

PN-AY-339

ISN 52409

GENDER ISSUES IN A.I.D.'S AGRICULTURAL PROJECTS:
HOW EFFICIENT ARE WE?

A Study of the Lessons Learned in Implementation of
A.I.D.'s Women in Development Policy in
West and North Africa, the Near East, and Asia

A.I.D. WORKING PAPER NO. 85

by

Kathleen Cloud
University of Illinois
Office of International Agriculture

U.S. Agency for International Development

April 1987

The views and interpretations expressed in this report are those of the author and should not be attributed to the Agency for International Development.

TABLE OF CONTENTS

	<u>Page</u>
Summary	v
Glossary	viii
1. Introduction	1
2. The Relationship Between Women and Agricultural Development	1
3. Women's Access to Resources and the Achievement of Project Goals	4
4. The Gender Pattern of Access to Project Resources	10
5. Factors Associated With Women's Access to Project Resources	16
5.1 The Relationship Between Information on Women's Roles and Women's Access to Project Resources	16
5.2 The Relationship Between Project Design Issues and Women's Access to Project Resources	16
5.3 Gender Adaptation of the Mandate and Standard Operating Procedures of Implementing Institutions..	19
6. Project Differences by Regional Bureau	21
6.1 West Africa	21
6.2 North Africa and the Middle East	22
6.3 Asia	23
7. Conclusions	23
8. Recommendations	25
Appendix. Project Case Studies	
Bibliography	

SUMMARY

This report examines data on 22 agricultural projects of the Agency for International Development (A.I.D.) that were implemented between 1975 and 1985: 12 from West Africa, 3 from North Africa and the Middle East, and 7 from Asia. The report seeks to answer the following questions:

- What is the relationship between women's access to project resources and the achievement of project goals?
- Did women receive project resources in proportions that maximized both equity and efficiency?
- What factors in project design and implementation influenced the flow of resources to women?
- To what degree did strategy and outcome differ by A.I.D. regional bureau?

Eighteen of 22 project files contained clear evidence that women were deeply involved in agriculture in project areas. A strong positive relationship was found between women's access to project resources and the achievement of project goals (see Section 3). Nevertheless, women received lower levels of resource than did men and received them in fewer projects (see Section 4). Training was the most commonly shared resource: women received training in 5 projects, men in 14. Women's access to technical assistance, credit, and rural labor markets was even more limited.

The most useful lessons that emerged from this evaluation of agricultural projects are that gender analysis of the targeted system is important and that such analysis must be accompanied by gender adaptation of technical packages, delivery systems, and institutional arrangements if women are to gain access to productivity-increasing resources (see Section 5). Among the elements that may need to be adapted are the gender composition and training of staff; the requirements for access to such project resources as credit, technology, and training; the location and timing of service delivery; and the incentive structures for staff and beneficiaries.

Project documents that included a discussion of women's roles in agricultural production and that related these activities to project goals were associated with projects that targeted resources to women. Shorter, less complete discussions were characteristic of projects that did not do so. Documents on projects that did not target by gender had very little

description of gender issues relating to implementation, but some, particularly on projects in the Near East, discuss the issue again in the summative evaluation. The presence of gender analysis in planning documents seemed to reduce, but not eliminate, the tendency to overlook women's need for productivity-increasing resources.

Targeting resources to women was associated with evidence that they gained access to resources, although it did not guarantee access. As noted below, the local context was sometimes powerful enough to influence the flow of resources toward women even when they were not targeted by the project.

Influence of AID and contractor female staff was most pronounced in Africa, where they were involved in all project phases although not on all projects. Unlike their male colleagues, expatriate women responsible for women-in-development technical assistance were overwhelmingly local hire with no institutional backup. This seriously reduced their access to knowledge of lessons learned elsewhere and their ability to pass on what they learned. In the Near East Bureau projects, expatriate women were visible only in project evaluations, and their recommendations for more attention to women were not implemented. In the Asia Bureau projects, it is hard to find any indication that women participated at all on the donor side, although several documents note the presence of large numbers of host country professional women.

Although there was no indication in project documents that professional or paraprofessional host country women were hired by A.I.D. in Asia and the Near East, African professional and paraprofessional women were employed on six A.I.D. projects, and their presence was associated with efforts to deliver resources to women farmers. Female staff training needs were as great as those of their male colleagues but were not as well met.

The local context--cultural, economic, political, and institutional--also had major influence on women's access to resources. It is clear that contextual constraints to access differ by region, and it is reasonable to assume that solutions will also differ.

There are striking differences in the strategies of the three A.I.D. regional bureaus, both in their perception of women's agricultural roles and the projects' relationship to them (Section 6). Of the three regions, only the Africa Bureau specifically recognized women's roles and resources by gender. The Near East Bureau addressed the issue of women's roles

briefly in social science annexes and in evaluations. With few exceptions, the Asia Bureau ignored the issue entirely except for occasional passing remarks.

Given the difficulty involved, is it worthwhile to try to deliver agricultural resources to women? This paper provides a strong empirical argument for doing so, on the basis of efficiency alone. Forty-three agricultural projects were evaluated (22 in this paper and 21 in another document--Fortmann 1985). The projects were randomly selected from the total universe of A.I.D.'s agricultural projects over a 10-year period. Because a statistical analysis of the relationship between women's access to project resources and achievement of project goals is positively significant at the .001 level, it is possible to say that when women's access to resources is high, agricultural project success is high and, conversely, when women's access is low, agricultural project success tends to be moderate or low.

Causality runs in both directions. Efficiently designed and managed projects are better able to deliver resources to women, and projects that deliver appropriate resources to women are generally more successful projects.

The strength of the interaction between female farmers' access to project resources and achievement of project goals is largely a result of the importance of women's management and labor in the targeted agricultural activities. Ignoring women's roles can lead to reduced labor inputs, increased learning time for new production techniques, and loss of producer feedback, all of which reduce project success. Attention to gender roles can reduce production bottlenecks, increase willingness to adopt new practices, assist in the successful transfer of technology, and facilitate crop diversification.

The reasons for these findings are discussed more fully below, but the basic finding is clear: both equity and efficiency are best served by recognizing the roles of women and men in agricultural systems and by designing realistic ways of providing them with productivity-increasing resources.

GLOSSARY

- A.I.D. - Agency for International Development
- JRV - Jordan River Valley
- ORDs - Rural Development Offices
- PASA - Participating Agency Service Agreement
- PBDAC - Egyptian Bank for Development and Agricultural Credit
- PVO - private voluntary organizations
- RDEU - Rural Domestic Economic Unit
- USDA - U.S. Department of Agriculture
- UV - Upper Volta
- WID - Women in Development

1. INTRODUCTION

This report examines the gender equity and efficiency of 22 A.I.D. agricultural projects that were implemented in West and North Africa, Asia, and the Near East between 1975 and 1985. The report is designed to test the argument of A.I.D.'s Women in Development Policy Paper that ignoring women's economic activities is inefficient because it leads to wasted resources and diminished returns on investment. It also provides a synthesis of the lessons learned during the 10-year effort to implement the Congressional mandate for the integration of women into developing agricultural economies.

To ensure a reliable and comprehensive picture of implementation, 43 agricultural projects were randomly selected from all projects in A.I.D.'s computerized data system that had any mention of women's roles in agriculture. The sample was then divided geographically. This paper examines 22 of these projects: 12 from West Africa, 3 from North Africa and the Middle East, and 7 from Asia. (Another document analyzes 21 projects in Eastern and Southern Africa and in Latin America and the Caribbean.) Agency documents, interviews, previous visits by the author to project areas, and two onsite project case studies were used to contribute to the analysis of the projects. An analytic case study was written for each project (see Appendix). Goals, delivery systems, and outcomes were then categorized and analyzed to assess project equity and efficiency (see Tables 1, 2, and 5).

After a brief discussion of women's agricultural roles, the report discusses the possible causes for the strong relationship found between women's access to project resources and project success. This is followed by a discussion of the patterns of project resources actually received by women, and the project design and implementation factors that affect the flow of resources to women. The importance of gender adaptation of standard operating procedures of implementing agencies is also discussed. Differences in approach among A.I.D.'s regional bureaus are noted, and, finally, recommendations are made to improve Agency practice.

2. THE RELATIONSHIP BETWEEN WOMEN AND AGRICULTURAL DEVELOPMENT

Increasing agricultural productivity has high priority for developing country governments, not only because larger amounts of reasonably priced food are necessary to feed expanding populations, but because a thriving agricultural sector provides capital and markets important to the development of other

economic sectors (Mellor 1966). To increase production, choices must be made about the proportion of resources to be invested in physical capital, such as roads, irrigation, and biological technologies, and the proportion committed to strengthening human capital through investments in health, education, nutrition, and family planning. Such choices depend on an understanding of the relative contribution of specific investments to the desired pattern of growth.

Ironically, emphasis on economic growth has often reduced women's claims on national resources because of a tendency to consider only women's social roles. Consequently, women have been cast as beneficiaries rather than agents of development, thus providing only equity arguments for their access to resources. Yet women play important roles in agricultural production and the generation of family income as well as in the creation and maintenance of human capital. Changes in women's behavior are central to the structural transformation of agriculture. This evaluation will explore the degree to which data from these agricultural projects support efficiency arguments for women's claim on development resources.

The past decade has witnessed an explosion of micro-studies documenting the range and importance of women's agricultural activities (Cloud 1985). These are complemented by the re-analysis of three types of census data to produce more reliable estimates of women's participation in the agricultural labor force of 82 developing countries (Dixon 1983). The proportion of women in the agricultural labor force of the 82 countries is 42 percent; for Sub-Saharan Africa, the regional total is 46 percent; for North Africa and the Middle East, 31 percent; and for Asia, 45 percent. There are, of course, important differences within regions and, indeed, within countries.

Recent economic models of farm resource allocation have also made women's productive work more visible by enlarging the definition of farm production to include household and human capital production and by viewing women's time as a resource that is rationally allocated among competing activities (Strauss 1984).

The picture that emerges from current micro- and macro-data sets is not a complete description of women's agricultural work, but generalizations can be made with increasing confidence. In addition to the substantial numbers of women documented in national agricultural labor force data, many other women and girls work as unpaid family laborers; many are involved primarily in production of family food supply, while others work intensively in the fields only during the peak labor season. Many girls between the ages of 10 and 15 perform substantial amounts of agricultural labor, particularly in North Africa and

the Middle East. Finally, for many women, their work in agriculture is subsidiary to their other responsibilities, so they must make constant tradeoffs between agriculture and their other responsibilities in allocating labor time and other productive resources .

Because productivity is related to management decisions, it is important to understand not only who is doing the work but also who is making decisions about cropping patterns, seed selection, use of purchased inputs and family labor, and crop disposal. It is also important to understand who is implementing the decisions, with what resources, and at what level of skills. In describing gender responsibilities, five patterns can be observed.

1. Separate Crops. Men and women are responsible for production and disposal of different crops. Women are often responsible for the livestock, vegetables, and tree crops near their dwellings.
2. Separate Fields. Women and men produce the same crops, but in different fields. This pattern is common in West Africa, where private fields are part of a larger system in which both men and women also contribute their labor to communal fields. In such cases, there may be three interlocking systems: fields worked by each wife, fields worked by the husband, and fields worked by the extended family.
3. Separate Tasks. In this pattern, some or all of the tasks within a cropping cycle are assigned by gender. For example, rice transplanting is often carried out by women, plowing by men.
4. Shared Tasks. In this pattern, which overlaps other patterns, men and women undertake the same tasks on the same crops. In some systems, most tasks are shared; in others, only labor-intensive tasks, such as weeding and harvesting, are shared.
5. Woman-Managed Farms. There are two types of woman-managed farms, de facto and de jure. In de facto systems, men work away from the farm for days, months, or even years, leaving the women to manage them. De jure woman-headed households appear to be increasing on a worldwide basis, representing up to one-third of the households in some rural communities (Buvinic et al. 1979). The women may be widowed, divorced, abandoned, or never married. They tend to be among the poorest farming households, yet many depend on them for survival.

In patterns of separate crops and separate fields, women are likely to be responsible for the management, labor, and disposition of production, thus effectively controlling these cropping enterprises. Often the produce is primarily for household consumption, but there may be significant surplus for sale. Labor exchange is common in these systems, paid labor less so. In patterns of shared and separate tasks, women's labor may be either unpaid family labor or paid wage labor. Nonadjusted female shares of national agricultural labor forces range from 30 to 50 percent, much of which is wage labor (Dixon 1982). In India, for example, according to the 1971 census there were 31 million women in the paid labor force, of which 81 percent were involved in agriculture.

In woman-managed production systems, women are more likely to control the proceeds and usually provide most of the labor, although they may also hire labor or supervise the work of younger men.

Most farms display mixed patterns of responsibility and control, combining production cycles for which one gender is primarily responsible with those in which responsibility is shared or interlaced. In these systems there are often both pooled and nonpooled resources, such as land and animals, and pooled and nonpooled income streams resulting from the use of these resources. Household decision-making patterns are complex, subtle, and not yet well understood. It is clear that they differ from system to system and that differences arise to a large degree from the gender patterns of resource control, as well as the division of labor. Knowledge of local gender patterns of resource control, management responsibility, and labor is crucial because they have important effects on project implementation and the attainment of project goals.

3. WOMEN'S ACCESS TO PROJECT RESOURCES AND THE ACHIEVEMENT OF PROJECT GOALS

To accomplish project goals, new resources such as technology, training, credit, commodities, and technical assistance are introduced into existing systems. It is clear from reading the histories of these 22 projects that some resource allocation decisions have been more efficient than others in increasing production and income; that is, some investment decisions have had better payoffs than others. Allocative efficiency consists of choosing and investing resources to achieve the highest possible value of returns to resources committed. Management efficiency consists of maximizing returns to the investments chosen through sound management. Project efficiency is the combination of

well-chosen, well-managed investments to maximize progress toward project goals (World Bank 1983).

Three goals appear repeatedly in the 22 sample projects: (1) increasing agricultural production, (2) increasing rural incomes, and (3) improving the quality of life (see Table 1). It is reasonable to assume that these increases in production, income, and quality of life were intended for both sexes when both men and women were engaged in the activities targeted for improvement. Here, implementation of A.I.D.'s women-in-development policy consists principally of ensuring that women share in the new resources and higher returns to labor for activities in which they are already engaged. To do this effectively, it is necessary to understand the gender roles and responsibilities within local systems and to address them realistically in project design and implementation.

