is thus 0.60" (United Nations, 1974a: 9; also see Table 5.1).

In order to translate this into a sample of a working day for a woman, we turn to an example from Zambia (Table 5.2). Not only is the agricultural working day of the African woman usually longer than that of the man, but also the female begins her agricultural labors much earlier in life than the male, at the age of five or so, contrasted with age ten for boys, and continues them much longer. Women over fifty-five are still working in the fields, men hardly at all. Table 5.3 showing the division of labor in one area of Zaire cannot be taken as typical of Africa as a whole--division of labor varies from area to area even within a country--but it is reflective of the general picture

Table 5.1: Participation by Women in the Traditional Rural and Modernizing Economy in Africa

Responsibility	Unit of Participation*
A. Production/Supply/Distribution	
1. Food Production	0.70
2. Domestic Food Storage	0.50
3. Food Processing	1.00
4. Animal Husbandry	0.50
5. Marketing	0.60
6. Brewing	0.90
7. Water Supply	0.90
8. Fuel Supply	0.80
B. Household/Community	
1. *Household*	
a. Bearing, rearing, initial education of children	1.00
b. Cooking for husband, children, elders	1.00
c. Cleaning, washing, etc.	1.00
d. Housebuilding	0.30
e. House Repair	0.50
2. *Community*	
Self-help projects	0.70

SOURCE: Data based from The Changing and Contemporary Role of Women in African Development, UNECA (United Nations, 1974b); Country Reports on Vocational and Technical Training for Girls and Women, UNECA (United Nations, 1972-1974); studies, mission reports, discussions, as cited in United Nations (1974a: 7).

*Estimates are given in terms of the unit of participation for women's labor, i.e., women as a percentage of the total population in a given activity.

of much heavier involvement in agriculture for women than for men in Africa. Information is given in units of participation, as in Table 5.1.

Contrast the involvement in agricultural productivity delineated in Tables 5.1-5.3 with the access to agricultural training indicated in Table 5.4. "Non-formal" education means all the extension programs and community development programs that are mounted outside the regular elementary and secondary school system.

Among the major exceptions to this pattern are the market women's associations and cooperatives, projects for support of small entrepreneurs, and social cooperative training courses for women.

The imbalance between the participation of women in agriculture and their opportunities for training in it would be ludicrous if it were not so tragic in its consequences for agricultural productivity. How is it possible that decision makers have overlooked this imbalance? I suggest that this "overlooking" is a by-product of modernization itself.

One of the effects of modernization on any society, including the old

Table 5.2: A Zambian Women's Day During the Planting Season

Activity	Time Spent (hours)
Waking up in the morning at 05.00 hours	—
Walking to the field with baby on her back (1-2 km)	0.50
Ploughing, planting, hoeing until about 15.00 hours (eats snack in field)	9.50
Collecting firewood and carrying it home	1.00
Pounding or grinding grain or legumes	1.50
Fetching water (1 to 2 km or more each way)	0.75
Lighting fire and cooking meal for family	1.00
Dishing out food—eating	1.00
Washing children, herself, clothes	0.75
Going to bed at about 21.00 hours	—
Total	16.00

Summary:		
	Hours of work	15
	Hours of rest/eating	1
	Hours of sleep	8
	Total	24

SOURCE: Report on five workshops in Home Economics and Other Family-Oriented Fields, UNECA (United Nations, 1973, as cited in United Nations [1974a: 6]).

Table 5.3: Division of Rural Labor in Kivu Province, Zaire

		Unit of Production	Work
Women		1.00	Ploughing, sowing, upkeep of plantation, transport of produce, carrying of water, preparation and transport of firewood, marketing, beermaking.
Men (in the rural areas all the time)		0.30	Care of banana trees, clearing land when necessary and help with the cultivation of new fields; certain other jobs.
Children aged 5-9:	Boys	0.00	No contribution.
	Girls	0.05	Help with weeding and carrying water.
Children aged 10-14:	Boys	0.15	Looking after cattle; help with weeding.
	Girls	0.55	Help mother with all agricultural work.
Old people over 55:	Men	0.05	Very little work; some jobs in banana groves.
	Women	0.20	Help with light work in the fields.

SOURCE: Analyse de la malnutrition au Bushi, published by Oeuvre pour la lutte contre le bwaki et la protection de l'enfance, as quoted by David Mitchnik in The Role of Women in Rural Development in Zaire, Oxfam, Oxford, 1972. Reproduced here from United Nations (1974a: 4).

Table 5.4: Participation of Women in Nonformal Rural Education in Africa

Area of Access	Unit of Participation*
Agriculture	0.15
Animal Husbandry	0.20
Trade and Commerce	? **
Cooperatives	0.10
Arts and Crafts	0.50
Nutrition	0.90
Home Economics	1.00

*Units given are extremely rough estimates due to lack of data. Estimates are based on ECA Country Reports (United Nations, 1972-1974), and informal knowledge, as cited in United Nations (1974a: 41). Ideal units in most of these areas might be 0.50, indicating that both men and women have access to the nonformal training.

