

Providing Africa's Women Farmers Access: One Solution to the Food Crisis

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As concern for the impending food crisis in Africa intensifies (Berg et al—for the World Bank—1981; Eicher 1982; Eicher and Baker 1982), diagnoses of the problems and proposed solutions become more numerous. Experts agree that there has been “an alarming deterioration in food production in the face of a steady increase in the rate of growth of population over the past two decades” (Eicher 1982:151). This is due to natural constraints such as tsetse flies; rapid population growth; increasing urbanization and accompanying shifts in consumer tastes from high-yielding root crops and drought-resistant grains to rice and wheat; heavy-handed, top-down administrative approaches that did not involve farmers in decision making; and colonial approaches to development that facilitated surplus extraction in the form of minerals and export crops and ne-

glected investments in national and regional research stations devoted to food crops. In addition, food and to some extent export crops were subjected to negative pricing, tax, and exchange-rate policies (World Bank 1981), and indigenous marketing systems for food crops were either ignored or directly thwarted (W. O. Jones 1972).

It is in the context of an imminent food crisis in Africa that we must examine the role of women in household economies and rural development. Although there is a growing consensus that African women play a very important role in the production and marketing of basic food crops, the above-mentioned studies lack awareness of the implications this has on the design, implementation, and evaluation of agricultural projects.¹ Most previous development projects have failed to:

1. identify the real needs, problems, and even identities of food producers and agricultural workers who are the clientele of the project (Lewis 1982). Ignored in both the World Bank report and Eicher's analysis is the fact that African women often “do more than half of the agricultural work; in some cases they were found to do around 70 percent and in one case nearly 80 percent of the total” (Boserup 1970: 22). Although intraregional differences exist, a comparison of agricultural labor force participation rates provided by the International Labor Office and the UN Food and Agriculture

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Organization (FAO) shows that, on average, in sub-Saharan Africa 46 percent of the agricultural labor force is female and in North Africa and the Middle East 31 percent is female (Dixon 1982: Figure 3).

2. account for the semiautonomous nature and economic independence of women food producers in Africa (Staudt 1979: 38-44; Bay 1982).

3. understand the interdependence of African women's traditional roles as producers of food and reproducers of human resources (Niethammer 1981). Whereas an African woman traditionally "gives all and invests all in her children," an income-earning activity is an expected part of life. Women do not decide whether to work or have children; "they work *because* they have children" (Bay 1982: 5).

4. consider the importance of traditional rules about allocation of family land, labor, and cash income within the family, and be cognizant of intrafamily conflicts that often develop between household members determined to take advantage of the new, enlarged set of economic resources emerging as a result of a development project (Dey 1981; Haugerud 1982; C. Jones 1983; Langley 1981; Reynolds 1982; Venema 1978).

We propose that as a result of these failures, previous agricultural development projects aimed at securing "a reliable food surplus as a precondition for national development" (Eicher 1982: 164) have either failed or been excessively inefficient and costly and are thus part of the reason for the present food crisis. To show this, we first summarize the burgeoning number of research findings documenting women's management of semiautonomous production and consumption units within the broader (often, but not necessarily, polygamous) African household. Second, we describe the limited access women have to fundamental agricultural inputs, government extension services, credit, markets, and political power. We then give examples of projects that have failed because women's productive role was ignored, and projects that have succeeded because project planners worked with women as agricultural producers. Finally, we examine international donor assistance patterns to determine whether or not inappropriate projects will change and if they do, how quickly the change will take place.

Women's Semiautonomous Production and Consumption

Recent research shows that African households, monogamous and polygamous, cannot be treated as homogeneous, unified decision-making units whose internal relationships can be taken as a given, either in research or extension projects. The behavioral assumption that the household is a husband-wife team maximizing a

jointly held utility function to attain shared goals—as postulated by proponents of the new household economics—obscures and ignores both the conflicts and complex complementarities that occur within and divide the household, at least in the short run (Guyer 1980, 1981; Haugerud 1982; Dwyer 1983; Koenig 1980, 1982; McMillan 1983; Merryman 1980; Reynolds 1982; Tully 1982; Venema 1978). The commoditization of internal household relations vividly reveals these separate interests: husbands and wives lending each other money at rates only slightly less usurious than the prevailing market rate (Robertson 1976); the payment of wages inside households (Dey 1981); wives selling water to husbands in the fields (Bay personal communication); husbands selling firewood to wives (Venema 1978:114); and wives and husbands selling each other animals that are consumed by the family on feasts and special occasions. As Cloud (1983:12) points out, the conventional assumption of a single household utility function ignores the fact that in each of these exchanges the best interests of the household may not coincide with those of particular members:

Even more importantly for project design, the concept of the household utility function ignores the question of how decisions are made within the household. Women and men may have different production priorities. One may wish to invest more resources in subsistence production while the other favors cash crops, or wishes to invest more in the nutrition or education of the children.