The projects reviewed had varying degrees of success in achieving their goals. The evaluations contained in project documents indicate that achievement of project goals was judged high in 6 projects, likely in 2, mixed or moderate in 7, low in 4, and unknown in 3 (see Table 2). It is clear that some agricultural projects were successful without explicit attention to gender, but in many projects ignoring the productive roles of women reduced project efficiency, thus reducing project success. Whenever women were major actors in targeted activities, attention to women's roles was important for the efficient achievement of project goals. By examining projects in terms of their stated goals and relative success in achieving them, it is possible to see, in concrete terms, how gender interacts with project effectiveness.

The relationship between women's access to project resources and project success is very strong across all agricultural projects. Table 3 displays the patterns of findings for this sample in a matrix that indicates the close relationship between success in achievement of project objectives and benefits to women. The chi-square correlation is significant at .0167. Table 4 displays the combined findings for the 38 projects in agriculture for which there was sufficient data to assess the relationship between benefits to women and project success. Because a chi-square analysis of these data is statistically significant at a probability of .001, it can be said that when women's access to resources is high, project success is high and when women's participation is low, agricultural project success tends to be moderate or low.

A project-by-project examination of the sources of this relationship shows that causality runs in both directions. Efficiently designed and managed projects are better able to deliver resources to women, and projects that deliver

PROJECT
GOALS

Table 1

COUNTRY	BUREAU	FY	TITLE	GOAL	DOCUMENTS REVIEWED				
					D	E	I	O	C
Upper Volta	Africa	76-80	Upper Volta Village Livestock	Improved quality of life through range management/animal health	X	X	X	X	X
Mali	Africa	76-83	Mali Crop Production	Increase productivity and commercialization of cereal crops	X	X	X	X	X
Cameroon	Africa	76-83	Cameroon Seed Multiplication	Increased yields, sorghum, peanuts, improved nutrition, rural income	X	X	X		
Upper Volta	Africa	77-82	U.V. Women's Roles in Development	Improve social and economic well being of rural villagers	X	X	X	X	X
Cameroon	Africa	77-82	Young Farm Family Training Center	Increased food production, reduced regional income differences	X				
Mauritania	Africa	77-83	Mauritania Rural Development	Expansion of domestic food production, productivity, consumption	X	X	X	X	X
Mali	Africa	78-83	Mali Operation Haute Vallée	Increase and commercialize food production, improve quality of life	X	X	X		
Upper Volta	Africa	78-84	Training of Women in the Sahel	Increased economic and social opportunities for Sahelians, especially women	X	X	X		
Niger	Africa	78-85	Luthern World Relief-Niger sub-p	Help drought victims become self-supporting agriculturalists					X
Cameroon	Africa	79-82	National Planning for Community Development	To increase income, productivity and welfare of rural populations	X			X	
Cape Verde	Africa	79-85	Cape Verde Water Management	Rural employment, increase agricultural and household water, conservation	X			X	
Niger	Africa	80-85	Naimey Department Development II	Self-sufficiency in food production, improved rural living standard	X	X		X	
Nepal	Asia	74-84	Institute of Agriculture and Animal Science	Institute expanded / improved to provide training for several roles	X	X	X		
Sri Lanka	Asia	77-82	Mahaweli Irrigation / Water Management	Increased food production, water productivity, standard of living	X	X			X
Thailand	Asia	79-84	North East Land Settlement	To improve quality of life of the rural poor	X	X			
Thailand	Asia	81-84	Thailand Agricultural Planning	Strengthen planning, analytic capability of Office of Agricultural Economics	X				
Thailand	Asia	81-88	North East Rainfed Agriculture	Increased agricultural productivity and farm incomes, particularly poor farms	X	X		X	X
Thailand	Asia	82-87	Thailand Seed Development II	Increasing farm use of quality seed / strengthening private sections	X				
Burma	Asia	82-88	Burma Maize and Oilseed Production	Increase production of maize / oilseeds, increased income, nutrition	X	X			
Jordan	Near East	73-80	Jordan River Valley Development	Increase agricultural production and quality of life in JRV					X
Tunisia	Near East	76-83	Livestock Feed Production	Develop GOT capability to reach small livestock farmer	X	X	X		
Egypt	Near East	79-85	Egypt Small Farmer Production	Increased small farm productivity, income and employment	X	X	X		

PROJECT
STRUCTURE

Table 2

TITLE	WID TYPE	U.S. EXECUTING ORGANIZATIONS	DELIVERY SYSTEM	WOMEN STAFF *other donors	PROJECT SUCCESS	BENEFITS TO WOMEN
Upper Volta Village Livestock	Integrated	Title XII, Peace Corps	Village councils, extension, researchers	1 U.S. professional, 3 months during implementation	Mixed, moderate	Low
Mali Crop Production	Integrated	AID	Operation staff and sub-contractors	Unknown	Low	Unclear probably low
Cameroon Seed Multiplication	Integrated	Contractor PVO	Extension, local organizations, radio	No	Mixed	Unknown
U.V. Women's Roles in Development	WID	AID direct hire	Women's extension and district government	Professional and para- professional, AID and GUV	Low	Low
Young Farm Family Training Center	Component	AID direct hire	Centers, extension	1 professional, 4 paraprofessional	Unknown	Unknown
Mauritania Rural Development	Component	Contractor	Extension and community groups	1 AID, 1 GOM professional, 6 paraprofessionals	High	Moderate
Mali Operation Haute Vallee	Integrated	AID, Peace Corps	Operator, Haute Vallee	Unknown	Low	Unclear probably low
U.V.-Training of Women in the Sahel	WID	AID direct hire	Village organizations, extension, training center	U.S. anthropologist, GUV paraprofessionals	Low implementation	Low
Lutheran World Relief-Niger sub-p	Integrated	PVO	Unknown	GON professionals, Peace Corp, Nigerian volunteers	High	Unclear, probably high
National Planning for Community Development	Integrated	Contractor	Training, meetings with local organizations, government	U.S. and GOC professionals, GOC paraprofessionals	Mixed, moderate	Mixed, process high outcome low
Cape Verde Water Management	Integrated	USDA-PASA	Local political party and government	Unknown	Generally high, mix	High
Naimy Department Development II	Component	AID, Peace Corps	Extension, local organizations, coops, centers	US/GON professionals, GON paraprofessionals and volunteers	Likely	Likely
Institute of Agriculture and Animal Science	Integrated	Title XII	Agriculture school, experiment station, extension	Unknown, probably low	Moderate, mixed	Low
Mahaweli Irrigation Water Management	Integrated	Contractor Title XII	Coops, extension, local organizations, Mahaweli Authority	*CD staff *secretaries, *volunteers	Moderate, slow	Likely
Thai North East Land Settlement	Integrated	AID, Peace Corps	Extension, newly formed local organizations, contractors	Unknown	Moderate, mixed	Low
Thailand Agricultural Planning	Integrated	AID consultants	Professional training and technical assistance	GOT 45%, U.S. unknown	Likely	Likely
Thai North East Rainfed Agriculture	Integrated	Title XII, Peace Corps	Extension, media, local organizations, demonstration farms	US/none GOT-office staff	Mixed too soon	Low
Thailand Seed Development II	Integrated	Title XII, Contractor	Extension, media, industry, public/ private committees	Unknown	Unknown too soon	Unknown
Burma Maize and Oilseed Production	Integrated	Title XII	New extension structure, media, local government, party	Unknown, GOB probably high	Unknown too soon	Unknown
Jordan River Valley Development	Integrated	Contractors	Private sector, local government coops, extension, school	Unknown	High	Mixed, some high
Livestock Feed Production	Integrated	USDA-PASA	Extension, local government, personnel training	GOT "some" extension agents	High	Low
Egypt Small Farmer Production	Integrated	USAID	Village banks, extension, demonstration farmers	8.5% bank staff, extension unknown	High	Mixed unclear

Table 3. Benefits to Women as a Factor in Project Success
(sample: n = 22 projects, 18 with information)

Benefits ^a to Women	Success in Achieving Project Objectives			
	High/ Likely	Moderate	Low/ Unlikely	Total
High/Likely	5	0	0	5
Moderate/Mixed	2	2	0	4
Low/Unlikely	1	4	4	9
Total	8	6	4	18

^a"Benefits to women" is defined as women's access to project resources.

Table 4. Benefits to Women as a Factor in Project Success
(agricultural sector: n = 43 projects, 38 with information)

Benefits ^a to Women	Success in Achieving Project Objectives			
	High/ Likely	Moderate	Low/ Unlikely	Total
High/Likely	8	0	0	8
Moderate/Mixed	5	5	1	11
Low/Unlikely	5	8	9	19
Total	15	13	11	38

^a"Benefits to women" is defined as women's access to project resources.

Source: Carloni (1985, 33).

appropriate resources to women are generally more successful projects.

The strength of the relationship between woman farmers' access to project resources and project success is largely derived from the importance of women's management and labor in many of the targeted agricultural activities. Labor inputs of men and women in farm households are not perfectly substitutable. The opportunity cost of women's additional labor is often high, and, therefore, her returns to labor will influence the amount and timing of labor she commits to project-related innovations. If the increased labor demand comes when women's labor is already overtaxed, the innovation may not be adopted, or may be executed poorly. Such effects are particularly clear in the Thai Rainfed Agriculture project in this sample, and in the Malawi and Caribbean projects in the other sample. By contrast, the Cape Verde Water project, the Arid and Semi-Arid Lands project in Kenya, and several Latin American projects that took account of the timing of women's labor, and had attractive incentive structures, were successful largely because they were able to mobilize women's labor.

Many of the projects addressed production of secondary crops that were traditionally managed by women: poultry production was targeted in Upper Volta (now Burkina Faso), Egypt, Mahaweli, and the Thailand Northeast Rainfed Agriculture project, vegetable and fruit production in Mahaweli, Mauritania, Thailand, and Upper Volta. Nevertheless, few of these projects targeted women to receive productivity-increasing inputs, and even fewer were able to deliver such resources to women for these cropping enterprises. By and large, the inputs and resources were delivered to male members of the households.

Such patterns of resource allocation have several effects. By directing resources to people who are less familiar with production, learning time and costs for mastering the new technology are increased. This effect seems to be present in Egypt, Northeast Thailand, Upper Volta, and several of the projects from the other sample. In the Mauritania, Egypt, and Northeastern Thailand projects, feedback from knowledgeable producers, which could have been used to improve technical packages, was lost. Each of these effects--reduced labor inputs, increased learning time, and loss of producer feedback--reduced the chances of project success in achieving its goals.

By contrast, the Mahaweli project and several Latin American micro-projects in the other sample delivered resources to women for their own cropping enterprises and were able to capitalize on the knowledge already in the system and hence were able to increase production more efficiently.

The evaluation summary (Carloni 1987) concluded that in the agriculture sector, attention to gender can reduce bottlenecks in production, increase willingness to adopt new practices, assist in successful transfer of technology, and facilitate crop diversification. For a number of projects, increasing the equity of women's access to project resources would have substantially increased the projects' ability to achieve these goals; alternatively, improving the efficiency of several projects targeting resources to women would have improved the equity of their impact.

The six projects in this sample in which women's access to resources was judged high (Cape Verde, Lutheran World Relief), mixed/high (Jordan), or mixed/likely (Naimy, Thailand Agricultural Planning, Mahaweli) were also judged generally successful or potentially successful. Only in the livestock project in Tunisia was project success rated high while women's access to resources was rated low. Two out of three of the projects in which resources targeted to women did not reach them (the Upper Volta women-in-development projects) were ineffective projects. Only in Mauritania was a women-in-development component unsuccessful while the rest of the project succeeded, and in this project women gained some access to resources through general channels. The message seems clear: both equity and efficiency are served by projects that take explicit account of men's and women's roles in agricultural systems and that design realistic ways of providing them with productivity-increasing resources.

4. THE GENDER PATTERN OF ACCESS TO PROJECT RESOURCES

Given the finding that women's access to resources is related to project success, how well did women actually do in gaining access to appropriate resources?

Women were important actors in the agricultural activities being targeted in all sample projects, yet they received very few project resources. This reality reduced the effectiveness of a significant number of projects. Often women had major management responsibility for their own enterprises as well as for those of the household. Their resource constraints were the same as those of the men: difficulty in gaining access to capital, credit, technology, information, and training. Yet their difficulty of access was greater in every case, not only within traditional systems but also within the projects themselves. With few exceptions this was because project designs ignored women's economic roles or gave them low priority.

Yet the Foreign Assistance Act calls for preference to projects that are both equitable and efficient in their use of

resources. Therefore, for the purposes of this study, implementation of A.I.D.'s women-in-development policy was defined as delivery of economically productive project resources to women as well as to men in a manner that maximizes both equity and efficiency.

This concept of maximizing joint efficiency and equity is illustrated in Figure 1, which represents an agricultural system in which both men and women are engaged in productive activities targeted for project intervention. The vertical axis represents quantity of men's production; the horizontal, quantity of women's production. The wavy line represents the production possibility frontier; that is, the various combinations of production technically possible for a system to generate, using currently available resources. The closer production is to the frontier, the more efficient the farmers.

Because traditional farming systems are considered "poor, but efficient," we can assume that when the project begins, production is fairly close to the frontier. Thus we can locate total production at point A1. Q1 is the quantity produced by each population.

All other things being equal, allocative efficiency would be the principle used to decide how to divide project resources between the activities of women and men. Resources would be invested in each population up to the point where the combined value of their production was highest in relation to the cost of production. Value could be analyzed in terms of crop production, cash, or nutrition, depending on the goals of the project.

Whatever the economic efficiency of particular resource allocation decisions, equity would demand that neither men nor women be deprived of the resources to maintain current production and income. To satisfy this condition, resources should be invested to shift the production frontier outwards in the area of constrained efficiency between point A1 (current production), point x (all production growth to men's activities), and point y (all production growth to women's activities). Solutions outside this area would either increase productivity of one group at a cost to the other or decrease production in both. The objective in implementing A.I.D.'s women-in-development policy is achievement of the highest and most equitably distributed productivity gains attainable with the available resources. That goal is indicated as the point of constrained bliss (CB), which is the point of highest possible combined efficiency and equity (McMahon 1982). The projects are rated in terms of their approach to this point. Tables 2, 3, and 4, and the basis for the ratings they contain, are discussed in detail in the appendix.