**Very little training in trade and commerce is known to exist at the nonformal level.

industrialized societies of Euro-North America, is to insulate the managers, the intellectuals, and the teachers from producing sectors both in agriculture and in industry. The decision makers whose function it is to redistribute societal resources do not have access to the knowledge and competence of women and men in the lower ranks of the producing sectors. They therefore make serious mistakes in allocation of resources.[3]

The Decision Makers Discover Women

There has been a tiny crack in that insulation barrier in the West as a consequence of the liberation movements, including the women's liberation movement. The attention of decision makers has been drawn to massive amounts of excluded competence. The Percy Amendment, one of the fruits of the women's liberation movement in the United States, adds to the U.S. Foreign Assistance Act of 1973 the stipulation that all assistance given in the areas of (1) food and nutrition, (2) population planning and health, (3) education and human resources development, and (4) any other selected development problems

> shall be administered so as to give particular attention to those programs, projects, and activities which tend to integrate women into the national economies of foreign countries, thus improving their status and assisting the total development effort [Public Law 93-189, 93rd Congress, s. 1443, December 17, 1973; Sections 103-107 and Percy Amendment Section 113].

As a result of the Percy Amendment, AID did for the first time what it should have done at its inception; it sent women out to look and listen in the field—to watch what farmer women actually did and to listen to them talk

about what they did (AID, 1974). In Africa they observed women farmers in Ghana, Kenya, Lesotho, and Nigeria; in Latin America, women farmers in Bolivia, Paraguay, and Peru. While there were substantial differences in practices from one country to another both within and between continents, the basic findings were the same in every case:

> Women today appear to play active roles, both as decision-makers and participants in most rural development-related activities. More specifically . . . (except in northern Nigeria), *women have complete equality, regarding participation in basic agricultural production* [AID, 1974: 132; italics added].

The activity imbalance between women and men lay in the area of decision-making, not in the production process (where in fact the imbalance went the other way). Even in the decision area, many more decisions were the product of joint consultation than had ever been suspected. In trading activities, particularly in marketing the crops the woman has grown, she was usually the sole decision maker. Her economic interests as marketer have a profound effect on a whole range of decisions made jointly by wife and husband regarding development improvements in poultry, cattle, new crops, etc. The reason she can appear to be an obstacle to innovation is that the majority of development innovations have not taken account of her interests, adding extra work without extra benefits. Besides, these innovations often have reduced the income over which she personally has disposal.

Another recent study that has given separate attention to women farmers (Moock, 1973), undertaken in Vihiga Division of Kenya, highlights the performance of women farmers when they are sole heads of household, or sole managers with migrant husbands living and working elsewhere. In this region, 6 percent of the women were heads of their own farms, and 32 percent were managers with absent husbands, making a total of 38 percent of the farms being operated by women. The study focused on the managerial ability of farmers. The dependent variable was bags of maize per acre, and twenty variables ranging from seed genotype, plant density, and fertilizer use through worker characteristics, hours worked, and contact with extension workers were carefully studied in a sample of seventy-two farms and a control group of eighty-eight farms. Contrary to all expectations, the women who farmed alone turned out to be better managers than the men, "producing an additional bag and a half of maize with a given package of physical inputs" (1973: 341). This productivity only emerged with regression analysis, since the first round of analysis seemed to indicate that the women were less productive. It was when additional factors were taken into account, including the quality of seed, amount of fertilizer, and kinds of help made available through the extension agent, that it became clear that women got more from their inputs.

As might be expected, less help of every kind was available to them. Moock suggests that they made up in commitment and hard work for what they lacked in resources.

The seven country survey cited earlier (AID, 1974) focused on women farmers with partners living at home, the Moock study on women farming alone. In both cases the role and performance of the woman farmer appears as far more significant than has ever been realized. It would seem at first glance that the kinds of problems these two sets of women face are very different, and that the outcomes in terms of agricultural productivity and number of children born might be very different for the two groups, at any given level of assistance. However, the need for better seed, better tools, and more recognition by extension agents is the same for both, as is the incentive to have more children to help with the work. Annual or more frequent visits home by migrant husbands living elsewhere ensure the possibility of annual pregnancy for married women farming on their own. Women farm owners are either widows who already have children and possibly grandchildren to help, or they are enterprising women with sufficient resources to command labor. Probably 99 percent of women who farm depend on their own breeding activity to generate additional help. While the patterns for giving aid to these two categories of women may differ slightly, the need for aid is pressing in both groups.

INDICATORS OF THE SITUATION OF RURAL WOMEN

In order to give a comprehensive overall picture of the situation of women agriculturalists in Africa and of the associated facts about economic and social productivity, adequacy of food supply, and rate of population increase, I have constructed a series of tables describing three different groups of countries. The first is a group of seventeen countries with substantial numbers of women-headed households; the second is a group of eight countries not particularly known for large numbers of women-headed households, but in which the majority of women are engaged in agriculture. The third is a group of eight countries known to have substantial nomad populations.

The following characteristics are included in each table:

(1) Percentage of total population engaged in agriculture and herding. This gives a picture of the overall importance of agriculture in the society's economy.