More realistic models of household behavior are exemplified by C. Jones' (1983) formal model of intra-household conflict and husband's and wife's gain from cooperation, Mukhopadhyay's (1983) decision model of the sexual division of labor for specific household tasks, Hill's (1963, 1978) description of Fante women's entrepreneurial behavior, and C.H. Gladwin's (1975, 1982) models of women's marketing and farming decisions.

As in these models, farming households in many African societies should be characterized by overlapping but semiautonomous production and consumption units. The units are semiautonomous because they are managed by the household head, wife, or wives, or married sons who are associated with the household via labor-, food-, and/or income-pooling arrangements (Haugerud 1982). In many agrarian societies each wife and married son is responsible for cultivation of a private field and has the right to what the field produces. The units are overlapping because the wives and married sons may also provide labor to cooperative fields managed by the household head (McMillan 1983; C. Jones 1983). In other societies without cooperative fields, the husband and wife may be responsible for cultivation of their own separate fields.

For example, McMillan's (1983) study of Mossi families who migrate from home villages in the Central Pla-

teau region of Upper Volta—[EDITOR'S NOTE: In 1984 its official name was changed to Burkina Faso, but the original name was current at the time of the study]—to the Volta Valley Authority's (AVV) resettlement scheme in the south shows that an average of 33 percent of the total area planted in the settlers' home villages in 1979 was cultivated as private fields; 64 percent of those private fields were supervised by women (see Table 1). Private fields accounted for an estimated 27 percent of the area planted and 28 percent of the total production in the basic food grains, sorghum and millet. An estimated 15 percent of the total area planted and 13 percent of the total production of sorghum and millet was on women's private fields. In addition, an average of 12 percent of the area planted in corn, 66 percent in peanuts and groundpeas, 16 percent in rice, and 58 percent in vegetables was on women's private fields. In all, women's production traditionally accounts for 20 to 25 percent of the total food produced by the Mossi family.

Although this percentage may not seem significant, the role of that 25 percent is vital to the survival of the extended (polygamous) family. The majority of the food produced on a woman's fields is traditionally used to provide supplementary food for herself and her children during the dry period when food supplies from the cooperative fields are depleted. Without such private food stores, a woman cannot feed her children during the yearly dry period. Further, the income from a woman's cash crop production is used to satisfy requirements of school fees, clothing, and medical supplies, as well as to pay for additional condiments to meals (McMillan 1983).

Besides being responsible for providing the family with food during the dry period, Mossi women also contribute a significant percentage of the labor required on both cooperative and private fields. As shown in Table 1, women work an average of 47.5 percent of the recorded hours worked on cooperative fields, 43.5 percent of the hours worked on men's private fields, and 79 percent of the hours worked on women's private fields.²

Under these circumstances the farm household is more appropriately defined as "those individuals who farm a communal field under the jurisdiction of the household head, and who eat from the same cooking pot" (Koenig 1980; Hanger and Moris 1973; Norman, Simmons, and Hays 1982), or quite simply, "the individuals who eat and work together *most* of the time" (McMillan 1983). The family is usually extended, rather than nuclear, and headed by the eldest male in the family.

The extent to which household labor is allocated to the collective fields instead of the private fields, and the choice of food versus cash crops grown on each type of field, has usually been determined by traditional rules and rights as is the distribution of cash income from cash cropping. As a general rule men clear the forest and burn the bush, while the owner or operator of the field does the seeding and weeding (Guyer 1980; Koenig 1982). The household head usually has rights to the labor of all household members, who must work on cooperative fields at given times. However, women and other (younger) men in the household do not have these rights over other household members' labor (Koenig

Table 1.—Percentages Allocated to Household Land, Labor, and Production between Private and Cooperative Fields