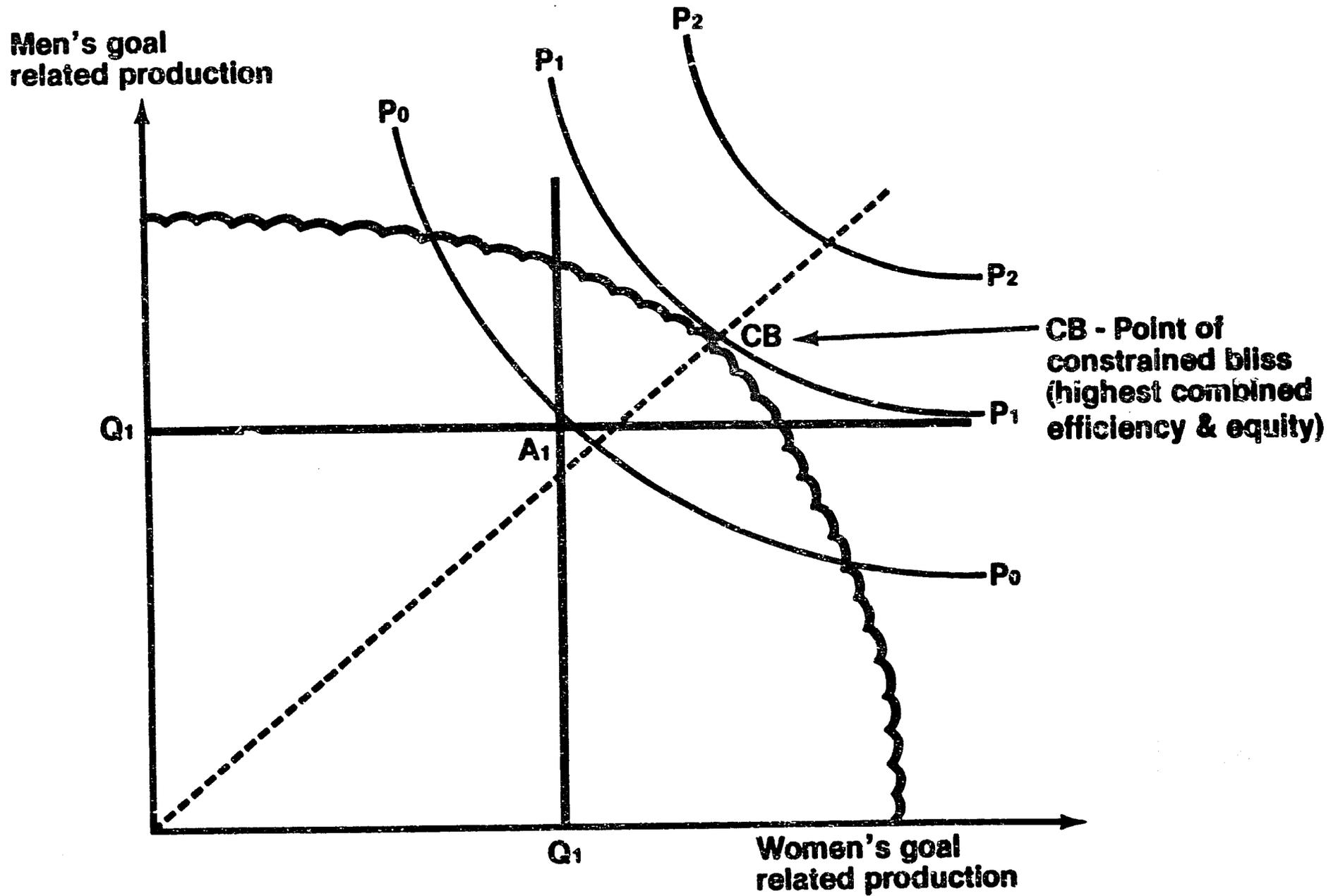


Figure 1 - Gender equity and efficiency in allocation of productive resources

Although quantitative information on actual resource flows is sketchy, project descriptions permit a general assessment of the types of resources reaching women, although often not the amounts. It is unambiguously clear that women received lower levels of resources and received them in fewer projects. As some measure of the difference in resource levels, in Niamey Production II, which was probably the most equitably designed and implemented of the projects, women were targeted to receive US\$50,000 in agricultural credit, men, US\$12 million.

In the 22 projects, women's access to resources was judged high, moderate, or likely in 9, while men had high or moderate access in 21. The gender patterns of resource flows displayed in Table 5, when tabulated by project, are presented in Table 6.

Training was the resource most often targeted to women, and several projects targeted training of more than one kind. In 4 projects, training was directed to women's household and human capital roles; in 6, to their agricultural roles; in 3, to their income-generating activities in the informal sector. In no case did women receive inappropriate training, but they could have used a great deal more than they received. This was true at the level of the farm household, where women in the Tunisia and Upper Volta projects needed information on poultry care; in the Cameroon and Thailand projects, where they needed more information about production of specific improved seed varieties; and in a number of farming systems, where they needed a range of production and management information. It was also true at the institutional level, where women received proportionately much less in-country and out-of-country training than men in the same institutions.

The same pattern is evident for technical assistance, with less information flowing to both farm women and professional women. Technology flows were even more constrained. In 3 out of 5 projects, the technology delivered was primarily for household production: household water and cookstoves in Niamey, Mauritania, and the Jordan Valley. Only in the Lutheran Niger project, and to a lesser extent in the Mahaweli and Mauritania vegetable production projects, do women appear to have received agricultural technologies for the crops they were producing. In the Thailand Northeast Rainfed Agriculture project, women received sericulture technology of limited value.

Women's access to land did not appear to be directly affected by any of the projects, except Mahaweli and perhaps the Thailand Resettlement project, in which registration of land titles was a government effort. In several projects women's title to land, or the lack of it, directly affected their ability to receive credit necessary to increase their agricultural productivity. Most Egyptian women were denied direct access to credit for improvement of their traditional

PROJECT
RESOURCE
FLOWS

Table 5

TITLE	PRODUCTION SECTORS	RESOURCES *other donors or GSL	TARGETED TO WOMEN *other donors or GSL	RECEIVED BY WOMEN *other donors or GSL
Upper Volta Village Livestock	Agriculture	Commodities, training, credit, technical assistance	None	Technical assistance, 6 roosters
Mali Crop Production	Agriculture	Commodities, technical assistance, training, credit	None	Unclear probably low
Cameroon Seed Multiplication	Agriculture	Seeds, training, technical assistance, credit	None	Unknown
U.V. Women's Roles in Development	Agriculture, household, and informal	Technology, credit training	Technology, credit, training, technical assistance	Credit, technical assistance, training
Young Farm Family Training Center	Agriculture, household, human capital	Equipment, personnel, buildings, training	Training	Training
Mauritania Rural Development	Agriculture	Agriculture, livestock, tree inputs, credit, training, technology	Agriculture, and tree crop, credit, training technology	Agricultural inputs, training, technology
Mali Operation Haute Vallée	Agriculture, household, human capital	Training, commodities, credit clinics roads research	None	Unclear probably low
U.V. Training of Women in the Sahel	Agriculture, informal, household, human capital	Training, credit, technology, commodities	Training, credit, technology, commodities	Training, technical assistance
Lutheran World Relief-Niger Sub-Project	Agriculture, household, human capital	Commodities, technical assistance, training	Unknown	Training, agricultural inputs, technology
National Planning Community Development	Human capital	Training, technical assistance, commodities	Training, technical assistance	Training, technical assistance
Cape Verde Water Management	Agriculture, household, wages	Training, technical assistance, wages, tree seedlings	Wages	Wages, tree seedlings
Naimey Department Development II	Agriculture, human capital, household, informal	Training, technology, credit, training centers	Training, technology, credit, training centers	Training, technology training centers-technical assistance
Institute of Agriculture and Animal Science	Agriculture, human capital	Training, technical assistance, commodities, dorms	Training, a dormatory	Training, a house trailer
Manaweli Irrigation / Water Management	Agriculture, human capital, household	Technical assistance, *land, *seed, tools, building materials, *credit, *irrigation water	*2 maternity wards, *ag. extension training, ag. & CD staff jobs	*Agricultural credit, *land, *health, ag. & income generation training
Thai North East Land Settlement	Agriculture, household	Technical assistance, training, roads, ponds, tanks	None	Low, water failed
Thailand Agricultural Planning	Agriculture, human capital	Technical assistance, training	"Some" training	"Some" training
Thai North East Rainfed Agriculture	Agriculture	Training, technical assistance, plants, seeds, fish	None	Sericulture training
Thailand Seed Development II	Agriculture	Commodities, technical assistance, training, credit	None	Unknown
Burma Maize and Oilseed Production	Agriculture, employment	Commodities, technical assistance, training, machinery	Unknown	Unknown
Jordan River Valley Development	Agriculture, human capital, household, employment	Dams, roads, industries, credit, training, clinics	Unknown	Training, technology employment
Livestock Feed Production	Agriculture, human capital	Commodities, training, technical assistance	None	Low levels of extension
Egypt Small	Agriculture	Credit, technical assistance,	None	8% of credit directly

poultry and animal production because they lacked land title; in Mahaweli, an estimated 30 percent of the total credit is going to women who have land titles. Both the Egypt and Mahaweli projects were large credit projects that had no targeting by gender, but the conditions for receiving credit were gender related. In the 4 African projects that earmarked small amounts of credit for women, only 1, the Upper Volta women-in-development project, was able to deliver any credit to women; in the others, because of poor management or low priority, women did not receive credit. This parallels the finding of the sectoral study on credit and income generation (Lycette and Self 1984) that women actually received more credit from the large credit schemes when they could meet general qualifications than they did in the smaller schemes that targeted credit to women.

Table 6. Gender Access to Agricultural Project Resources

Resources	Projects Targeting Resources		Projects Delivering Resources	
	to Women	to Men	to Women	to Men
Training	8	19	5	24
Technology	4	9	4	7
Credit	4	10	2	8
Technical Assistance	5	14	5	12
Salaries From Project (host country personnel?)	NA	22	6	22

Access to rural labor markets was affected in two ways by the projects. Three--Cape Verde, Jordan Valley and Mahaweli--generated new employment opportunities. Projects also directly employed professional and paraprofessional host country employees. Here again, women were included at lower rates and in fewer projects than men. Staff women were most visible in projects that attempted to deliver resources to women farmers, such as Niamey and Mahaweli.

5. FACTORS ASSOCIATED WITH WOMEN'S ACCESS TO PROJECT RESOURCES

5.1 The Relationship Between Information on Women's Roles and Women's Access to Project Resources

In agriculture projects there was a very high correlation between explicit attention to women's roles and their access to project resources. Discussion of women's roles in agricultural production was present in 12 out of 20 project planning documents and absent in 8; for 2 projects, the planning documents were not available. Longer discussions relating women's activities to project goals were associated with projects that targeted resources to women. Shorter discussions, ranging from two sentences to two pages, were characteristic of projects that did not target resources to women.

Nontargeted projects had very little description of what happened in implementation, but some, particularly in the Near East, did discuss gender issues again in the summative evaluation. Gender analysis in the planning documents seemed to reduce, but not eliminate, the tendency in projects to overlook women's need for productivity-increasing resources. Table 6 demonstrates that although targeting resources to women improves the probability that they will receive them, it does not guarantee access.

5.2 The Relationship Between Project Design Issues and Women's Access to Project Resources

The evaluation began with the hypothesis that certain project design elements also influenced women's access to resources. Among these were project type, the presence of female staff, and the targeting or earmarking of specific resources for women. Across the total sample, neither project type nor presence of female staff had consistent effects. They mattered, but other factors often seemed to matter more. The general finding for these two hypotheses was "it all depends." What it all depends upon in agriculture is discussed below. Other project factors that appear to influence gender resource flows are also discussed.

There are three basic ways of structuring projects to deliver resources to women: women-only projects, women's components of larger projects, and completely integrated projects. Each has its own strengths and problems.

Women-only projects often have the advantage of cultural acceptability. They can build on the infrastructure of existing women's delivery systems, and they provide control of project resources and administration for women. Their problems arise from their marginality in many government structures. They are often underresourced, and personnel may not have the skills and technical orientation for the tasks they are charged with. For example, educators may be charged with executing credit and agricultural projects, as in the two Upper Volta women-in-development projects in the sample. The problem of marginality also characterized the women-in-development projects from the other sample in Eastern Africa, but the women's projects in Latin America had a somewhat stronger record. This seems to be due to Latin America's generally more efficient bureaucracies with better trained women.

Women's components of larger projects are used to address some of these constraints. They bring women's programming directly into mainstream projects, although here, too, there is a tendency to address women's household work to the exclusion of their agricultural and income-generating work. When agriculture and credit activities are included, women's components can borrow appropriate technical skills from the larger project to supplement the skills of their own staff. Women's components often suffer in competition for scarce project resources and may have less access to project resources such as transportation. The three women's components of larger projects in the sample display all of these patterns. In Niamey Production II, terms of reference included attention to women's agricultural roles and their need for extension and credit. Appropriately trained host country and donor personnel were recruited to staff the component. In the Mauritania project, although the planning was similar, inexperienced personnel and poor project administration of the component marginalized the component within the larger project. In the Cameroon Young Farmer Center project, project design seems to have addressed only women's household roles. The Mahaweli case study also noted that training and income-generating resources were delivered effectively through a women's component funded by the Government and other donors.

In the best of all possible worlds, most projects would be integrated projects, where resources flowed to those who could use them most efficiently. There would be no need for special attention to women, because they would receive appropriate resources as a matter of course. Seventeen projects within the sample used an integrated strategy, but most contain little data on the types and levels of resources reaching women. As noted below, there are strong regional differences in choice of this strategy.

In both agricultural project samples, targeting resources to women was associated with evidence that they had access to

resources, although (as Tables 5 and 6 show) it did not guarantee access. There are strong regional preferences for targeting as a strategy: 7 of 11 Africa projects targeted specific resources to women, and in all of these projects the women received resources, although not always of the types and quantities targeted; 4 of the East Africa projects in the other sample also targeted resources to women, and in each, women received a proportion of what was targeted. As noted in the section below, the local context was powerful enough in Cape Verde to influence the flow of resources toward women even though they were not targeted by the donor.

With the possible exception of the Jordan Valley projects, the Near East Bureau does not appear to have targeted any resources to women, and it is difficult to understand from project documents what project resources women actually received.