(2) Percentage of all women engaged in agriculture and herding. This is a most difficult figure to arrive at, and my estimates here are bound to be controversial. Reporting practices on women in agriculture vary enormously from country to country, with women often only being reported if they happen to be wage laborers in agriculture. Women farming on their own account or as

unpaid family labor are frequently not included, nor is subsistence farming. Since subsistence farming is "full-time" farming in terms of the woman's work day (see Tables 5.1 and 5.2) and we know that women do on the average 70 percent of the agricultural work, I have revised upward all UN reports that clearly do not include the bulk of the agricultural labor of women. For each country I drew on three sets of figures: (1) the *1972 ILO Yearbook of Labour Statistics* figures on total population engaged in agriculture, (2) supplemental figures on women in agriculture published by the Economic Commission for Africa (United Nations, 1974a) based on country reports, and (3) the computations of women in the labor force prepared for the *Handbook of International Data on Women* (Boulding et al., 1976) based on raw ILO figures of women in the labor force and women in agriculture. Based on inspection of each of the above sets of figures, and giving particular weight to estimates of the total population engaged in agriculture, the size of the urban population, and country-by-country case studies of the role of women in agriculture, I arrived at the figures given in the second column of the table. Table A.1 (Appendix) gives all the possible different figures for each country side by side, with notes, so that the reader can discern the basis for the final estimate of the percentage of women in agriculture in Tables 5.5-5.7.

(3) Percentage of women rural heads of household through polygamy. Estimates of polygamous households come from Boserup (1970). It is clear from her work and other studies that a frequent pattern in polygamous households is for each wife to have her own dwelling, subsistence garden, and associated enterprises. The husband visits each wife in turn, but provides very little if any contribution toward her subsistence. She is thus in effect a farm manager with an "absent husband," though she sees that husband more frequently than the women in the next category to be described, and may have frequent decision inputs from her husband.

(4) Percentage of women rural heads of household through migrant, widowhood, or divorce. The husbands of these women who are not divorced or widowed may be living in a nearby town or may be migrant workers in mines or on plantations elsewhere in the country or in another country. These women are farm managers whose husbands (or other family members for husbandless women) may have more or less input into major decisions regarding crops to be planted, development plans, etc.

(5) Presence in urban areas. While not directly related to rural productivity, the number of women living in towns and the number of women who are heads of urban households affect to some extent the marketing strength of rural women, and therefore the resources at their disposal. Information for this column is sparse, and I indicate the urban sex ratio when this represents a substantial surplus of women over men, or percentage of women-headed urban households when this figure is available.

(6) Percentage of women of appropriate age group enrolled in secondary school. This figure gives us general information about women's access to the modern knowledge stock in a society and tells us indirectly how many women are available for modern sector positions. University education is not considered here because the fraction of the population attending a university is so small in many of these countries that it does not give significant information on the skill potentials of either women or men.

(7) Percentage of women receiving vocational education. Vocational training is usually at the secondary level and includes agricultural as well as craft training. It has more direct significance for rural women than general secondary education, since it is aimed at increasing their productivity in a way that general education is not.

(8) Agricultural training programs for women. Information on numbers of women receiving agricultural training is not usually available, but the existence of any such training opportunity at all for women is significant, given a general absence of such agricultural training and of women extension agents in most countries. Only presence or absence of such training opportunities is indicated.

(9) Community development programs for women. Again, numbers are not available, but the presence or absence of community development programs which provide for the participation of women is another important indicator of the possibility for rural women to increase their productivity. Self-help road and building construction programs, when these consist mainly of women participants, are mentioned here in notes for the appropriate countries.

(10) Percentage of women married by the age of nineteen. In societies where 50 percent or more of the women are married by the age of nineteen, women begin the double load of farming and breeding earlier than in countries where women marry later. We already know that in agricultural societies, girls are doing agricultural work from the time they are five years old. In societies with later marriage they usually[4] have a longer period of productive activity in their youth unencumbered by constant pregnancy.

(11) Number of women's NGOs represented. There is a total of forty-seven nongovernmental organizations for women out of the approximately 2,500 NGOs reported in the 1973 and 1974 *Yearbooks of International Associations.* These are transnational organizations organized around particular interests ranging from religious to occupational, educational, and political associations. Nongovernmental organizations are private citizen initiatives with international headquarters serving sections in as few as three and as many as over a hundred countries. While NGOs are essentially urban-based, several of the women's NGOs have taken a particular interest in rural women, and support community development programs for them. These organizations therefore represent a kind of opportunity structure for rural women.

(12) GNP per capita. This is the conventional measure of the economic productivity of a country. It does not take account of most of the productivity of women, which is in subsistence agriculture and household craft, but it is a measure of the development of the "modernized" sector of a country. It provides a valuable context within which to view the situation of women.

(13) The rate of growth in GNP from 1961 to 1968. These figures give a picture of the rate of development of a country and are similarly a useful contextual indicator of the potential resources which may become available to women.

(14) The population growth rate from 1963 to 1970. This is particularly useful viewed in conjunction with the GNP growth rate. For many of the countries under study, as we will see, negative economic growth accompanies a strongly positive population growth rate.

(15) The comparison of food unit production in 1969 and 1973. This comparison is the third indicator of rates and directions of change in productivity. Not surprisingly, countries with declining economic growth and rapidly increasing populations are growing less and less food for more and more babies. The double producing-breeding burden for women shows up most sharply here.