Type of field	Land area cultivated		Recorded labor hours		Kg. production sorghum & millet		Cash value of production	
	Home (n = 35)	Project (n = 26)	Home (n = 35)	Project (n = 9)	Home (n = 35)	Project (n = 26)	Home (n = 35)	Project (n = 26)
Cooperatively farmed fields	67 ^a	89	66	92	72	92	75	92
Male workers			(52.5) ^b	(52.5)				
Female workers			(47.5)	(47.5)				
Men's privately farmed fields	12	3	16	1	15	4	10	5
Male workers			(56.5)	(64)				
Female workers			(43.5)	(36)				
Women's privately farmed fields	21	8	18	7	13	4	15	3
Male workers			(21)	(27)				
Female workers			(79)	(73)				

^aData are based on a sample of settler households (9 in 1979 and 26 in 1983) living in the same Volta Valley Authority (AVV) village. The home village figures are based on a sample of 35 households in the settlers' home area during 1979 (McMillan 1983, 1984).

^bNumbers in parentheses sum to 100 percent of the preceding percentage. Labor hours on which percentages are based are unweighted.

1982; Venema 1978). As labor is usually the scarcest resource for the sub-Saharan farm and thus the factor that most prevents expansion of farming, traditional rules about labor allocation determine total production and incomes generated by different household members. For example, Koenig's (1982) production data from Kita, Mali, show that the average total production of peanuts, the main cash crop, is four times as great for the household head as for the other male household members. The latter's production is two to three times as great as that of the first wife and other women in the household. Consequently, the average modern household head in Kita earns 72 percent of total household income. But since he also spends 84 percent of total recorded household expenses, he ends up with a surplus of 25 percent over his personal income (Koenig 1980:6-8). Women, with substantially lower cash incomes and surpluses, are primarily responsible for purchasing supplementary food items for the family.

Because men have greater control over scarce resources (such as household labor), they may now have greater production and profit. This was not always the case in the precolonial period in Africa. Among the pastoral Pokot in west central Kenya, for example, there was no community property between husband and wife. Spouses cooperated, however, via a set of reciprocal rights and responsibilities necessary for survival. Men traveled with their cattle while women had virtual autonomy over the cropping sphere, "deciding what to grow, when to plant, and to whom to distribute grain from their stores" (Reynolds 1982:1). A woman's autonomy depended in part on her ability to fulfill her economic responsibilities to her husband's satisfaction; and a husband had no right to interfere with the work of an industrious wife (Reynolds 1982:2).

With the intervention of a rural development project introducing a new or recently irrigated cash crop (Koenig 1980; C. Jones 1983), a new land resettlement scheme (McMillan 1983), or the sedentarization of a previously nomadic population (Reynolds 1982; Merryman 1980), however, rules or rights were suddenly questioned and subject to negotiation. Conflicts often developed between household members determined to take advantage of the new, enlarged set of economic resources, whether they were the expanded surplus value from a new cash crop, access to new equipment, or improved and higher-valued land.

When the Pokot began to settle in the early 1930s, the British registered land and channeled agricultural inputs to men rather than women. As a result Pokot men had greater access to cash than did Pokot women, which changed the men's value for cultivatable land. Because wives have no clear traditional rights to their husbands' cash income, they now find their autonomy and incomes decreased with male involvement in farming

(Reynolds 1982: 2). Husbands and wives are often in conflict over which crops are grown, how much of the harvest is surplus, and how cash returns should be shared. In some confrontations women are physically hurt or divorced. The result is that:

Wives frequently decide that their own economic interests and those of their children lie in access to resources and an income which is independent of their husbands. As a consequence, wives focus on strategies to maintain these separate economic relations rather than on joint efforts to develop resources together with their husbands. (Reynolds 1982: 4)

In colonial times many such conflicts were resolved at the expense of the women with no clear traditional rights to the husbands' cash income, leading some researchers to claim that the development process itself—colonialization, or "Westernization"—had a negative impact on women's autonomy and status (Boserup 1970; Tinker 1976). In our judgment this conclusion is historically correct, in part because development projects have consistently ignored the implications of the semiautonomous nature of African women producers who have a stake in protecting their own farm income and an obligation to their children to do so.

McMillan's (1983,1984) study (see Table 1) of the AVV land resettlement project in Upper Volta shows that there was very little consideration of women's semi-autonomous production in the initial stages of the project. In fact, the AVV extension service did not permit the subdivision of bush areas into private and cooperative fields even though the settlers were accustomed to allocating 33 percent of their land and 34 percent of their labor to private fields in the home village.