A.I.D. targeted resources to women in 1 of the 7 Asia projects, the Nepal Institute of Agriculture and Animal Sciences. A women's dormitory was planned, but the plan was abandoned because funding ran out. As a substitute, the contractor contributed the house trailer intended for short term project visitors, and three women students were living in it on-campus. The Mahaweli Irrigation project has several other donors including UNICEF, and although the A.I.D. portion of the project did not target resources to women, both the Government of Sri Lanka and other donors did so; the case study reflects the total flow of resources, and it is on this basis that the project is rated. In Mahaweli, women received some of the resources targeted to them, but at lower levels and later than men in the same project areas. In the other Asia projects it is impossible to determine from project evaluations whether untargeted resources are actually reaching Asian women farmers, because gender is not discussed as a variable. The Thailand Northeast Rainfed Agriculture case study would suggest little cause for optimism (Blanc-Szanton and Viveros-Long).

Influence of A.I.D. and contractor female staff was most pronounced in Africa, where across both agricultural samples they were involved in all project phases, although not on all projects. Their effectiveness varied, as did that of their male colleagues, but in several projects, such as Niamey Production II and the Botswana, Tanzania, and Malawi projects in the other sample, their efforts were directly responsible for women's access to project resources. Unlike their male colleagues, U.S. women responsible for women-in-development technical assistance were overwhelmingly local-hire personnel with no institutional backup. This seriously reduced their access to knowledge of lessons learned elsewhere and their ability to pass on what they learned. In the Near East Bureau, U.S. women were only visible in project evaluations, and their recommendations for more attention to women were not implemented. In the Asia Bureau

projects it is hard to find any indication that women participated at all on the donor side, although several documents note the presence of large numbers of host country professional women. The lack of information on women in Asia Bureau projects may be due to this asymmetrical pattern.

Although there was no indication in project documents that professional or paraprofessional host country women were hired by A.I.D. in Asia and the Near East, African professional and paraprofessional women were employed on six A.I.D. projects, and their presence was associated with efforts to deliver resources to women farmers. Their training needs were as great as those of their male colleagues but were not as well met. This pattern was also present in the other agricultural project sample.

5.3 Gender Adaptation of the Mandate and Standard Operating Procedures of Implementing Institutions

A major lesson of the evaluation has been that gender analysis must be accompanied by gender adaptation of technical packages, delivery systems, and institutional arrangements if women are to gain access to productivity-enhancing resources.

. When possible, it is useful to establish that the mandate of the project includes appropriate outreach to both women and men. Some projects in other sectors were able to modify elements such as eligibility requirements without such a mandate, but for many others, including the Tunisia and Egypt projects, lack of a mandate led to lack of action.

With (and sometimes without) a mandate, the system for delivery of resources may need adjustment. Depending on circumstances, this may include the addition of female staff or retraining of both male and female staff in techniques for reaching women. Standard operating procedures may also need revision if they exclude women from necessary resources. Two important procedures that need careful examination are requirements for access to project resources and the location and timing of opportunities for access. Requirements for access often include land title or official status as head of household as collateral for credit and technical packages. These requirements tend to exclude women's microenterprises from direct access to inputs that generate increases in productivity and profitability. One alternative that has been successfully used in non-sample projects is extension of credit to groups whose members are jointly responsible for repayment. Another is to extend resources on the basis of personal reputation (Overholt, et al. 1985).

Location and timing of access to inputs also demand close examination because the constraints on women's mobility and time use may be greater than on men's. Credit or technical packages that require several full days away from the village may limit women's access. So may the choice to dispense such resources in a traditionally male setting, as was the case with the information on animal vaccinations in the Upper Volta Livestock project.

The location and timing of training and extension can also serve to exclude women. In the first phase of the Naimey project, although both men and women worked side by side in the demonstration fields, agricultural training was provided to men while women prepared the meals. With the introduction of millet grinding mills to reduce the labor, and a change in schedule, women were able to share in the training in the second phase of the project. In the Thailand Rainfed Agriculture project, women were not included in the week-long off-site training for livestock and poultry raising although they had major management responsibility for production. They were, however, offered a 25-day off-site course in sericulture, scheduled during the peak period of demand for women's labor in rice transplanting. Despite the high opportunity cost, women farmers attended the course, but half left before it was over because the technology was of limited value and they could not afford more time away from their other pressing responsibilities. Adding insult to injury, women with children were excluded from village training sessions in poultry raising, traditionally a major source of women's income, because they might bring children who would be noisy and disruptive.

Another major area of project adaptation is that of incentive structures. Projects must take account of the reality that men and women in farm households have different stakes in the activities targeted for change and different incentive structures for participation. Women skilled in managing their own cropping enterprises are more likely to be efficient in using productivity-enhancing inputs than men who have never produced that crop. Their incentives for productivity are also often higher, because their opportunities for cash income are more limited. Conversely, project interventions that demand high labor inputs from women but provide only low returns to their labor are likely to be subverted by women's resistance to that demand. This may take the form of passive resistance or an active campaign to discourage use of certain inputs or production of certain crops. Such resistance is clear in the Thailand Rainfed Agriculture project, in which women are actively opposed to growing kenaf, and in several projects from the other agricultural sample. It is particularly marked in the Caribbean Agricultural Extension project, where women are strongly influencing crop diversification strategies on this basis.

The incentive structures of implementing institutions may also need to be adapted so that delivering resources efficiently by gender is rewarded. The Cape Verde Government did this explicitly in mandating and then monitoring equality of access and pay on food-for-work activities.

Projects can adapt their own incentive structures, but many of the changes in operating procedures and incentive structures require changes in host country institutions as well as donor practices. Change therefore depends on host country as well as donor policies. Although a U.N.-sponsored World Plan of Action was adopted in 1980 by 137 national governments, committing them to deliver appropriate agricultural resources to both men and women, there is great unevenness in the commitment of developing countries to its implementation. Countries such as Cape Verde, Thailand, Tunisia, Burma, Niger, Sri Lanka, and Jordan are actively seeking to increase the flow of resources to rural women. Others may give the issue low priority or see it as primarily a cultural issue. No matter what the posture of the national government, everyone understands that issues of gender equity in access to scarce resources can be highly charged politically and emotionally, and Agency personnel are sometimes understandably reluctant to address them. Yet arguments from tradition as well as from economic efficiency can often be made in support of women's access to resources for their traditional activities.

6. PROJECT DIFFERENCES BY REGIONAL BUREAU

There are striking regional differences among the A.I.D. projects in how women's agricultural roles are viewed and how projects relate to them. Of the three regions, only the Africa Bureau targeted or earmarked resources by gender. The Near East Bureau addressed the issue briefly in Project Paper annexes and in evaluations. For the most part, the Asia Bureau ignored gender issues entirely except for occasional passing remarks; two exceptions are an excellent discussion of Burmese women's economic roles and an account of the difficulties in funding a women's dorm in Nepal.

6.1 West Africa

In West Africa most people are food producers. They farm in low-technology systems that were once well adapted to difficult environmental conditions, but as populations have increased, these systems have not been able to keep pace with food needs. Little improved technology of any type is currently available. The technology transfer system is weak for men and

even weaker for women. Literacy is low, and the numbers of trained professional or paraprofessional women are small. In recent years, a fairly complete picture of women's agricultural roles has emerged from project documents. Many have noted that women and men are responsible for separate cropping enterprises and share responsibility for others. A number of projects made explicit attempts to reach women producers, but with varying degrees of success.

Difficulties were due to weak delivery systems, low levels of allocated resources, and choices made in deploying them. Training and extension were the resources most often targeted to women. Technology and credit were seldom targeted and even more seldom received. Labor bottlenecks are a serious constraint to production, yet few of the projects addressed women's labor overload. Resources were often used for animal traction plows to increase the cultivated area, thus increasing the demand for unmechanized family labor tasks such as weeding; yet few project resources were devoted to labor-saving technologies such as wells and grinding mills. Given women's major agricultural responsibilities and the low productivity of current technologies, it is reasonable to assume that high birth rates are, in part, a rational response to this dilemma. A.I.D. projects have only begun to address this reality.

6.2 North Africa and the Middle East

In North Africa and the Middle East, by contrast, agricultural systems employ a range of technology, and improvements move through the formal and informal systems quite steadily. A smaller proportion of the population than in West Africa depends on agriculture for a living and education is widespread. The bureaucracies responsible for delivering credit and technology are large, if not always efficient, and women professionals are included in their ranks. In two of the three projects reviewed, however, the women were doing the lowest status office jobs, well below their professional qualifications.

Women farmers are only dimly perceived in project documents. They are portrayed as "inside the household," and although they are briefly acknowledged as important to targeted project activities, (dairy production in Tunisia, poultry and livestock production in Egypt, rural industries in Jordan), project design and implementation documents treat them as social rather than economic actors. That is, no project resources have been directed toward them, and there is little indication that they have received any. The one exception is the Jordan River Valley Development evaluation, which examined the effects of a series of projects on rural women.

6.3 Asia

In the seven Asia projects, yet another pattern prevails. Three of the four Asian countries represented in the sample projects--Thailand, Burma, and Sri Lanka--have successfully applied green revolution technologies to greatly increase production of crops such as rice and are now seeking to extend their productivity gains to other regions or crops. In all three countries, both male and female literacy rates are high, and project documents give an occasional glimpse of women in the bureaucracy and extension service, where they seem to be employed in substantial numbers. Nepal presents a different picture, with a lower literacy rate, less infrastructure, fewer professional and paraprofessional women, and less previous success in technology transfer.

Documents on two of the Thailand projects made no mention whatsoever of women's roles in agriculture. In documents on the other Asian projects, women make one brief, memorable appearance and then disappear from view. In Burma, Thailand, and Sri Lanka, the social soundness appendixes to the Project Papers note in passing that land is often inherited through women and that women manage the family money and do substantial amounts of farm work both on their own crops and in household enterprises. Northeast Thailand and Nepal documents also mention high rates of male outmigration.

Yet little attempt is made in any of the project documents to relate these facts to project design, implementation, or evaluation. No resources are targeted to women, and there is no indication of whether women have enjoyed equitable access to project resources. Apparently the Asia Bureau is operating on the assumption that resources will flow more or less equitably through these systems and that there is no need to target resources by gender in order to facilitate the integration of women into the national economies. Because no evaluation documents addressed gender issues, this was an untested assumption until the Asian case studies were done. These display a very mixed pattern of women's access to project resources. At least for the Thailand Rainfed Agriculture and Nepal cases, it is possible to say that project resource allocation falls far below the point of constrained bliss.

7. CONCLUSIONS

Both increased agricultural production and the increased human capital production necessary for the structural transformation of agriculture rest on access to resources: improved technology, increased capital, and formal education

for both men and women. Yet, as this evaluation has confirmed, women have less access than men to all three. There is systematic gender-based distortion in the allocation of A.I.D. resources in the agricultural projects included in this evaluation.

Nevertheless, focusing exclusively on women as victims obscures the other reality: women have always been active and at the center of history. The women farmers glimpsed in project documents are energetically involved in socioeconomic development, not only as laborers but as managers, entrepreneurs, and the major force in the creation and subsistence of human capital. If their contributions have been underestimated and underresourced, this is an effect of historical development, which it is now within our power to correct. Lack of information on women's work has interacted with institutional arrangements that have channeled resources away from women. Information is no longer lacking, and such arrangements can be changed.

Agricultural systems throughout the world are evolving, for better or worse, under the pressure of expanding populations. As systems change, increasing in complexity and realigning interest groups, opportunities arise for pressing women's claims on national resources. The International Women's Decade has served to organize and amplify worldwide pressure for attention to these claims.

In order to function as full partners in the household and the nation, contributing equally to development, rural women need greater access to productive resources. These resources are small in number and easily understood.

- Better technology for women's agricultural and household tasks increases women's productivity and releases time so that girls can attend school.
- Improved income flows from more equitable wage structures, together with increased income from women's agricultural and informal sector activities, permit women greater power in the allocation of household resources and greater ability to invest in the health, nutrition, and education of the next generation.
- Availability of contraceptives permits raising a smaller number of healthier children.
- Education for girls encourages more productive women, with lower fertility rates and healthier and more productive families.

8. RECOMMENDATIONS

1. A.I.D. should develop a strategy paper for the implementation of the 1982 Women in Development Policy Paper. Such a strategy should be region specific, at least for agriculture.

2. To improve agricultural project design, economic analysis should include gender as a variable. Gender-related cropping enterprises and income streams, as well as gender-related differences in the opportunity costs of time, should be described and analyzed. Handbook 3 should be amended to include gender issues in the economic analysis as well as the social soundness analysis.

3. Based on a disaggregated gender analysis, a strategy should be developed for each project to ensure that appropriate production resources reach women. The flow of resources by gender should be monitored throughout the life of selected projects, and its impact on both women's welfare and the achievement of project goals should be assessed. Doing this systematically for 5 years would give a far better idea of what works and what does not.

4. Given the central importance of women in African agriculture, higher levels of project resources should be devoted to increasing their productivity, income, and quality of life. African women themselves express a need for improved biological and mechanical technology, and the credit to afford it. Women also need greater access to training and professional education to efficiently utilize their strengths. Such efforts would have a dual impact on increasing per capita food availability by increasing production and decreasing rates of population growth.

5. The Asia Bureau should consider commissioning an in-depth study of what is happening to resource flows in its current agricultural projects. Who is receiving credit, training, technology, and technical assistance? How equitable and how efficient are current arrangements? Are special efforts needed and, if so, of what nature?

6. Increased resources should be committed to overseeing gender issues in regional bureaus and USAID Missions. The problem is not with policy, which has been clearly articulated since the Policy Paper in 1982. The problem rests in implementation. Over the past 10 years, according to A.I.D.'s reports to Congress, the budget lines devoted to this issue have gone from less than US\$1 million to more than US\$59 million, yet the regional bureaus and Missions devote no more staff resources to gender issues in implementation now than they did then.

Incompetence in this area is becoming an increasingly expensive luxury.

7. To ensure appropriate attention to gender issues by contractors, requests for proposals and contracts should require inclusion of gender issues, and contractors should be held accountable for implementing these requirements. A number of Title XII contractors have explicitly asked that this be done in agricultural projects so that they have clear authorization to deal with the issue responsibly.