(16) Percentage of the population living in urban centers. This figure gives some indication of the communication infrastructure of a society and the possibility of pumping new resources into the countryside. When combined with the rather meager information on women in cities, it can give a clue as to how much help urban women could give rural women.

(17) Major religion. Information on major religion is included to explore the possible relationship between religious tradition and women's roles. We see that producer roles for rural women exist under each type of religion. When no one religion includes a clear majority of the population, the second largest is listed. If "other" is entered, this means there are two or three other religions all present in significant numbers.

(18) Historical tradition. The entries in this column, based on information in the country historical capsules included in the *Associated Press Almanac of 1973,* indicate whether the geographical territory of a given country was the site of old imperial kingdoms such as the Ghanian, Malian, Songhaian, Egyptian, or Ethiopian empires, or of ancient trade ports, local kingdoms, or less stratified tribal cultures. As in the case of the major religious tradition, we see that there is no strong relationship between the presence of older imperial structures and the number of women in agriculture, though some former empire areas have an urban tradition that has reduced the numbers of both women and men in agriculture.

Table 5.5A: Countries with Substantial Numbers of Women-Headed Households: Participation of Women

Country	% Total Population in Agriculture and Herding	Estimated % of All Economically Active Women in Agriculture and Herding[a]	% Rural Women-Headed Households Based on Polygamy[b]	% Rural Women Headed Households Through Migration Widowhood Divorce[c]	Presence of Women in Urban Areas	% Women of Appropriate Age Group Receiving Secondary Education	% Women of All Those Receiving Vocational Education	Presence of Agriculture Training Programs for Women	% Women's Presence in POs	Presence of Community Development Programs for Women	% Women Married By Age 19
COUNTRIES WITH SUBSTANTIAL NUMBERS OF WOMEN-HEADED HOUSEHOLDS											
Botswana	90	95	--	33	--	4	--	--	6	--	--
Central African Republic	90	90	--[d]	--	--	1	17	--	4	--	57.5
Congo	60	11	17	--	--[h]	8	7.5	--	10	--	58.4
Gambia	90		[d]			4	--	yes	4		
Ghana	56	55	--	50[e]	--[i]	8	10	yes	16	yes	
Ivory Coast	86	80	27	"many"	--[j]	3	33	yes	7	yes	
Kenya	88	85	--	33[f]	10[f,n]	4	--	yes	16	yes[o]	35.6
Lesotho	98	98	--	33	--	5	--	--	5	--	22.3
Malawi	90	90		16	--	1	24.5	--	1	--	
Mali	90	90	--	--	--	1	15	--	0	--	79.1
Nigeria	80	60	63		[k]	2	4	yes	23	yes	--
Senegal	85	80	21.24			4	30	yes	7	yes	62.8
Sierra Leone	90	83	51			4		yes	16	yes	
Uganda	90	90	45	--	--	2	--	yes	10	yes	49.5
COUNTRIES WITH WOMEN HEADED URBAN HOUSEHOLDS											
Benin	84	84	--	--	30[l]	2	37.5	--	8	--	66.7
Madagascar Republic	90	41	--	759	--[m]	8	--	--	13	yes	38.5
Tanzania	95	95	--	--	--	1	--	yes	6	yes	--

a. E. Boserup estimate (See Appendix Tables A.1 and A.2).
b. Estimates from Boserup (1970).
c. Estimates from United Nations (1974a).
d. Present, no figures.
e. In South Only.
f. Estimates based on Seven Country Survey (AID, 1974).
g. That is, 75 percent of women are rated "economically independent."
h. Sixty six percent of Congo's markets conducted by women.
i. Eighty four percent of Ghana's markets conducted by women.
j. "Many" women-headed households in urban areas.
k. Sixty percent of Senegal's markets conducted by women.
l. Thirty percent women-headed households in urban areas.
m. Urban Sex Ratio is 90.
n. Ten percent women-headed households in urban areas (AID, 1971).
o. Eighty to 90 percent of road construction done by women under Food for Work Program.

COUNTRIES WITH MANY WOMEN-HEADED HOUSEHOLDS

The countries in Table 5.5 have from 15 to 50 percent women-headed rural households. (Three countries are included with no specific figures, but other evidence of substantial numbers of women-headed households.) Whether households are woman-headed due to visitor-status of husband in polygamous households and migrant-husband households, or due to widowhood or divorce, the all-present situations where women do the bulk of the agricultural work and make all the daily decisions. The extent to which major decisions about crops and innovations are made by absent spouses or other family members varies from region to region, but it is clear that the workload and much of the decision-making fall on women, as well as the breeding and rearing of children. In most of these countries between 1 and 4 percent of girls of school age receive secondary education. Where vocational training is available, in nine out of the seventeen countries,[5] the opportunities range more widely. From 4 to 40 percent of all persons receiving vocational education in a country are women. The vocational training figure is in units of participation of women compared to men; women's education is not, due to problems of immediate data availability. What this relatively high vocational training figure represents for the most part is a series of programs in nutrition, child care, and other "domestic arts," and *not* training for nondomestic production of any kind. Nine of the seventeen countries now have some possibility of agricultural training for women. Mostly this has developed in the past three years. The same is true of community development programs: even recently instituted programs have tended to emphasize nutrition and domestic life styles rather than production activities.