By the fifth year of the project, restrictions were relaxed so that an average of 11 percent of the total area planted was cultivated as private fields with 8 percent of the total labor available. Even so, this was a substantial decrease from the traditional allocation of land and labor to private fields in the settlers' home area. As a result, women's control over land decreased in the land resettlement scheme from 21 to 8 percent of total land area cultivated. Subsequently, their control over food grain production fell from 13 to 4 percent of the total, while their cash returns from all production fell from 15 to 3 percent of the total.

At the same time that women relinquished control over production in the AVV resettlement scheme, their contributions of labor remained constant relative to men's, although their hours of work doubled in absolute terms from 622 to 1256 hours per unit labor (see Note 2). On cooperative fields, their labor force participation rate remained at 47.5 percent, while on private fields it decreased slightly—from 43.5 to 36 percent on men's private fields, and from 79 to 73 percent on women's private fields.

The end result of little or no change in their labor patterns, coupled with a concentration of production on cooperative rather than private fields, was a loss of autonomy by the women. Whereas in the home villages women had rights to the produce on their private fields, in the AVV project women had no rights to the fruits of their labor on cooperative fields and in fact were paid via a complex interfamilial reciprocal arrangement of gift-giving. However, this loss of autonomy was not without compensation. Yields in the AVV project were two to three times the recorded production in the home area and an average of 0.9 metric tons per unit labor. Net agricultural income in the AVV project was roughly three times the average for the home area. These facts lead naturally to the question of the impact of this loss of autonomy on the women. Due to the project's neglect of private fields and other factors such as the increased length of the agricultural work season (from seven to ten months due to the large-scale cultivation of cotton), the increase in the absolute number of hours worked, the much greater distances to regional markets, and their removal from their extended families, many women were not supportive of the program. McMillan observed that women dropped out of the project more frequently than did the men. In addition, there was an increased incidence of divorce and a declining interest in nutrition and housekeeping among the women of the project, as compared to Mossi women in the home village.

The discrepancy in men's and women's access to land, modern inputs, and new technology may even have had detrimental effects on total household productivity. In the AVV resettlement project, settlers' yields and incomes doubled and trebled only after the AVV staff relaxed their restrictions on private field production. In a project among the Wolof in Senegal, the household head established first access to project-supplied mechanical planters and weeders for their fields, younger men second, and women, last access, resulting in lowest yields for the women. Women later complained to project management about the differential access to technology occurring on the average of two weeks *after* their timely use (Venema 1978: 112ff).

The implications for development programs and policies are clear. Policy planners must provide land, agricultural inputs, technology, and extension advice to rural women if a significant percentage of food production is on women's private fields, if women manage farms themselves in areas with extensive male migration, or a significant proportion of the labor input to cooperative fields is women's labor. Project financing or inputs that go only to the male household head whose main product is a cash crop will *not* improve yields of food crops or help alleviate a food crisis. Similarly, policies to increase the area planted to a cooperatively worked, labor-intensive cash

crop might increase total household labor requirements and income, but would probably be associated with a decline in the productivity of private fields with food crops and a decline in the autonomy of women when intrahousehold transfers of cash income are not customary.

In short, project planners who aim to identify the constraints limiting food production must first know whether or not food crops are commonly produced by women on their private fields. Second, they should understand what decisions are made by women on their fields, why and how they are made, how labor is allocated on the collective fields, and how conflicts occur and are resolved in the household. If they hope to increase production by semiautonomous women, they must identify women's goals, values, and decision criteria within the context of the decisions made by the household head (Due, Mudenda, and Miller 1983; C.H. Gladwin 1982).

Women's Limited Access to Resources and Projects

In spite of evidence supporting Boserup's hypothesis about the negative impact of development on women, research also supports the more sophisticated hypothesis that development opens up opportunities for women when it furthers women's access to capital, the market, and the political arena; but development impedes those opportunities when access is blocked (Ensminger 1983: 1,28; Merryman 1980). The problem, according to the latter argument, is women's limited access to both resources and development projects aimed at benefiting themselves. Correspondingly, evidence on attitudes and opinions of farm women shows they want development interventions. Women farmers in Zambia, for instance, claimed they needed and wanted help in the form of "farming improvements, credit, clinics, wells, improved transport and roads, and improved extension and farmer training centers" (Due et al. 1983: 12).