8. A.I.D. has invested substantial resources in developing institutional capability on women's roles in agriculture within Title XII universities. Regional bureaus and USAID Missions should make better use of this capability. To a large degree, this would happen automatically if recommendation 7 were implemented.

9. A.I.D. should seriously consider funding a cooperative agreement, or some other appropriate mechanism, to develop a center of technical knowledge on gender-related agricultural project design and implementation issues. Such a center should collect, store, and disseminate information; run training sessions for A.I.D. and contractor personnel; and, possibly, provide technical assistance to bureaus and Missions on request.

APPENDIX

PROJECT CASE STUDIES

Agricultural Projects West and North Africa, Asia, the Near East

	<u>Page</u>
1. Introduction.....	A-1
2. Projects Addressing Both Men's and Women's Separate Agricultural Production Enterprises.....	A-1
2.1 Production and Targeting of Resources by Gender.....	A-1
2.2 Projects Targeting Both Men's and Women's Crops and Attempting To Deliver Appropriate Resources to Both Sexes.....	A-4
- Naimey Department Development II.....	A-4
- Mauritania Rural Development.....	A-6
2.3 Projects Targeting Both Men's and Women's Crops but Delivering All Resources to Men.....	A-10
- Upper Volta Village Livestock.....	A-10
- Egypt Small Farmer Production.....	A-12
2.4 Projects Targeting Both Men's and Women's Crops But With Resource Flow by Gender Unclear.....	A-14
- Cameroon Seed Multiplication.....	A-14
- Cameroon Young Farmer Training Center.....	A-14
- Tunisia Livestock Feed Production.....	A-15
- Mali Crop Production.....	A-16
- Operation Haute Vallee: Mali.....	A-16
- Lutheran World Relief: Niger.....	A-16
3. Projects Affecting Systems With Pooled Household Resources and Cropping Enterprises.....	A-17
3.1 Projects in Asia.....	A-17
- Northeast Thailand Rainfed Agriculture.....	A-17
- Northeast Thailand Land Settlements.....	A-24
- Thailand Seed Development II.....	A-26
- Thailand Agricultural Planning.....	A-27
- Mahaweli Irrigated Basin Development.....	A-28
- Nepal Institute of Agricultural and Animal Sciences.....	A-32
- Burma Maize and Oilseed Production.....	A-34
3.2 The Need for More Information.....	A-35

	<u>Page</u>
4. Projects Targeting Resources to Women Only in Agricultural Systems in Which Both Men and Women Were Active.....	A-36
- Upper Volta: Women's Roles in Development....	A-36
- Upper Volta: Training of Women in the Sahel..	A-36
5. Special Cases.....	A-38
- Cameroon National Planning for Community Development.....	A-38
- Cape Verde Water Management.....	A-39
- Jordan River Valley Development.....	A-40

APPENDIX

PROJECT CASE STUDIES

1. INTRODUCTION

This appendix analyzes the relationship between women's access to resources and project efficiency on a case-by-case basis. Efficiency concepts are used to test the basic argument made in A.I.D.'s Women in Development Policy Paper: neglect of gender differences leads to wasted resources and diminished returns on investment.

To permit a consistent economic analysis, the projects are organized to reflect the difference between projects addressing gender-distinct cropping enterprises and those targeting more total agricultural household production systems. There are four analytic categories:

1. Projects addressing men's and women's separate agricultural production enterprises (10 projects)
2. Projects affecting systems in which most cropping enterprises and resources seem to be pooled and in which project resources may or may not be targeted by gender (7 projects)
3. Projects in which both men and women are active in agriculture but in which only women are targeted for project resources (2 projects)
4. Special cases (3 projects)

Because of the nature of the sample, there were no projects that targeted only men's crops, although the proportion of these in the total A.I.D. portfolio is substantial.

2. PROJECTS ADDRESSING MEN'S AND WOMEN'S SEPARATE AGRICULTURAL PRODUCTION ENTERPRISES

2.1 Production and Targeting of Resources by Gender

Figure A-1 represents an agricultural project in which men and women are primarily responsible for different cropping enterprises. Such enterprises include production of field and

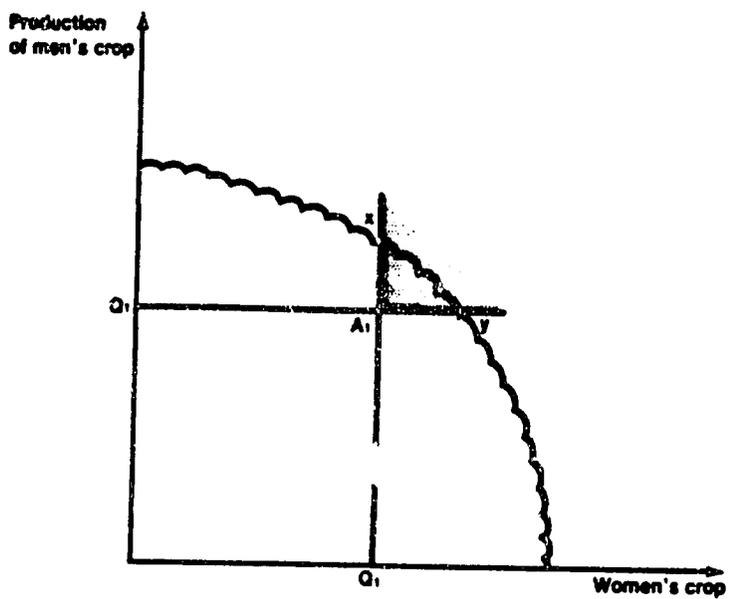


Figure A-1 - Production as project begins

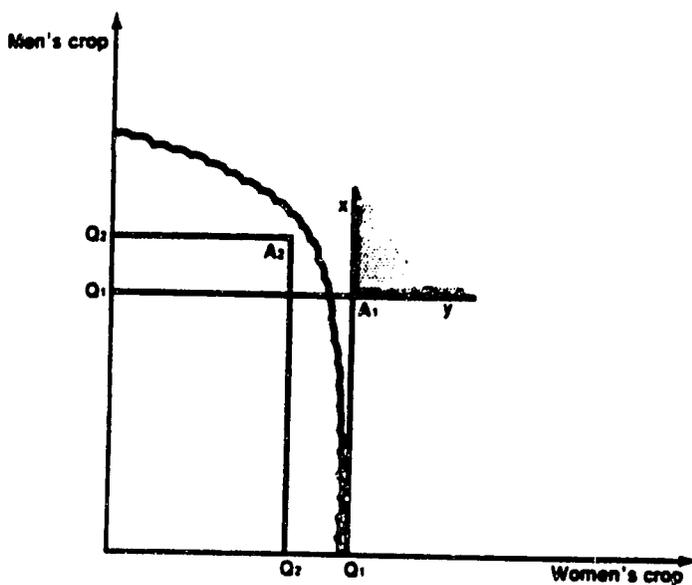


Figure A-3 - All resources to one crop

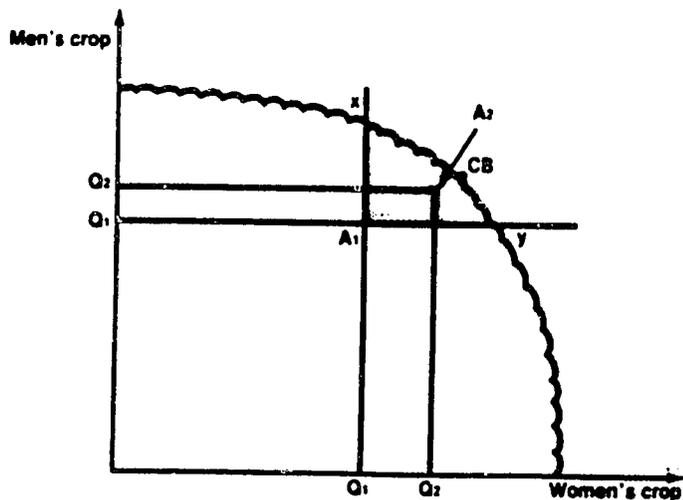


Figure A-2 - Resources equally to both crops

tree crops, vegetables, livestock, and poultry for which one sex has principal responsibility for management and disposal of production.

If the project designers target productivity-increasing inputs to men's and women's crops in amounts roughly equivalent to those already in the system, the production possibility frontier will shift outward with about the same shape, indicating potential increases in production for both types of crops (see Figure A-2). If all resources are given to either men's or women's crops, the frontier will become bowed, with production possibilities becoming much higher for one crop type but not for the other. If both men's and women's crops compete for scarce land or labor, which is likely, increased production of one type may even reduce the resources previously available to the other (see Figure A-3). A problem often cited in the women-in-development literature is the investment of all resources in men's cash crops and none in women's subsistence crops (Boserup 1970).

When the existence of women's cropping enterprises is completely overlooked in project documents, the inequitable resource allocation reflected in Figure A-3 may be invisible, but it is very real. Both the literature and practical experience suggest that some projects in the sample were of this kind, particularly in Africa (Cloud 1978, Carloni 1983, and Binswager et al. 1980).

Figure A-2 illustrates an optimal solution. Resources are directed to both types of crops equally, with production rising slightly more for the women's crops, which had been subject to greater constraints. Q2 is the quantity of each crop after the new inputs were used. A2 is the new point of total production, which falls to the frontier near the point of constrained bliss.

Of the 10 projects in the sample clearly identifying both men's and women's cropping enterprises, none was close to the optimal solution. Only two were designed to deliver resources to both men and women for their own enterprises. Even then the resources allocated to women's crops were substantially less than those allocated to men's. The more common pattern was to deliver credit, technology, and training for women's cropping enterprises to men, thus undercutting women's management roles and income flows and making women dependent on male family members for access to these resources.

2.2 Projects Targeting Both Men's and Women's Crops and Attempting To Deliver Appropriate Resources to Both Sexes

Naimey Department Development II (FY 1981-1986)

The goal of this project was "to establish a village-based technical assistance/input delivery system" in the regions surrounding the capital of Niger. The project uses a strategy common in Francophone Africa: training farm couples nominated by their villages in Young Farmer Centers for several months, providing them with credit and technical packages, and supporting their efforts as model farmers when they return home. In addition, village-level cooperatives were also formed to handle credit, extension, and input necessary to increase production. In the first phase of the project, the villagers did not understand the purpose of the Centers, and many of the farmers were not well chosen. During development of the second phase, efforts were made to improve selection by focusing not only on male farmers but also on the female member of each couple.

Training for women was also greatly improved. During the first phase wives had worked in the fields alongside their husbands, but while men attended training classes on new techniques, women ground grain and cooked. In planning the second phase, an A.I.D. women-in-development specialist made it clear that this arrangement was unacceptable and insisted that the project purchase grinding mills so that the women could attend instruction. In fact, the project went even further in addressing women's roles by establishing a women's component with earmarked funds and personnel slots. This component provided for an expatriate women-in-development adviser and an experienced Niger Animation Service counterpart to upgrade the training of women both in the Center and when they returned home. Male and female Peace Corps volunteers were assigned to each center, and women extension agents were hired to work with women in the village cooperatives. Fifty thousand dollars in short-term credit was also earmarked for women.

The allocative efficiency of such resource investment is based not only on women's involvement in household and human capital production under difficult conditions, but also on their agricultural activities. According to the Project Paper, women manage their own crops--groundnuts, gumbo, sesame, rice, manioc, tomatoes, chickens, sheep, and goats--and work on the family millet and sorghum fields. They also use purchased inputs. The Project Paper noted that in one village, all 36 sacks of fertilizer sold the previous year had been purchased and used by women. Women keep the cash from their own enterprises and are responsible for specific household expenditures. There is no mention in project documents of woman-headed households or male

outmigration. If not served by the Centers, households headed by women could be served by the extension agents, model farms, and cooperative activities targeted to women under the project.

To help women improve their productivity, training at the Centers is given in the following areas:

- Agricultural training, including new techniques in millet and sorghum cultivation, vegetable gardening, and raising of small ruminants and poultry
- Construction of new cookstoves
- Health, nutrition, and literacy

At the time of the mid-term evaluation, a drop in uranium prices on the world market had reduced Government income and all short-term credit had been discontinued, including the US\$50,000 earmarked for women. Men still had access to longer term credit for animal traction, but fertilizer purchases for both men and women were constrained by the lack of short-term credit. Despite this, the first class graduating under the new regimen showed higher adoption rates for new technologies, and both graduates and villagers showed considerable enthusiasm for what they had learned. The mid-term evaluation expressed concern that packages of new technological inputs for cereal production were better than traditional practices only in certain zones and in years of good rainfall. As a result, most farms were adopting only parts of the package.

At least one parallel USAID/Niger farming system project was working to develop locally adapted cereal production packages, and collaboration between the two projects can be expected. However, there was no evidence that new production packages for women's crops were being developed or disseminated. If improved cereal technologies are available soon enough and the project is able to coordinate the Training Centers and extension services into an effective system for the delivery of new technologies, the project will be a model of reasonably equitable resource delivery. Although women do not seem to be receiving new inputs for their own crops, they are receiving training in improved procedures both for their own crops and household crops as well as household production. Credit funds were earmarked for them, which they could invest in their own cropping enterprises.

If cereal technology and credit are not forthcoming or the delivery system does not prove functional, project equity conditions may be satisfied while leaving the economic efficiency of the strategy in doubt.

Ratings: Project Success, Likely; Benefits to Women, Likely

Mauritania Rural Development (FY 1975-1983)

This project took a different approach to increasing Sahelian agricultural production. Adaptive research and extension were integrated into one project that was responsible for a smaller geographic area. The project purpose was "to develop and test innovations in agriculture, animal health and nutrition, range management and forestry that are socially acceptable to the people of Guidimaka, technically feasible and economically viable. When convinced that the innovations are extendable... to conduct on-farm trials and begin extension of them to peasants and herders of the region" (Project Final Report, p. 2).

After a false start and a change of contractors, the project in Guidemaka was successful in substantially raising sorghum production on demonstration fields. Through an aggressive program of trials using seed from international sources and the careful introduction of animal traction, sorghum yields were increased up to 100 percent in trials on farmers' fields. The project was also successful in increasing cooperative vegetable production, improving animal health in demonstration herds, and establishing demonstration tree nurseries. Because traditional varieties of millet and corn outperformed all imported varieties, they were retained. In 1982, after a favorable evaluation and the decision to continue the project, it was decided to expand these activities throughout the region. The ability to increase production by larger numbers of farmers at reasonable costs remains to be demonstrated, and a second phase was being planned as this project ended.