Of the nine countries that report on the number of women married by age nineteen, seven report 39 to 79 percent of women married by nineteen. Five of these seven countries have 80 percent or more of the women in agriculture, and most of them have been working in the fields in varying degrees since they were five years old. For the six of those seven early-marriage countries that provide statistics on both GNP and population growth rates, all but one have declining GNP, that one barely holding its own. Populations are growing at the rate of from 2.1 to 2.5, and food production per capita is declining to as low as 61 units of food per capita on the base of 100 units of food produced in 1965.

Countries like Ghana and Lesotho, with less than a third of women married by age nineteen, also have a similar picture of increased population and declining productivity. The only countries with increased agricultural productivity are Botswana and Tanzania, both with 90 percent or more of their women in agriculture. While drought and other natural catastrophes have played their part in the problem of declining productivity, a lot of it can

Table 5.6A: Other Countries with High Participation in Agriculture: Participation of Women

Country	% Total Population in Agriculture and Herding	Estimated % of All Economically Active Women in Agriculture and Herding[a]	Presence of Women in Urban Areas	% Women of Appropriate Age Group Receiving Secondary Education	% Women of All Those Receiving Vocational Education	Presence of Agriculture Training Programs for Women	Number Women's NGOs Present	Presence of Community Development Programs for Women	% Women Married By Age 19
Cameroon	90	90	--	4	28.5	--	1	yes	--
Egypt	51	50	--	20	--	yes[d]	1	yes	32.7
Gabon	85	94	--	6	--	--	[illegible]	yes[e]	62.7
Guinea	80	85	--	1	19.5	--	[illegible]	--	46.4
Liberia	85	93	90[b]	4	--	--	1	--	56.5
Swaziland	80	80	--	8	--	--	[illegible]	--	--
Zaire	70	95	--	4	21.0	--	[illegible]	yes[e]	46.4
Zambia	80	70	--[c]	8	--	yes	1	yes	40.8

a. E. Boulding estimate (See Appendix Table A.1).
b. Urban Sex Ratio.
c. Forty-one percent of Zambia's markets conducted by women.
d. One out of every six agricultural students in Egypt is a woman (Ford Foundation, 1973: 34).
e. In these countries women do 80 percent and more of the Food-for-Work and Self-Help program of building roads, airports.

Table 5.6B: Other Countries with High Participation in Agriculture: Country Characteristics

Country	GNP Per Capita	GNP Growth Rate	Population Growth Rate	Changes in Units of Food Produced from 1969 to 1973	Percentage Population in Urban Areas	Major Religion	Historical Tradition
Cameroon	140	1.1	2.2	110-109	15	Animist/ Other	Bantu Immigration Area
Egypt	170	1.5	2.5	106-102	38	Coptic	Ancient Empire
Gabon	310	0.7	1.3	116-123	16	Animist/ Other	Minor Chiefdoms
Guinea	90	2.7	2.2	105-98	15	Islamic/ Other	GMS Empires[a]
Liberia	210	0.7	1.7	87-87	20	Animist	Coastal Migration Area
Swaziland	200	5.4	3.0	137-148	19	Animist/ Other	Recent Migration
Zaire	90	-0.3	4.2	117-111	20	Christian/ Other	Bantu Immigration Area
Zambia	220	3.6	3.0	101-83	19	Animist	Tribal Area

a. GMS Empires are Ghana, Mali, and Songnhay Empires.

on the possibility that women in the second group of countries have a lighter workload. The percentage of women involved in agriculture is roughly the same in the two groups, but there is a relative absence of women-headed households in the second group.

The chief common characteristic of the countries in Table 5.7 is that they all have up to 10 percent or more nomadic populations.[6] Countries vary in the extent to which they report their nomadic populations, but in general nomads are not included in country statistics. The women, in particular, are usually not counted. While nomadic populations have a clear-cut division of labor, as do settled people, the women have substantial herding and food-gathering responsibilities and should therefore be included in any agriculture-and-herding estimates. Half the countries are highly urbanized, half much less urbanized. Most are located in North Africa, most are Islamic, and most have participated in the traditions of an ancient empire. These nations represent the extremes of oil riches and desert poverty. My estimates of agricultural activity of women in these countries are substantially higher than ILO reports, partly based on my knowledge of nomadic practices, partly based on accounts of the extent of weeding and irrigation work that women are responsible for in North African countries when male heads of households are enumerated as farmers. The weeding and water carrying plus subsistence kitchen gardening may involve fewer work hours than subsistence farming in sub-Saharan Africa, yet these activities still justify the term "farm worker" for the women.

While levels of secondary and vocational education for women are low, community development programs are expanding rapidly. Interestingly, in three out of the seven Islamic countries for which age of marriage is reported, 20 percent or less of the women are married by age nineteen, reflecting general age of marriage for North Africa as being higher, not lower, than elsewhere. New oil production will change the economic growth rates in relation to population growth rates for this area, but it is interesting to note that prior to 1968, six of these eight countries were in serious trouble with regard to GNP-population growth imbalance, but not with regard to food. Algeria was in the worst straits of all, the only country in the group showing by 1973 serious decline in food production as well as in GNP-population imbalance. Tunisia, with relatively fewer farm women than most other countries (45%) is now showing the greatest activity with regard to giving women general education and agricultural training. One-fourth of all agricultural training is going to women.