Notwithstanding the expressed wishes of African women farmers for farming improvements and the burgeoning number of research findings documenting women's extensive activities in agriculture, study after study also exposes women's limited access to government extension services, technological training, education, credit, time, and land reform (Ashby 1981; Bukh 1979; Chaney, Simmons, and Staudt 1979; Due and Summary 1982; Fortmann 1981, 1982; C. Jones 1983; Langley 1981; Moock 1976; Pala Okeyo 1980; Staudt 1975, 1978). Data from Staudt's (1975) research in western Kenya on 212 households show that although agricultural development proceeds by making resources available for increasing farm productivity, women farm managers have experienced a persistent and pervasive bias in the delivery of agricultural services from their governments, and it makes no difference whether or not

the women have high economic status, large farms, or have shown a willingness to adopt innovations. Specifically, results show that: (1) agricultural instructors tend to visit farms jointly managed by men and women more often than farms managed solely by women; (2) more members of a jointly managed farm receive training at a local agricultural center than do members of a female-managed farm; and (3) more members of jointly managed farms know about, have applied for, and acquire agricultural loans than do female farmers. Why? Male technicians usually communicate with men and tend to provide information, technology, and credit to men, and this imposes an economic hardship on the considerable number of women household heads (Fortmann 1981, 1982). When the cooperatives pay the men for their wives' produce, the women then market outside official channels, withdraw their labor, or lack incentives to continue their labor contributions (Cheny et al. 1979). Such responses have clear effects on the achievement of development goals.

In a similar vein, Ensminger (1985) tests the effect of Galole Orma women's access to the market economy on their economic and political status, with two subsamples of households in Kenya. One set of Galole Orma households is settled and strongly integrated into the market economy; the other is to a greater extent nomadic, more self-sufficient in meeting subsistence needs, and less involved in the market economy. Although nomadic women engage in fewer domestic tasks and have greater prospects for maintaining ownership of cattle and producing ghee for sale, their lack of access to markets and the political forum due to the distance from town prevents them from taking advantage of these conditions. As a result, sedentarization improves the economic and political lot of only a small elite group of sedentary women (Ensminger: 28). Her results thus suggest that economic and political change do not affect all women equally within a given society. As Langley (1981) points out, differential access to capital, markets, and political power stratifies individuals within a given society during the development process, with the ensuing exploitation of those who lack access, regardless of gender.

Given women's contribution to farming in Africa, and their limited access to fundamental agricultural inputs, we turn to the sticky question: Can agricultural development projects succeed without incorporating women farmers as farmers? In light of the current food situation in Africa, we propose that the success of a location-specific development project aimed at securing a reliable food supply depends on its opening up access to agricultural inputs (land, capital, markets, biological innovations) to women farmers. To show this, we cite examples of project failures when women food producers are ignored by project personnel, and project successes when they are incorporated into the project as producers and not just reproducers.

Project Failures When Women Are Ignored

The first example is from the Gladwins' study of Fante women processors and sellers of smoked fish in Ghana (H. Gladwin 1971, 1980; C.H. Gladwin 1975). In 1967-68 on the coast of Ghana the state fishing corporation had both the mandate and funding to "modernize" the fishing industry, with the result that it competed with the indigenous dugout-canoe fishing industry for the herring catch and market. While the state fishing corporation's trawlers outdid the dugout-canoes in catching fish, they could not refrigerate or market all the fish they caught. Subsequently they sometimes dumped fresh herring on local coastal markets. One day they dumped eleven truckloads of herring on the Mankessim market, sending the price down by 90 percent. But even though all the fish sellers in the sample lost money that particular day, by the next periodic market day the sellers were back with their small amounts of fish, ranging in size from two baskets to one box. It is interesting to note, however, that the state fishing corporation eventually went bankrupt.

Although this case may seem to exemplify the problems and bottlenecks that have doomed to failure large capital-intensive state corporations—characterized (Eicher: 167) as "the parastatal disease"—it is not just a case of planners thinking that "bigger is better." It also clearly shows the state's long-term mistreatment of "market mummies," who more recently have been scapegoats for more serious food shortages due to their alleged inefficiency and hoarding of foodstuffs (Harrell-Bond 1980). Government misconceptions about the inefficiency of women traders as intermediaries persist in spite of much evidence to the contrary (W.O. Jones 1972; Lawson and Kwei 1974; H. Gladwin 1980). Whether the indigenous marketing system would have been thwarted so blatantly if it had been run by men is, of course, unknown.

The second example, taken from Langley (1981:3), is about women farmers in a settlement scheme in Senegal. Because

... no land was allocated to women, they threatened their husbands to quit the scheme and go back to the old villages, leaving them to do their own housework, look after the kitchen garden, the fowl and the goats, gather the herbs for cooking, etc. (and also, it must be added, to do the totality of digging, sowing, weeding, harvesting, and carrying).