In the Guidemaka area, where the experiment took place, the importance of women's traditional roles in agriculture has grown with the increase of male migration. According to a study commissioned by the project and quoted in the revised Project Paper, collective fields are worked by the extended family and both men and women also have their own fields. On the collective fields, women performed specific planting and harvesting tasks. On their own fields, they specialized in peanuts, rice, cotton, indigo, and gumbo. A study quoted in the revised Project Paper noted changes since the drought in the early 1970s:

Women are producing more and more sorghum at the expense of their former traditional crops (peanuts, cotton, indigo), and in some cases the total grain production from the women's plots was much higher than that of the collective fields. In the Soninke system, though the women theoretically retain rights over the disposal of produce from their own fields, the Kagumme (household head) may appropriate it in times of

short-fall. As collective yield production declines through systematic loss of male labor, dipping into women's production becomes more necessary in order to sustain consumption levels.... The women claim that money sent back to them is far from enough to cover costs now that grain production has faltered and prices have risen... and they grow millet to sell for purchase of household necessities.... The women of Datmange village feel that a woman whose production is falling has no more place in the community and were indignant that the project of the region (War on Want) addresses men as cultivators but not women (Revised Project Paper, p. 8).

The first Project Paper had noted women's roles only in passing, but as the new contractor took over and the project was reformulated, women actively took advantage of programs to introduce cold-season vegetable gardening. With the active support of an interested Mission Director, a comprehensive study of women's economic roles was carried out and a women's component was added to the project late in 1980. According to the revised Project Paper, an expatriate and two locally recruited Mauritanian women interpreters/rural extension agents were to work with village women in several ways.

1. Food production. According to the Revised Project Paper, "male technicians cannot, under local customs, work directly with women in introducing new techniques and technologies... but women do attend project on-farm demonstrations where they stand around the periphery and do not ask questions." Therefore, staff were to follow up with village women to amplify and demonstrate production techniques set forth at these meetings. Followup treated not only vegetables, which had been primarily a women's crop, but also improved cereal production methods, including animal traction. Women were not expected to learn to plow for themselves but to understand plowing so that they could adopt it for their own cereal fields by hiring or exchanging male labor. Staff were also to give some direct instruction to village women on improved practices in cereals, vegetables, and cash crops.

2. Labor-saving technologies for food processing, storage, and other uses. Project activities included the introduction and demonstration of technologies such as grain threshers and winnowers, grinders, mills, and peanut shellers. Testing, demonstration, and training in the construction and use of improved Lorena cookstoves were also planned. Finally, adaptations of other unspecified technologies or techniques that might result in increased production or labor saving were to be devised.

3. Nutrition. With 2 months of technical assistance from an expatriate nutrition consultant, project staff planned to assess the current diet, inventory wild crops and new vegetables available but not being used, decide what new foods could reasonably be introduced to improve nutrition, develop training materials, and teach local women how to prepare and use new foods.

4. Credit. A revolving fund of US\$7,500 was planned for group or individual purchase of labor-saving or production-increasing technologies such as grain threshers, grinders, and mills.

How did this extensive and well-researched plan fare in implementation? Unfortunately, not very well according to the project director's final report. The expatriate women-in-development role was filled by the spouse of one of the project members. According to the report, the woman, who was a microbotanist, was highly dynamic and intelligent, but not effective at extension tasks. Again, in the project director's estimation, only one of the six local women hired as extension agents was competent. This contrasted starkly with the report's portrayal of male extension workers: 15 of the 18 male extension workers were judged competent, as were 12 of the trainers in the use of animal-traction, 6 assistant trainers in animal-traction, 5 vegetable gardening extension agents, and assorted foresters, masons, carpenters, and mechanics. All male expatriate staff members were also judged competent.

Indeed, the women's component was the only unsuccessful aspect of the project, according to the final report. From this distance it is hard to know what went wrong--whether there was a blight on female competence in that part of Mauritania, or whether there was something in the project structure or administration that produced this sad effect. Project documents provide only fragmentary accounts of what happened: seed arrived late for a community rice production scheme; the women did not buy the grinding machines; the single woman pilot farmer did not follow directions completely.

Neither do reports indicate whether labor-saving technologies were actually demonstrated or whether the revolving credit fund for purchase of new technologies was ever made operational. Apparently, the nutrition expert was never hired, and it is not clear who offered the demonstrations on cooking new vegetables. Cookstove demonstrations were not reported. What is clear is that women continued to seek agricultural information and inputs in any way they could. According to the final report, many women continued to participate in vegetable cooperatives and some had gotten their husbands or brothers to plow their fields and were using new cereal seeds of recommended varieties.

The director's final report concluded that although the project had a positive impact on women, it had not succeeded as planned. He expressed "the hope that the second phase will do better, as the Guidemaka women are hardworking, effective farmers. However, I do believe that they are best approached as part of a general extension strategy not as a separate and, thus, excluded group" (Project Final Report, p. 34). The only resource proposed for reaching women in this integrated way, however, was the exclusively male extension service and project staff, even though by the project's own accounting it is unacceptable for staff men to work directly with women.

It is hard to see how the project can move beyond the stage in which women observe silently from the periphery. The one "competent" female extension agent was explicitly excluded from the new project unless the women-in-development component was reestablished. The director did suggest that "if a social assistant could be assigned to work with women that would be very good."

The Project Evaluation Summary rather tartly observed of this strategy:

Development problems associated with women will not be resolved by a trickle down approach involving men as the principal actors. Women have their own fields, their own crops, and most importantly, their own distinctive economic and social as well as technical problems.... The project's efforts in this area represent its first trial in extending its activities to a specifically targeted group. Failure in this extension effort calls into question the project's ability to expand its activities to a significant number of participants without a more detailed extension strategy (Project Evaluation Summary, p. 35).

In the planning stage this project addressed both equity and efficiency. During implementation, women did not have access to as many resources as men, but some constraints to increased production were lessened. Working with male farmers in on-farm trials may not have been inefficient for developing improved production packages, but in the longer run, new practices must be adopted by many farmers. Female farmers constitute a significant portion of those farmers, and they face different production constraints than those found on either communal fields or men's fields.

Women's approach to plowing is different from men's because women are not permitted to plow within this culture. This constraint is offset by the use of traditional exchange relationships or remittances and other income to hire labor, but the economics of these arrangements have not been studied. The

opportunity cost of women's labor is also different. Many household production tasks, such as grinding and cooking grains, fetching water, and caring for children, must be done every day if the family is to survive. Labor-reducing technologies were intended to relax this constraint, and failure to provide them was an allocatively inefficient use of project resources that affected the availability of labor for food production. Access to cash and credit for purchased inputs is also different for men and women and may affect production in unexpected ways.

Finally, efficient use of new project resources requires far more than demonstrations on men's fields, with women as silent spectators. Dialogue with women farmers and adaptation of production packages are needed in order to address women's particular constraints as well as those that apply to men.

Ratings: Project Success, High; Benefits to Women, Moderate

2.3 Projects Targeting Both Men's and Women's Crops but Delivering All Resources to Men

Upper Volta Livestock Project (FY 1976-1980)

This project researched all village livestock systems--cattle, sheep, goats, and chickens--to find ways to increase production without damage to the environment. The Project Paper noted that 22 percent of all livestock production was in sheep and goats and 14 percent in poultry and that the profitability of cattle, pigs, and rabbits was low compared with that of chickens and goats. The social soundness analysis noted that women own the sheep, goats, and poultry and use the proceeds for household expenses.

The project selected a small number of villages to organize men's livestock committees and to test a variety of interventions. Vaccination programs for cattle, sheep, and goats were strengthened and made available to those who could afford them. Livestock corrals were constructed to make vaccination easier, and a system of color-coded cards was instituted to help owners keep track of which shots their animals had received and which they still needed. Because this information was disseminated in totally male settings, few women understood or used the vaccination programs for their animals.

Early in the project, an ambitious effort to increase poultry production by housing imported breeds in new buildings was introduced to the village men. Success depended on the well-timed use of vaccines, medicines, and feeds, all of which were unavailable in the project area. After 2 years and the

expenditure of substantial resources, failure was evident and the strategy was revised to concentrate on improving backyard flocks.

An appendix to the mid-term evaluation provides an excellent analysis of what promised to be the greater economic efficiency of this revised strategy, which put poultry back under women's control. Families were instructed to build roosts and fences near their houses, and livestock committees were given six improved cocks to crossbreed with local chickens. In order to increase chicken and egg production enough to raise income, the crossbreeding had to be continued through several generations and the chickens had to be vaccinated. Men built the necessary roosts and fences, but the first six cocks arrived just as the project was discontinued. The necessary vaccines never arrived, although the contractor tried to arrange for the Government or another donor to provide them. Within a year, the new cocks died and what should have been an efficient strategy died with them. Instead, resources had been spent on a technically and economically inefficient strategy that was actively harmful to women's control over resources. By the time the mistake was corrected, the only resource left was six roosters for each village.

While the poultry project was being revised, Title XII contractors brought in a social scientist who spent 3 months working with village women to study their livestock production needs and assist them in forming a parallel livestock committee to present those needs to project personnel. In the project's final report, the social scientist presented the following findings:

- Women were actively interested in project participation and knew what they needed and wanted.
- Women could be organized into religious/ethnic subgroups to send representatives to a women's livestock council that interacted effectively with project personnel.
- Male permission for and approval of women's activities were necessary and possible to achieve.
- Women wanted subprojects separate from men's to protect their benefit flows.

Unfortunately, the project was discontinued before any of these insights were incorporated, and actual project resource allocation did not satisfy equity conditions. The project was also highly questionable in terms of economic efficiency. Concentration on cattle and lack of communication with women about management of sheep and goats reduced the allocative

efficiency of the livestock interventions. The poultry component was a waste of resources and time. Earlier formation of women's livestock committees could have increased the efficiency of both livestock and poultry interventions.

Ratings: Project Success, Mixed, Moderate; Benefits to Women, Low

Egypt Small Farmer Production (FY 1979-1985)

This project aimed to improve the income and productivity of small farmers by strengthening the capabilities of the Egyptian Bank for Development and Agricultural Credit (PBDAC), the main source of agricultural inputs and the only institutional source of production credits for Egypt's 3 million small farmers. PBDAC was responsible for providing credit and inputs to farmers and for purchasing certain cereal crops. All farmers deal with the bank on a cash or credit basis for fertilizer, cotton-seed for animal feed, and other critical inputs. But farmers complained of late and inefficient deliveries of inputs, insufficient short-term loan funds, and lack of availability of medium- and long-term credit.

The project attempted to address these problems through a pilot effort providing technical assistance, training, and US\$12.4 million for increased credit through 27 village branch banks in three different areas. Extension efforts were to be intensified for farms receiving loans, and farm records were to be kept. It was assumed that most resources would go into cereal crops, although livestock and vegetable producers were also eligible for loans. Loan procedures were greatly simplified, and emphasis in evaluating loan applications was shifted from collateral to the profitability of the enterprise. Nevertheless, borrowers were required to hold cultivated land, either as owners or tenants, thus effectively excluding many women farmers.

After 3 years of implementation, both internal and external evaluations concluded that the project had significant impact on the availability and productivity of credit in the project areas and had shown that an active extension program does result in increased production. Contrary to expectation, however, 84.7 percent of the loans had been used for livestock production, principally broiler chickens (34.9 percent) and buffalos and dairy cows (33.5 percent). Only 2.3 percent went to field crop production. Thus, increased production occurred almost entirely in women's crops, although credit, inputs, and technical assistance were all given primarily to men.

The Project Paper, while not anticipating this outcome, had noted that

Women's role in animal husbandry, fieldwork, food processing and marketing touches many of the areas where project efforts to raise income and production will be made. The inability of male extension workers to reach and convince women can pose a significant barrier to technological innovation. While this problem cannot be addressed in this project... ongoing social analysis under this project will examine the role of women in farm management and help to identify medium-term loan opportunities that will increase the income of farm women, including such ventures as poultry and livestock fattening, collecting and marketing of produce and improvements in home storage facilities (Project Paper, p. 23).

According to the external evaluation, however, such ongoing social analysis was not provided for in project agreements, and the socioeconomic survey funded by the project neglected the role of women in Egyptian agriculture. Evaluators also observed that the statement "provision of extension services to female farmers cannot be addressed by the project" supported an inequitable distribution of training in the use of newly available technologies. According to the evaluators,

Farm women have taken over responsibility for small chicken batteries and imported livestock purchased by their husbands but there has been little, if any, interaction between these women and extension personnel. The assumption is made that women already know how to take care of chickens and cows and further training is not necessary. Other experience has shown this assumption [to be] false. Disease transmission, for example, is heightened by confinement of animals in close quarters. Without proper training the owner of a small 96 bird battery could find herself wiped out overnight with disastrous consequences (Project Evaluation, p. 53).

This lack of training reduces not only technical efficiency but equity as well. Evaluators noted that

Income from dairy and poultry are considered a woman's income and are central to maintenance of household expenditure patterns. There is danger of undercutting this important source in projects such as the chicken batteries, where women continue to care for poultry but both extension and marketing operations are handled by the male heads of household. Here women are being cut out of the development process (Project Evaluation, p. 42).

Shifts in the control of income away from women is less likely on farms where male migration to the Gulf states has already left women as de facto farm managers, often with power of attorney to borrow for the farm in their husband's name. Because livestock is women's traditional work and field crops require costly male labor, women managers find investment of their own unpaid management and labor in livestock production relatively more profitable than their husbands would. Government pricing policy also favors production of poultry and livestock rather than cereal crops. An interesting question is the degree to which gender amplifies the effects of Government price and marketing policies in shifting farm investment to livestock production. Unfortunately, the answer will not be clarified by this project because loans are made to male family heads whether or not they are in the country, and farm records were not designed to include information on livestock production.

Ratings: Project Success, High; Benefits to Women, Mixed Unclear

2.4 Projects Targeting Both Men's and Women's Crops but With Resource Flow by Gender Unclear

Cameroon Seed Multiplication (FY 1976-1983)

Cameroon Young Farmer Training Center (FY 1977-1982)

The purpose of the seed multiplication project in the poorer and dryer areas of Northern Cameroon was "to increase per hectare yield of sorghum and peanuts by establishing and institutionalizing a self-sustaining regional system for production, distribution and use of improved seeds and thereby reduce food scarcities, improve nutrition, decrease seed importation and increase rural incomes" (Project Paper).