No conclusions can be drawn from Table 5.7. The North African women, compared to women in the countries cited in Table 5.6, appear to have a lighter workload. The highest population growth is taking place in the more urban, not the more rural, countries. It has often been pointed out that

Table 5.7A: Women in Agriculture in Countries with Substantial Nomad Populations:[a] Participation of Women

Country	% Total Population in Agriculture and Herding	Estimated % of All Economically Active Women in Agriculture and Herding[b]	Presence of Women in Urban Areas	% Women of Appropriate Age Group Receiving Secondary Education	% Women of All Those Receiving Vocational Education	Presence of Agriculture Training Programs for Women	Number Women's NGOs Present	Presence of Community Development Programs for Women	% Women Married By Age 19[c]
Algeria	60	60	90[d]	5	---	---	5	yes	46.5
Ethiopia	96	80	---	1	---	---	10	yes	---
Libya	36	20	---	7	---	---	2	yes	73.5
Morocco	---	41	---	6	---	---	8	yes	54.1
Niger	95	96	---	0.4	---	---	2	---	86.3
Somalia	95	85	---	1	14.0	---	2	---	13.5
Sudan	80	80	---[e]	3	---	---	5	yes	20.1
Tunisia	47	45	---	11[f]	---	yes	8	yes	18.9

a. Estimates of nomadic population range from less than 10 percent in some countries to more than 60 percent in others, but exact figures are not available.

b. E. Boulding estimate (See Appendix Table A.1).

c. Sudan has an unknown rate of polygamy.

d. Urban Sex Ratio.

e. Labor force does not necessarily include nomads.

f. Twenty-five percent of all second level agricultural training is given to women (Ford Foundation, 1973: 34).

Table 5.7B: Women in Agriculture with Substantial Nomad Population: Country Characteristics

Country	GNP Per Capita	GNP Growth Rate	Population Growth Rate	Changes in Units of Food Produced from 1969 to 1973	Percentage Population in Urban Areas	Major Religion	Historical Tradition
Algeria	220	3.5	3.8	82-77	38	Islamic	Ancient Trade Center
Ethiopia	70	6.0	1.9	103-103	11	Coptic/ Other	Ancient Empire
Libya	1020	19.4	3.7	119-98	25	Islamic	Ancient Trade Contact
Morocco	190	0.4	3.0	105-99	23	Islamic	Ruled by Carthage
Niger	70	1.6	2.7	100-85	3	Islamic	Ancient Kingdom
Somalia	60	0.2	2.2	103-95	11	Islamic	Ancient Punt
Sudan	100	−0.4	2.8	118-118	8	Islamic	Ancient Nubia
Tunisia	220	2.7	—	81-98	36	Islamic	Ancient Carthage

women in urban areas, with few production activities available to them, may bear more children under those conditions of "relative work-deprivation" than rural women. Thus, it may be that urban development programs will be more important for the women of North Africa than will rural development programs.

These tables demonstrate that the role of women in agricultural productivity is a major one, and that too much of their work is carried out unaided. This is true in countries with substantial numbers of women carrying agricultural workloads alone, but it is also true in the other two groups of countries where women possibly carry less of a workload. In the countries of Table 5.5 the situation is extreme, but it would be true to say that in no country do agricultural development programs adequately take account of the role of women in the productive process, nor do they channel enough aid in their direction.

THE RELATIONSHIP BETWEEN FERTILITY AND AGRICULTURAL PRODUCTIVITY

This chapter has emphasized the need of overworked women to bear children as additional field hands. It is too often assumed that women are too stupid to know when to stop bearing children, and that they will go on bearing children when health and nutrition improve and infant mortality declines, resulting in far greater overpopulation. Therefore intensive family planning programs are thought to be needed to persuade women to bear fewer children. Yet on the rare occasions when researchers set out to study the behavior of farm women, it becomes clear that they can be very skilled managers of scarce resources and can do a great deal with what little they find. Any program that affects their work as producers is bound also to affect their fertility. It has long been known that increasing levels of education for women reduces fertility, and urbanization reduces fertility *if* opportunities for productive labor are not removed (United Nations, 1974e).

> Repeated studies from various parts of the world show a clear correlation also on the individual level between productivity and the number of children in the family. These studies indicate that it is the mother's employment, education and status, not the father's, which are the major factors influencing fertility. There is thus a close connection between a woman's access to material and social resources and her ability to utilize those means that are available to plan and space her children.[7]

In other words, whenever women have an opportunity to increase their skill levels in ways relevant to the productive opportunities of their environment, they will respond by increasing the quality of life for their families.