Given the probable mass exodus, project authorities found land for the women.

A third example—from McMillan's (1983) previously discussed study—shows how agronomic policy recommendations can fail when a project ignores the existence of women's private fields and semiautonomous production. As mentioned above, rather than allow the traditional cultivation of peanuts, vegetables, and some of the

food grains on women's private fields, the AVV extension staff recommended "improved practices" on cooperative fields only. These improved practices included a recommended six-year rotation of cotton, sorghum, cotton and legumes (peanuts and groundpeas), sorghum, and two years of fallow on each of the fields. The result was that during the first three years of the project, almost no one grew peanuts, which were traditionally a women's crop. Peanuts were planted only when restrictions against women's fields were relaxed in the fifth year of the project.

Another example is given by the Mwea rice irrigation scheme in Kenya, where project managers were concerned about underproduction of marketed output. They later found that women were holding back part of the production and selling it through blackmarket channels in order to meet their traditional obligations of feeding the family with the preferred maize and beans for which land was no longer available for cultivation. Rather than permit women to control their produce as in the traditional system, managers recruited husbands into the rice marketing cooperatives and paid them for their wives' production. Men did not pass on the income in this culture where incomes are separate within households (Hanger and Moris 1973). In a similar example from Kenya in which managers recruited nonproducing men into the cooperative and paid them for their wives' labors in pyrethrum production, women soon withdrew their labor, and marketed production fell (Apthorpe 1971).

Project Successes When Women Are Incorporated

We turn now to cases of projects that succeed when they incorporate women. Unfortunately, there are fewer successes than failures. However, three examples come to mind. The first is from Aklilu's review of appropriate technology projects that enhance women's social and economic status when they participate in the design of the project, and organizational and institutional factors are "appropriate" (Aklilu 1983: 3). Her example of a success is an integrated rural development project in Egypt sponsored by the Coptic Evangelical Organization for Social Services (CEOSS). By emphasizing rural women's participation in the planning and design stage of the project, and fostering communication with them via female extension agents who both were sensitive to the needs of rural women and had access to them, successful programs were initiated in nineteen villages to improve women's performance in traditional tasks. A poultry-raising program introduced improved breeds of chickens; and the introduction of cream separators enabled women to process milk in a time significantly shorter than the traditional method. Aklilu attributes the outcome of these projects not so much to the technologies themselves, but rather to the CEOSS field

agents' successful identification of local women with leadership potential long before the start of the project, and their subsequent involvement in training programs aimed at developing their leadership skills.

The second example is from Spring's work with the agricultural training of women to be farm home assistants and the planting of soybean trials in a farming systems program for women in Lilongwe, Malawi (Spring 1981, 1983; Kayuni 1982). Although refresher courses for farm home assistants previously emphasized only home economics topics, in August 1981 sixty participants were asked to change their image as "cake bakers" and become change agents who would deal with agriculture as well. As a result, the trainees asked for more courses on kitchen gardens, stall feeding, and dairying in addition to those on sewing, cooking, and nutrition.

The farming systems program for village women showed women farmers how to plant soybeans as well as cook them. Because 29 percent of Malawi households are female headed, and women wanted to grow soybeans for their nutritional value in milk and porridge, women-managed, on-farm trials were conducted to experiment with the spacing, plant population, inoculation of the seed with rhizobia, and fertilizer use on soybeans. It is interesting that the women farmers' enthusiasm for growing soybeans was sparked by a home economics course rather than an agricultural course. New crops can therefore be introduced by teaching women how to prepare and use them; home economics and agricultural courses are thus complements and not substitutes.

The third example of a successful project with women farmers is agronomist Fresco's (1982) work with women and cassava production in Zaire. Because 91 percent of agricultural production is the work of women and children and cassava porridge is the staple food, accounting for 75 percent of the daily calorie intake, she placed the on-farm variety trials on women's fields with their help (Fresco 1982: 11-12). The result was that women farmers could immediately undertake the multiplication of high-yielding stalks. In addition, the leadership skills of some of the women farmers were recognized, and the women were trained to be paraprofessional extension agents, capable of assisting their friends and neighbors in applying the new techniques of cassava production.