Improved sorghum and peanut seeds were to be tested and multiplied at three centers and distributed to cooperating farmers who would produce larger amounts for sale. Packages of improved practices using the new seeds would be disseminated by extension agents, radio, and a leaflet campaign. In addition, 40 couples per year were to be trained as model farmers in a Young Farmer Training Center.

The Project Paper gave very little attention to the gender division of cropping enterprises. The only two sentences in the document that deal with it noted that women control "the household financial affairs and have great freedom of action within their own small domain. They sell the surplus of their food crops and their husband's, according to the handbook, neither know nor care how much money women earn or spend."

The Training Center, funded as a separate project, included a slot for a home economist to work with women, but there was no indication of what agricultural training was intended for women. The results of various seed trials were to be disseminated to both men and women, and the Young Farmer Training Center was to reach both.

Not until a special evaluation study in 1982 did someone realize that women's "small domain" included responsibility for the peanut crop. But this was mentioned only once, in a footnote to an appendix; it seems unlikely that it became a central issue in selecting farmers for seed multiplication, directing the extension campaign, providing seed purchase subsidies, or selecting agronomists and extension personnel for further training. Although the documents do not indicate how project resources were allocated by gender, the extension system is overwhelmingly male. It seems reasonable to assume that men received a substantial proportion of the resources directed to a traditionally female cropping enterprise. To the degree that this happened, neither equity nor efficiency conditions were satisfied. The efficiency of the entire project was questioned in the final evaluation: large quantities of seed were produced, but the varieties became less and less pure because on-farm management did not meet professional standards.

Ratings: Project Success, Mixed; Benefits to Women, Unknown

Tunisia Livestock Feed Production (FY 1976-1983)

This institution-building project provided training and technical assistance to strengthen the capability of the Tunisian Office of Livestock Production to reach small farmers with modern technologies in forage production, animal nutrition, and livestock management. With these resources, small farmers would be able to increase meat and milk production and raise income and nutrition levels. Principal project resources were training and technical assistance for Tunisian staff.

The Project Paper noted that women participate actively in paid and unpaid agricultural labor, especially forage production, and that on family farms they have principal responsibility for feeding and milking cows and for dairy processing. More than 5 percent of full-time daily workers and some livestock entrepreneurs are women. Nevertheless, the Project Paper made no explicit connections between women's roles and extension planning or allocation of other resources. Women with in-country vocational agriculture training were assigned to the extension program, but mid-term and final evaluations complained that they were being used as clerical help and urged that they be assigned to field extension. Out-of-country training was apparently given only to men. A few widows reportedly did adopt the new technologies.

This project should have worked better than it did, given the strong support of the Government of Tunisia for women's participation in the modernizing economy. The presence of trained women on the extension staff is a reflection of Government policy to recruit and train women for such positions. Why women's skills were not being appropriately used is not clear. A.I.D./Washington kept raising the issue, but responses to questions about the structure of the delivery system referred instead to three widows whose farms were doing quite well under the project. It is unclear whether the vast majority of women involved in dairy production on family farms had access to project resources. Therefore, no firm judgment on project equity and efficiency is possible here. It does seem that the investment in the training of the Tunisian women agriculturalists could have been more efficiently managed by a more appropriate use of these women's skills.

Ratings: Project Success, High; Benefits to Women, Low

Mali Crop Production (FY 1976-1983)
Operation Haute Vallee: Mali (FY 1979-1983)

These two projects were executed in Sahelian farming systems similar to those described for the Niamey (Niger) and Mauritania projects. In these farming systems women are very active in their agricultural enterprises as well as contributing to the production of the extended household. Both projects were implemented through host country contracts, and although women's agricultural roles were mentioned briefly in Project Papers, there is no information on what attention was paid to their roles in implementation. Both projects had other serious implementation problems and did not reach project goals.

Ratings: Project Success, Low; Benefits to Women, Unclear, Probably Low

Lutheran World Relief Subproject: Niger (1978-1985)

In contrast to the Mali projects, this small project, implemented by a private voluntary organization, was very successful in assisting nomadic groups to make the transition to settled agriculture after the Sahelian drought of the mid-1970s. Unfortunately, no planning documents are available; the evaluation describes results, but not how they were achieved. The project supplied simple materials and technical assistance to people in several villages to construct their own wells, to fence gardens, to plant trees for firewood, and to grow vegetables and cereal crops. Although the delivery system was not described in detail, the evaluation notes that resources were deployed efficiently and that women received a fair share.

Ratings: Project Success, High; Benefits to Women, Probably High

3. PROJECTS AFFECTING SYSTEMS WITH POOLED HOUSEHOLD RESOURCES AND CROPPING ENTERPRISES

3.1 Projects in Asia

There has been a gradual increase in knowledge of Asian women's agricultural roles, and it is now more commonly accepted that many women, especially in poorer households, are agricultural producers. In many systems there are specific women's tasks, such as transplanting, but in general, the division of labor seems relatively flexible. Many farm households are thought to pool their resources and to allocate them through either joint decision-making or the decisions of the household head. Much of the early research using the farm household utility function was performed in the Philippines, Java, and Malaysia where the model seems to fit the reality reasonably well. The idea that women may be responsible for separate cropping enterprises, or that they may generate and dispose of nonpooled income streams, is new to Asian research, and there is as yet little empirical data on these questions in the Asian literature.

The degree to which allocation of project resources permits an approach to constrained bliss is much more difficult to judge in the Asia projects because of lack of data and because the issues are often more subtle. Where there is strong gender specialization in production, or where migration patterns leave women with major decision-making responsibilities, efficiency arguments for women's access to resources are more plausible. To the degree that resources are effectively pooled and redistributed within the household, it is more difficult to make short-term efficiency arguments for women's direct access to project resources when the cost of delivery to women appears to exceed the immediate production gains. There may be powerful equity arguments for women's independent access to resources, and it can be argued that there are also longer term efficiency gains to the process of agricultural development.

In the following paragraphs, the efficiency and equity of project resource allocation will be explored on a case-by-case basis, to the degree that the data permit. Discussion of the Thailand Northeast Rainfed Agriculture and Mahaweli Irrigated Resettlement projects will draw primarily from the on-site studies carried out as part of the evaluation.

Northeast Thailand Rainfed Agriculture Project (FY 1981-1988)

The Northeast contains about one-third of the land area and population of Thailand but almost two-thirds of the population

lives in "absolute poverty" (below US\$120 annually in 1979, according to the World Bank). The land is hilly and the soils are characterized by high acidity, low fertility, and poor water-holding capacity. Rainfall is erratic and flooding common. Until recently, there has been a shortage of well-trained extension personnel, and market information and farming inputs have been in short supply. There is some cash crop production, but farms have concentrated on subsistence-based survival strategies that minimize purchased inputs and have relied on short- and long-term migration of family members for generating cash income. As a result, there are seasonal labor constraints in the farming systems.

This project is one of several designed to improve living conditions in the area. According to the Project Paper, the major objective of the project is "to address the needs of the rural poor in Northeast Thailand by establishing in 8 subdistricts a replicable, area-based agricultural technology development system for increasing productivity and farm incomes in rainfed agricultural zones" (Project Paper, p.1). Major components of the project are (1) elaboration, demonstration, and extension of improved farming practices; (2) improvement of the extension system and its linkage to research; (3) establishment of a process for matching the Government's technology development programs with farmers' needs and problems; and (4) improvement of the land and water resource base (Project Paper, part 1.B).

Eight districts were selected to reflect the agro-climatic diversity, and village-level specialist farmers were identified in each. Project staff are to evaluate the range of possible new crops, cultivation practices, and technology that might be introduced into the system, and test the most promising. Project staff are then to share their findings with the specialist farmers, who test their applicability to the real world and demonstrate them to the rest of the village.

In the low-terrace area, rice production is to be increased through greater fertilizer use, and pre- and post-rice cash crops such as vegetables, watermelon, peanuts, sesame, and mung beans are to be increased. In the middle-terrace areas, different combinations of traditional and improved rice varieties are suggested, along with increased fertilizer use and mechanical weeders and seeders. In the high-terrace areas, new cash crops such as peanuts, mung beans, and sesame are to alternate with the existing cash crops of cassava and kenaf. Poultry and livestock production are also to be improved through vaccinations, medicines, hatcheries, and improved forage production on common lands.

As noted in the social science annex of the Project Paper, women play major roles in all sectors of the household economy.

Agricultural households are still heavily matrilineal, and land is inherited primarily through women. Through their land rights, women also have access to credit. The division of labor is relatively flexible, with women contributing between 30 and 50 percent of the agricultural labor. Wages for men and women are roughly equal in local labor markets, but in urban areas wage rates favor men. This undoubtedly contributes to the higher rates of male outmigration. Percentages of woman-headed households range between 5 percent and 33 percent in the eight villages. Women market most of the household's production, although men may market some of the major cash crops such as cassava or kenaf. In any event, women have primary responsibility for managing the household income. In Palmer's A.I.D.-funded study of the project area (1982), both men and women stated that they make decisions jointly. In the same study, both men and women also expressed a preference for female extension agents because they were thought to be more conscientious and knowledgeable.

Yet despite women's management roles and their traditionally high degree of control of resources, the project has excluded them from direct access to resources of almost every kind--not only inputs but also information. Few women attend the field days held on the demonstration farms, both because of the timing and, according to the case study, because female farmers are rarely invited. Most of the demonstration farmers are men, thus depriving the project of feedback on the applicability of the recommendations to woman-headed households. Women are excluded from off-site training on all crops except silkworms; they are excluded from on-site poultry training and co-ops because "they bring children who are disruptive at meetings (Blanc-Szanton et al., p. 21). Such exclusion has substantial effects on project efficiency.

The farming systems are poor and complex, the innovations are many, complex, and not always compatible. Therefore farmers must exercise considerable judgment in adapting and managing the innovations. In the first 3 years of implementation, the green manure crops (cowpeas and mung beans in particular) have been successfully adopted. Planting peanuts before rice shows promise, but all pre-rice crops have problems with late planting. New rice varieties have received little fertilizer inputs to date. Post-rice crops that are deep-rooted, of short duration, or drought resistant and vegetables with supplemental water (watermelon, pumpkin) are doing well but have serious marketing problems.

Farming system data in project documents and the case study make it clear that the proposed innovations require an enormous increase in farming labor and that labor constraints are depressing productivity, particularly during April, May, and June. According to the project case study cited above, the

operations most often found lacking were land preparation and planting of pre- and post-rice crops (e.g., deep planting of peanut or direct-sown rice seeds, plant spacing for direct-sown rice, planting on ridges for sesame and in rows and beds for baby corn), activities largely performed by women; hand-weeding, also largely women's work; and applications of fertilizer and pesticides, which is done by women when men are absent.

New equipment for both men's and women's tasks, channeled into the household through the male head, is not being used regularly by the women when they perform the tasks. Such equipment includes hand-tractors for land preparation, hand weeders, jab-planters for tilling, and upland crop planters for accurate crop spacing. Due to male outmigration and increased labor demand, young women are now plowing with their carabaos, but they are not using the tractors. The reasons for this pattern are not clear.

Women's lack of technical information is clearly contributing to inefficient use of fertilizers and pesticides. The project has worked hard to identify the best and least expensive combinations of fertilizers to correct the serious fertility problems. The recommendations include liming for long-term effects on acidity, combined with green and animal manures, composts, and careful use of commercial fertilizers. Use of such complex recommendations demands that farmers be trained to monitor the soils very carefully and make complex judgments about when to do what. Pest problems present similar complexity. Because the Northeast is characterized by very specific and localized pest problems that differ from year to year, farmers are being trained to identify and monitor the pest populations in their fields and to anticipate, given weather and rainfall conditions, what pests are likely and what pesticides to use preventively.

Although women allocate the cash for purchasing pesticides and fertilizers, and do much of the application, they are not receiving this training and do not have the necessary information on which to base judgments about purchase and use. According to the case study, the current approach to pesticides is simplistic, often inappropriate, poses dangers of toxic contamination of food, and uses poor spraying technology and techniques. Cases were cited of women spraying pesticides above the leaves instead of below, with poor results for the crop, and of spraying while pregnant and nursing, which is dangerous for both mother and child. Increasing women's information about use of modern fertilizer and pest control techniques would undoubtedly contribute to safer and more efficient use of resources.

Crop marketing is another area of project intervention. A special report was issued on vegetable marketing after early

gains in production glutted local markets. The report recommended farmer-merchant meetings, encouragement of group buying and selling, better local processing of perishable items, a better understanding of national markets for easily transportable crops such as onions and garlic, and regular distribution of collected price data to farmers. Nowhere in the report was it acknowledged that the farming, processing, and marketing of vegetables, as well as group procurement, are often women's enterprises or that women play key roles in deciding which vegetables to plant and when. The first of the farmer-merchant meetings in 1984 does not appear to have included women, and there is no indication that they will be included in future activities.

Village water resource management represents the single largest item in the project budget because water is a serious constraint on productivity. It is important to manage heavy runoff from rain to keep paddies at the proper moisture throughout the growing season and to increase the dry season availability of water so that other crops such as vegetables, watermelon, and tobacco can be produced. Diversion weirs are being constructed to manage runoff. Two have been completed with communal labor and others are planned.

Fifteen hundred modified shallow wells are being dug on farmer's fields to improve production of early dry season vegetable crops through bucket irrigation. Although neighboring farmers can use the well, the major advantage goes to the fields nearest the well. Because selection of the area for each well site is done by the village headmen and the location on the farm is selected by the male household head, the case study found systematic socioeconomic and gender distortions in the distribution of the first 492 wells. Poorer and woman-headed households had much less chance for siting a well on their property. In siting the well within the farm, priorities for male cash crops, such as tobacco, often override considerations of irrigation for vegetables or water for domestic use.

Poultry and livestock production are also targeted for improvement by the project through vaccinations and improved feed and forage production. Backyard production of chickens and ducks has long been a female responsibility, but when village poultry committees were formed and specialized training was given, it was men, and a few young single women, who received the training. Among the specialist chicken-producing households that received hatched chickens, vaccinations, medicine, and training, the women continue to do the daily feeding and cleaning, while men concentrate on more intermittent technical aspects such as vaccinations. The case study concluded that while women are still active participants in chicken farming, they are losing their former control over the activity as backyard production becomes larger scale chicken production.