WHAT FARM WOMEN NEED

Farm women need resources to help them shape better conditions of life for themselves and the families they support, resources to introduce some elements of planning and predictability into their lives. These resources may be grouped under the headings of:

(1) intermediate technology,

(2) family-oriented supporting services,

(3) formal education,

(4) [illegible] education,

(5) extension and community service specialists who are women and/or trained to work with both women and men,

(6) local opportunities for paraprofessional training for able community women,

(7) credit and marketing facilities,

(8) legal protection of women's rights as family persons and producers,

(9) recognition of traditional women's organizations and support for their active participation in community planning, and

(10) programs of placing women in administrative and planning positions at all levels from local to national and international.[8]

ıtermediate Technology

Women need simple technological aids to lighten the burdens of their eaviest daily tasks. Such aids are useful only when they are accompanied y the active participation of the women who will use them. There are many xamples of labor-saving devices, including wells, being rejected by women ecause they were planned and installed without consultation with the local 'omen, and therefore without regard to fitting the innovation into the total eeds and work patterns of the women. Since many villages have some form f community organization among women already, however rudimentary, ıese should be utilized from the very beginning of any planning process. xamples of appropriate technology:[9]

(a) agricultural implements—low-cost ox-drawn ploughs for women, hand-operated inter-row cultivators, planters, winnowers, seed-cleaning sieves, chicken feeders, and waterers;

(b) food-processing implements—sun dryers, smoking drums for fish and meat, insect-, rodent-, and damp-proof farm food storage facilities, solar water heaters, improved stoves, maize-shellers, cassava grinders, community mills and wells;

(c) fuel and haulage—planting near villages of fast-growing trees that can be cut for firewood, promotion of acquisition of small portable mechanical saws, of wheelbarrows, bicycles, and tricycle carts, local building of donkey and ox carts for women, exploration of new patterns of village work organization for community preparation of charcoal and for water and wood collecting, utilizing brigades of young people, both boys and girls.

Family-Oriented Supporting Services

[illegible] selves, as in Kenya and Tanzania, and are best linked to traditional mutual help associations rather than as urban-designed programs.

Maternal, paternal, and child health services and family planning programs should be developed as basic community facilities in connection with traditional services of midwives, healers, and vendors of health and virility herbal compounds.[10] Family planning programs should be incorporated with "programmes to raise women's earning capacities, lessen their labours, improve health, and thus increase the chances of successful pregnancies and survival of infants and children" (Ford Foundation, 1973: 52).

Formal Education

> School curricula should not differentiate between boys and girls. Both boys and girls should learn among other things, modern agriculture, village technology, science, trades and crafts, family decision-making, family planning, nutrition—and be trained and encouraged to take up activities in the modernized sector of the economy. Education campaigns (should) encourage parents to send daughters to school—to keep them there and to make clear that they can reach the top levels of responsibility.
>
> Basic education . . . should not leave girls with unemployable skills such as embroidery and family cookery. This would necessitate local market research, and marketing assistance, and could be accomplished through rural youth clubs, where they exist [United Nations, 1974a: 85-86].
>
> Help is needed in the development of self-employment or small-scale or cottage industries to enable rural women to have incomes, or to supplement the family income. Projects such as SEDCO [Small Enterprises Development Corporation] in Swaziland . . . might be in food production, processing or preparation, animal husbandry or in crafts or services. This may involve the establishment of training programmes in practical money-earning skills for teenage boys and girls such as the village polytechnics in Kenya [United Nations, 1974d].

Nonformal Education

Education for women outside formal schooling programs can bypass conventional schooling approaches. Using paraprofessionals, minimally trained peers, voluntary agencies, youth groups, religious organizations, as well as experienced educators, programs can be developed which combine literacy training with priority local skill needs through action programs in agricultural improvement (*not* just aimed at cash crops, but at food crops), development of cooperatives, new income-producing craft skills, training in small-scale processing industries, skills in needed village technology, including home construction and road-building technology. Wherever possible there should be joint training opportunities for women and men, and all programs should aim at new concepts of work-sharing, re-evaluation of old patterns of division of labor. Traditional homecraft programs in nutrition, cooking, child-rearing, and sewing should be dismantled and reintroduced for both men and women in programs oriented to problems of agricultural productivity, of food preservation problems related to local spoilage, and to problems of community child care needs.

Extension and Community Service Programs
Specialists Who Are Women

There needs to be training for women specialists, but the training should be sufficiently linked to training for men so that men are also trained to work with women farmers and to accept women specialists as their colleagues. Wife-husband teams of extension agents have been proposed for areas where women have low status, to bolster the status of the woman specialist and make her services more acceptable, but this should be done with extreme care or it will undercut long-range goals of more autonomy for women. Incentive systems related to traditional cultural values need to be developed for male extension agents that will make it rewarding to them to work with women farmers and with women colleagues.

Local Opportunities for Paraprofessional Training for Women

Identifying the ablest women farmers in a community and giving them paraprofessional training to work with other women farmers in upgrading their use of labor-saving, productivity-enhancing technology may be the single most important rural program that a country could undertake. Giving additional training to women who are already rendering services to the community, such as midwives, healers, hairdressers (one of the oldest traditional occupations for women and usually ignored by development specialists), and other kinds of service specialists in the traditional sector, and to women who are already accepted community leaders, will make every kind of community program more effective. Paraprofessional as well as professional training programs always need to be carried out in consultation with local men as well as women leaders, in ways that reward men for support of the training programs.