International Donor Agencies

Is there any evidence that these fundamental insights about African production systems are being taken into account by international planners and programmers?³ In 1973 Congress mandated that the U.S. Agency for International Development (AID) move in New Directions toward a more equitable development strategy that meets basic human needs of the rural majority. Along with those changes came a congressional mandate that

same year to "integrate women in development." Sponsored by Senator Charles Percy, it was called the Percy Amendment. A Women in Development (WID) office was established in AID's policy bureau, and WID officers were appointed in regional bureaus and AID field missions in developing countries. AID's Policy Determination No. 60, enacted in 1974, specified that strategies to include women must be part of every project, but this shriveled into a required "woman-impact statement" in every project design.

Some of the research findings, such as those analyzed in the previous sections, made their way into AID through the WID resource center and through land-grant university faculty with whom AID has close research and contractual relationships. But those parts of the agency that process new knowledge, especially the policy and technical bureaus, absorbed and disseminated this information only selectively. In terms of AID agricultural policy and total agency spending, the extent to which knowledge was utilized is addressed below.

It is important to note that knowledge utilization is problematic for AID and any other bureaucracy. This is especially true for studies that come in separate "women's studies" form. Even when attention is given to women in mainstream studies, it is not always linked to policy making in meaningful ways. For example, a 1967 study sponsored by the World Bank noted that extension officers neglected women farmers and their incentives for increased productivity (de Wilde), and another in 1975 criticized project designs for pushing women agricultural producers into home economics (Lele 1975: 77). In addition, a 1978 World Bank internal evaluation of sub-Saharan African development projects judged three projects as failures due to the fact that they paid no attention to women producers. However, a widely disseminated World Bank extension model, known as the "training and visit system" (Benor and Harrison 1977) is oblivious to women farmers or even the euphemistic term *family labor*; its monitoring and evaluation system contains no provisions for examining change among women managers and laborers (Cernea and Tepping 1977).

Agriculture is the prime development sector within AID, accounting for slightly more than half of all development assistance since the late 1970s. The 1978 *Agricultural Policy Paper* recognizes and supports women agricultural producers. It recommends that women's skills and productivity be improved and that new initiatives be developed to increase women's participation as trainees, members of recipient organizations, and technicians at all levels of project implementation. Even the picture on the cover of this document, if only visual and symbolic, shows a woman farmer examining grain. Agricultural policy on women thus conforms with WID policy, which aims to increase women's opportunities, participation, productivity, and income-earning activities.

Despite the policy rhetoric, if women are included in projects, the projects are typically associated with a home economics unit. Sparsely staffed and underfunded when compared with agricultural extension, they are also laden with many responsibilities, only some of which relate to agriculture. Although project rhetoric also refers to small farm families, a largely male project staff will most probably direct inputs to a male clientele.

In order to support this argument, AID agricultural program design documents were analyzed to determine whether or not they specified strategies to reach women. Short of costly observations and interviews in the field, agency documents are the only means available for researchers, agency staff, and congressional staff to measure policy conformance. Documents acquire life and permanence in bureaucratic activity and memory, acting as benchmarks against which to compare actual practice. AID's top-heavy design process locks implementation into specific activities and budgets. If women are to be included, activities should be written into project designs rather than emerge unexpectedly in implementation.

Two sources permit a comparison between agricultural projects from the time of both the New Directions and WID policies and a prediction of future agricultural activities. A printout on agricultural extension and credit was compared with project narratives in Annex VI, "Agriculture, Rural Development and Nutrition," (AID's *Congressional Presentation FY 1980*), for attention given to women. The first source—from an AID retrieval service started in 1974—records completed and on-going projects. The second source contains a preview of dominant thinking with proposals to Congress, and (see Table 2) for all four of AID's regions, projects mentioning women number less than 10 percent. Moreover, the content of these strategies emphasizes maternal and child health, family planning, and other domestic or welfare activities such as household management, food preparation, and sewing; only rarely are

Table 2.—AID Agricultural Projects with Attention to Women

Region	1970s Baseline ^a (%)	Future projections ^b (%)
Latin America/ Caribbean	5	5
Asia	9	6
Africa	10	7
Sahel Development Program	—	9
Near East	—	7

^aReconstructed from AID agricultural extension and credit project printouts.