Credit and Marketing Facilities

> Changes in regulations and practice can be made to allow farm and business inputs, loans, credit and guidance on business management to women for their use in food production, cooperatives and for income-generating activities. Changes in farmers' cooperative rules can be made to allow women with no title to land to be members and to hold office in cooperative societies. This is already being done in some East African countries. Sometimes it is preferable to allow women to form their own societies before joining those of men.
>
> Improved marketing facilities can be intensified to enable the male farmer and his wife and/or the women farmers to market goods without spoilage and to have a fairer share of the benefits in comparison to the middleman. Many countries are making great efforts to popularize cooperative societies for marketing agricultural products but more could be done to save women carrying produce many miles to market [United Nations, 1974d: 13].

Legal Protection of Women's Rights

Laws governing marriage, divorce, inheritance, and employment adopted by the modernizing elite of a society usually run counter to traditional attitudes and practices, and much attention needs to be given to bridging that gap. Cash cropping also tends to abrogate traditional land-use rights of women, denying needed resources in land to the subsistence woman farmer. Traditional ownership and credit rights of the woman trader may also be eroded by the modern sector, and need to be protected.

Recognition of Traditional Women's Organizations

Women's village organizations should always be identified and consulted in the development of any program for women. Existing traditional women's credit associations rarely benefit farm women, and a conscious effort to bring women traders and farm women into mutual self-help programs should be considered. Urban women are generally unfamiliar with the situation of rural women, and efforts to bring urban women into programs with rural women must be undertaken in full recognition that urban women have lots to learn from rural women. They cannot simply appear on the scene as

chers. The Economic Commission for Africa Women's Programme (United ions, 1974a: 86) has proposed an All-African Women's Voluntary Task e that would allow skilled women from one part of a region to serve in ther part and work with women's voluntary organizations to help focus r concerns and activities through improved organizational techniques and ific attention to the economically productive roles of women. By work- with traditional women's organizations, it will become clear where the mum teaching sites for training programs are located. Training programs usually held on traditionally "male" social terrain, so that even when nen are permitted to be present it is difficult for them to utilize the op- unities offered. More use of village churches and schools and traditional ering places already used by women is necessary.

rams for Women as Administrators Planners

Most policy decisions concerning women are made by men and . . . nore women must be included in the policy-making and higher admin- strative ranks of government. At present, where data are available for 4 countries on women's representation in administrative, executive nd managerial levels, the median is a low 6.4% of all persons in these ositions [United Nations, 1974d: 11].

The Ford Foundation Task Force report (1973: 54) recommends:

- *Courses for national planners*, on how to integrate planning for women into national development planning. This was proposed by the *UN Expert Group Meeting on Women in Development*, June 1972, under the chairmanship of Sir Arthur Lewis.
- *Internships for college men and women*, perhaps during the holidays preceding their final year on qualitative and quantitative data and its analysis, as basis for planning for women's integration in development. These internships may be at national and international institutions.
- *Training courses for women leaders*, on data, analysis and methods of integrating women in all sectors of the economy. These would preferably be held on the national level.

ntegrating women into national program planning and key resource allo- on positions at every level is a monumental task. Partly it will be done ough establishing national commissions of experienced women and men will systematically study and advise on necessary steps, partly through establishment of special women's bureaus. There will always be the dan- that the special local knowledge of women will be ignored as professional nen become active at the national level, and that the current rural-urban

split will be made even wider as more educated women are absorbed into government. This would work against the needs of the woman farmer and must be prevented by working directly with rural women, and incorporating rural women themselves into planning programs, as much as possible.

NOTES

1. The fourth world consists of the third world countries that have no resources such as oil to exploit.

2. It would be interesting to do some macro-level studies of imports of nations that export cash crops, as well as of local purchasing habits, to try to ascertain how this cash is spent.

3. The practice of rotating government bureaucrats into the field and factory in the People's Republic of China represents one major effort to overcome this insulation effect of modernization.

4. This would not be true in societies in which the practice of free unions is widespread, but in most of the countries under discussion marriage is associated with the beginning of child-bearing.

5. That is, nine countries report vocational training. It may exist, unreported, in other countries.

6. Countries included in this table are chosen on the basis of UNESCO reports on nomadism, summarized in Chapter 2.

7. From an "Informal Background Document" prepared in Norway for the December 1974 Conference on Women in Agriculture held at Princeton University. Reference cited for the statement is the Economic Commission for Africa Report (United Nations, 1974a: 72).

8. For further discussion of the kinds of proposals listed here, see Ford Foundation (1973) and United Nations (1974a).

9. These proposals all come from United Nations (1974d).

10. See, as an example of use of traditional networks for modern family planning, Piet and Hendrata (1974).

VARIABLE SOURCES LISTING

1. *Percentage of Total Population Engaged in Agriculture and Herding*
   Source: 1972 *Yearbook of Labor Statistics.*
2. *Percentage of All Women Engaged in Agriculture and Herding*
   Source: A) Elise Boulding estimates; see Appendix Table A.1
   B) Boulding, Nuss, Carson, and Greenstein (1976).
3. *Percentage Women Rural Heads of Household Through Polygamy*
   Source: Boserup (1970) estimates.
4. *Percentage Women Rural Heads of Household Through Migration, Widowhood, or Divorce*
   Source: Estimates based on Economic Commission for Africa (ECA) country studies and various other studies.