^bReconstructed from AID *Congressional Presentation FY 1980*, Annex VI, Agriculture, Rural Development and Nutrition.

training, gardening, and production highlighted. When the target clientele is specified—in 10 percent, or less, of these projects—the goals specify 20–25 percent female participation.⁴

Lest there is doubt about a focus on AID's design documents, what do AID field mission staff report, from the bottom up, about project funding on WID activities? The AID field staff, which monitors project implementation, is periodically asked to report on funding to AID/Washington for quarterly reports to Congress. Such numbers cover more than just agriculture and include population, education, health, and other programs. In 1980 the mission staff reported WID activity totaling 2 percent of AID's development assistance budget, while in 1982 the figure jumped to 4 percent (WID Report to Congress 1980: 236; 1982: 387).

It appears that women are included in only a marginal proportion of AID agricultural programs, and when they are included, only a fifth to a quarter of the participants are expected to be women. It is also surprising that the percentage is uniformly small among regions of the world, particularly in Africa, where women participate so actively in agriculture. A decade after the mandates, little change has occurred or is predicted to occur that can be expected to transform project planning and implementation in ways that address the realities of food production in Africa.

Conclusion

A lack of awareness of the multiple roles of African women as food producers and reproducers of human capital has contributed to Africa's impending food crisis. Policy planners concerned with the crisis must therefore provide agricultural inputs, technology, credit, and extension advice to women farmers if they participate actively in agriculture. Project funding or inputs that go only to the male household head whose main product is a cash crop will not improve yields of food crops or help alleviate a food crisis.

Given that women farmers must be incorporated into development projects aimed at solving food problems, the question that remains to be answered is: how? We recommend a variety of solutions whose applicability depends, of course, on local conditions and cultural traditions. The most obvious step would be for international donor agencies to include these issues in policy dialogue and then to channel assistance to agricultural projects that target women farmers, who should then be incorporated as producers in farming systems programs with full access to agricultural inputs (Fresco 1982; Spring 1983; Norman et al. 1982). Ideally, women farmers would participate in the design stage of the technology and not just the evaluation stage, so that both the agro-climatic and institutional constraints limiting their adoption might be alleviated (or at least understood) at

the start of the project. To facilitate their participation, women extension agents who are sensitive to the needs of rural women and have access to them should be given both agricultural training and pay incentives and should be integrated into the agricultural extension service. Male agricultural agents should be similarly encouraged to work directly with women farmers. To optimize communication, local women with leadership potential should be identified and given training programs to develop their skills and work as paraprofessional agricultural agents. National governments should give support to women's organizations and provide them with management training and production inputs. Through a variety of ways women farmers can be given access to basic agricultural inputs, capital, markets, and the political arena. With the appropriate incentives they will adopt appropriate technology and increase yields of their food and cash crops. Although they too are concerned about their increasing work load with modernization, population growth, and the penetration of the cash economy (Bay 1982: 3; Langley 1981), they should be encouraged because—like Eicher—they are far more concerned about the current lack of a reliable food surplus in Africa.

NOTES

1. Both the World Bank report and the Eicher article—otherwise excellent analyses of the food crisis—have only one sentence mentioning the importance of women to food production in Africa. Berg et al. (1982: 75) write: "More emphasis should now be placed on measures that increase labor productivity, in particular use of farm implements, ox drawn cultivation, use of cereals processing equipment (winnowers, threshers), and equipment aimed at reducing the labor input of women's tasks (mills, improved water supply)."

According to Eicher (1982: 173), "Just as the roles of women in African development cannot be analyzed in isolation from those of men, the role of the private sector can only be analyzed in relation to public investment."

2. The figures represent a weighted average over the aggregated labor data for each household in the sample. The study uses the Volta Valley Authority (AVV) system of labor equivalents. Each recorded hour for a female between the ages of 15 and 55 is counted as 0.75 of the standard "man hour"; a man between 15 and 55 is counted as 1.0; a man over 55 as 0.50; a woman over 55 as 0.25; a boy between 12 and 15 as 0.50; a girl between 12 and 15 as 0.25; and children under 12 as 0. For a justification of the procedure of weighting labor hours, see Collinson (1972: 200–202) and Delgado (1979: 87–100).

3. This section is based on Staudt's year-long work, under the Intergovernmental Personnel Act, as social science analyst program officer in the Women in Development (WID) office, AID, 1979. Selections are drawn from her *Women, Foreign Assistance, and Advocacy Administration* (New York: Praeger, 1984).

4. Three other sources were also examined, including a 1978 report, "Development Information and Integrated Rural Development," AID's Office of Agriculture *Annual Budget Submission*, and "Agricultural Sector Program Identification and Classification," a forecast of agricultural assistance through 1985. But strategies to include women are in all cases less than those shown in Table 2.

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