Both men's and women's labor inputs rise, but most women are excluded from training on the use of the new technical inputs.

By late 1984 there were also 1,080 farmers, predominantly men, trained as farmer specialists in the care of cattle and buffalo. They were responsible for vaccinations, parasite control, and advice on improved forage cultivation. Village fish ponds and private fish farmer specialists are also receiving improved fingerlings and technical assistance. Again, males received the inputs and training, but women provide much of the labor. The case study concluded that while both men and women share in the economic benefits of the poultry, fish, and livestock outputs, technology transfers in each case directly favored men.

By contrast, women's traditional sericulture activities were targeted for both technical assistance and improved inputs. The quality of current production for family use is low for several reasons: use of local varieties of mulberry and silk worms, poor cultivation methods of both trees and larvae, and low priority in use of resources. It was projected that with improved quality and appropriate marketing support, silk production could provide a substantial source of income.

However, this component of the project has been particularly slow to start, and the technology introduced at the first training sessions was not appropriate. The first training sessions were held in 1984 for specialist farmers, the most important being a 25-day session, which was held at a considerable distance from home and during the busy rice growing season. More than half the women left the session at mid-point because they were urgently needed on the farms and did not believe that the technology was workable. Those who persisted and began production with the improved inputs had difficulty with the design of the rearing rooms and with high mortality rates among the delicate hybrid silk worms. Some of the tambons do not have enough land to plant the new mulberry trees, and the marketing issue has not yet been addressed. The case study concludes that the one activity specifically aimed at women farmers has not yet developed successful inputs and has so far had very limited outputs.

The most striking aspect of the picture that emerges from the case study is the asymmetry between the powerful role of women in the traditional production system and their exclusion from the formal systems for delivery of new resources. Although women inherit the land, do much of the marketing, manage the money, and exert considerable power over decisions on investments in cropping enterprises and allocation of labor, women have little direct contact with the project. Both the host country and donor project professional staff are men, and two-thirds of the Ministry of Agriculture extension staff are

men. Much of the demonstration takes place on the fields of specialist farmers, in what appears to be a male context. There is no specific mandate for outreach to women, and both the time and the setting of current extension activities seem to work against women's participation. Despite the assumption in the Project Paper that "there are no socio-cultural barriers against women's involvement in any agricultural activity" (Annex VII, pp. 16-17), Boserup's description of women's exclusion from productivity-increasing technologies fits the reality of the project delivery system.

What is going on in the rest of the agricultural system? Are households redistributing productive resources internally? From the information in the case study, it appears that women gain access to the use of certain productivity-increasing inputs (e.g., improved poultry stock) but lose control over the enterprise. These shifts may influence the control of gender-related income flows, and these in turn may influence the household decision-making process, but this issue is still very cloudy in the Asian context. In the short run, women appear to be gaining neither access to nor control over the new mechanical technologies.

The degree of intrahousehold transfer of information is unclear. The case study expresses the view that while some information is undoubtedly shared between husband and wife, it is unlikely that all observations and steps in the manual operations would be shared unless they were perceived as very problematic. The case study gives the example of an excellent farmer who had been planting her root crop stock incorrectly (sideways instead of straight), until her husband, who happened to be bringing her the roots, saw this and corrected her. The mistake had cost her half of the previous year's crop. The Thai author on the study also noted problems with field trials when the husbands migrated temporarily to the Middle East and left their wives in charge of the demonstration plots without sufficient information on the new techniques.

Because the functioning of the private sector is not addressed in either the project documents or the case study, it is difficult to assess the interaction between the new resources and the local economy. Clearly, if the planned increases in production are to be maintained, marketing problems will have to be solved. The rapid growth of male migration to the Gulf states is increasing the amount of cash available for purchased inputs while reducing the supply of available labor. How this will affect gender patterns of technology use over time is unclear--whether women will begin to use the new plows and weeders or whether they will hire male labor for some operations.

The case study expresses concern that cropping recommendations, by increasing the demand on women's time when

it is already stretched to the limit, may have negative consequences on child care, child nutrition, and the general well being of the household. In the case of the poultry coops, women's child care responsibilities were clearly in conflict with their ability to access project resources. Improved household technologies and child care facilities could relieve much of this pressure, and women expressed an interest in cooperative day care facilities for families without grandparents available for child care. It is also important to understand the constraint to women's increased use of agricultural technology and how to relieve it, to the extent possible.

The case study noted both equity and efficiency effects of the project resource flow patterns. Because women are not being included as full participants in project implementation, they are falling behind in technological know-how and control of their environment. They are failing to gain access to control over important new resources and may be losing control of traditional enterprises such as poultry production and crop marketing. At the same time, the new technologies are placing unrealistically high labor requirements on their shoulders. By cutting itself off from dialogue and feedback with women, who are the majority of economic actors in the area, the project has lost an important asset. Because of failure to use women's knowledge and creative insights or to gain their full cooperation and commitment, diminished returns on project investments seem likely.

Evidently, the problem is not confined to this project. In 1980 the recently formed Thai National Commission on Women's Affairs, commenting on a series of in-depth studies on the needs of Thai women, noted that "Women in the rural areas, the majority of them farmers, urgently asked to improve their techniques and technical know-how for their agricultural work. Therefore... in the next five year plan particular attention will be given to projects which will directly link with agricultural work for women in rural areas" (World Conference of the U.N. Decade for Women, 1980).

Ratings: Project Success, Mixed, Too Soon to Judge Fully;
Benefits to Women, Low

Northeast Thailand Land Settlements (FY 1979-1984)

This project also took place in Northeast Thailand, in areas with much the same farming systems and much the same gender patterns of roles, responsibilities, and migration patterns as the Rainfed Agriculture project. Because this project was targeted to recent resettlement areas, infrastructure in the impact area was less well developed than

in the Rainfed Agriculture project. This project was directed to eight settlement areas characterized by lack of land title, inadequate water resources and physical infrastructure, lack of farmer organizations, poorly staffed and trained extension services, and farmer ignorance of improved agricultural technologies. In order to stabilize land tenure, land registration certificates were to be issued. The Department of Public Welfare was to supervise the building of 250 kilometers of roads and 250 water resource projects and the training and assignment of 221 new extension agents. These extension agents were to organize 300 farmer groups, which would help plan and initiate the subprojects and receive agricultural information and inputs. The only reference to women in the planning document specifically mentions that they are not targeted as members of these organizations.

Since the project focuses exclusively on land utilization [which is not the case: ed.], the unit that utilizes land, i.e. the family, is the organizational unit to be dealt with. In the Thai culture, the man, if present, is usually the representative of this unit, but there are families where few or no men are present, or are absent during the dry season. The project will improve the potential for women to become gainfully employed, especially in the schemes of intensive agriculture supported by small-scale water projects (Project Paper, p. G-9).

An implementation audit carried out in November 1983 by A.I.D.'s Office of the Inspector General found that after a 2-year startup delay, steady progress had been made in extension activities and road construction. At the time of the audit, 63 extension agents, 378 farm leaders, and 1,886 pilot farmers were involved in project activities. Agricultural demonstrations were underway in all eight settlements, 7,404 of a targeted 25,000 farmers had been issued land certificates, and 26 soil and water conservation projects were operating in seven settlements.

However, the water projects, the one program benefiting women, were not doing well. None of the five water subprojects visited had been built to specifications. Water runoff tanks were mislocated in all five sites. In the three villages where rain runoff tanks were constructed, only 8 of 31 tanks were capable of holding water. In another village, a concrete-lined pond

has no visible catchment area; it can only be filled by rainfall directly into it.... Monks from a nearby temple in an attempt to fill the pond had laid temporary pipes from a nearby roadway, but this only

caused the entry of small amounts of very muddy water.... The potential utility of the pond for drinking or raising fish is highly questionable. It is also a safety hazard because the slope of the concrete sides is steep, and a person falling in might have difficulty getting out (Audit Report Memorandum, p. 3).

In addition, the water and road construction sites were not selected on the basis of the original needs criteria--8 of the 33 sites actually had surplus water for drinking, household, and livestock use, and only 1 site was deficient in all three areas. The new road was barely being used. The audit criticized the USAID/Thailand Mission engineers for failing to participate in final site inspection and recommended much closer supervision of construction.

There is no mention of gender in the implementation study and no way of knowing the costs and benefits to women of project interventions. There is no indication of whether land was being registered in the name of the husband, the wife, or jointly, and no indication of the nature or effects of the agricultural innovations being introduced. With respect to efficiency, it could be argued that including the user perspectives of women in the farmer organizations that participated in the planning and execution of the water projects would have improved them. It could scarcely have made them worse.

Ratings: Project Success, Moderate, Mixed; Benefits to Women, Low

Thailand Seed Development II (FY 1982-1987)

This is an institution-building project designed to support the access of Thai farmers to high-quality seed. In traditional Thai agriculture, improved seed varieties were exchanged between close relatives or bartered, but as new high-yielding varieties are developed farmers who can afford to purchase them have a distinct production advantage. In an effort to ensure that such seed will be widely available, the Government is supporting improved seed production, promotion, and marketing through both the public and private sectors. Much of this project is devoted to overseas training of senior staff in the Ministry of Agriculture Seed Division and to on-site training of public and private sector seed personnel. Contract seed-producing farmers and extensionists are also to receive short-term training, and media campaigns to promote the use of improved seed are to be mounted. Finally, a vegetable seed processing center is to be established at Chiang Mai, and 250 farmers will be trained to produce high-yielding varieties and to demonstrate them to other farmers.

Gender is only briefly mentioned in the project plan when it is noted that "effects of different rice seeds on women are subtle and have not been investigated. Because they plant and harvest, flexibility in timing would be helpful to them." There is no mention of women's predominance in vegetable production and no discussion of the gender of the contract farmer or the seed customers. There seems to be an implicit assumption that the resources will be efficiently and equitably distributed. With no evaluation documentation available, the assumption remains untested.

Ratings: Project Success, Unknown; Benefits to Women, Unknown

Thailand Agricultural Planning Project (FY 1981-1984)

The purpose of the project was to strengthen the capabilities of the Ministry of Agriculture's Office of Agricultural Economics to carry out its rapidly increasing planning and project preparation work. Over the past decade the office had grown substantially in size and responsibility, but its responsibilities were in danger of outrunning its capabilities in policy advisement, problem identification and analysis, planning, data management, and integrated project preparation functions. In its early stages, the project was to concentrate its attention on the Northeast, with the expectation that when fully strengthened, the office would be in a position to assist the Ministry to plan and administer its resources nationally for the benefit of low-income rural households.

The project proposed to support the training of 5 staff members overseas at the Ph.D. level, 10 at the Master's level in Thailand, and 8-10 at the Master's level elsewhere in Asia. In addition, four full-time advisers and several short-term advisers would be placed in the Ministry to provide training and technical assistance in problem identification and project formulation, data methods improvement, and research and modeling efforts. Areas of particular concern were statistical modeling of Thai commodity markets and of the linkages between farm and nonfarm sectors. There was also a need to improve the collection and analysis of data in the annual farm survey, which includes farm-level production and consumption data.

With regard to the role of women, the Project Paper stated:

The longer-term project benefits will serve large portions of the farm population, men and women alike. The [Office of Agricultural Economics] staff itself includes 93 women within the total professional staff of over 200. However, women are most significantly represented at the level of the Bachelor's degree; 29

of the 31 staff members with advanced degrees are men. Therefore the [project] will explore the possibilities and work toward the enhancement of the professional role of women within the [Office of Agricultural Economics] (Project Paper, p. 34).

Because there are no available implementation or evaluation documents, there is no way of knowing how much training women actually received, but it seems likely that they received a reasonable share. The issue of gender disaggregation of data in the farm surveys or other data used for planning purposes was not addressed, and there is no way of knowing whether increasing the number of highly trained women in the planning office will increase attention to gender issues in agricultural planning and policy.

Ratings: Project Success, Likely; Benefits to Women, Likely

Mahaweli Irrigated Basin Development, Sri Lanka (FY 1977-1986)

The Mahaweli Basin Development Program of the Government of Sri Lanka is an extremely large and complex river basin development scheme utilizing more than US\$2 billion from several international donors, as well as substantial national resources. The program involves damming the Mahaweli Ganga, the country's longest river, and gradually developing a series of irrigated resettlement schemes in the sparsely settled dry zone. The newly irrigated land is to increase national production of rice, create employment, and provide a higher quality of life to settlers from the more densely populated wet zone. The program has been underway for a number of years.

A master plan that allocated responsibility among donors was prepared in 1975 by the World Bank, and long-term donor involvement has been based on that plan. A.I.D.'s current involvement consists of two projects in support of canal construction, and a general sector support loan. The evaluation sample included an earlier irrigation and water management research project. The on-site case study (Benson and Emmert) and this discussion are based on the total development effort in System B, where A.I.D.'s current projects are being implemented, as well as a discussion of System H, established in 1976, where A.I.D.'s earlier efforts took place and resettlement is more fully accomplished.

Project implementation requires clearing large areas of jungle, creating dams and irrigation systems, surveying and leveling fields, selecting farm families, and creating an extensive infrastructure including communities, roads, wells, health facilities, and training centers. The Mahaweli Authority

also provides agricultural inputs, credit, extension advice, and marketing services.

Prior to the irrigation schemes, the economy of the area was based on two kinds of agriculture: (1) shifting dryland (chena) cultivation of millet, pulses, and vegetables and (2) tank-irrigated paddy production. Women played the greater role in chena cultivation, men in paddy, but both men and women were involved in each type of production. Project roles were quite flexible, but, in general, men cleared land for chena and did some of the sowing and weeding. Women participated in rice harvesting, threshing, and post-harvest processing, as well as cooking, fetching water and firewood, and child care. Men and women sometimes earned income independently through crop marketing and cottage industries and agricultural labor, but, according to interviews carried out for the case study, income has always been pooled and managed by either the husband or wife with substantial joint participation.

Chena land was governed by use rights, while title to paddy land was inherited by men and women. Traditionally all marriages are classified as diga (virilocal) or binna (uxorilocal or matrilocal). Binna marriages, in which the husband comes to live with a land-owning wife or her family, were common. In such a case the married daughter, not her husband, would inherit the land. Land was often given to a daughter. During the colonial period, women's land rights began to erode because tenants were required to name a single heir. This rule prevails in the inheritance of new irrigated plots in the settlement areas. For settlers from the wet zone, land is allotted only to male household heads. Nevertheless, because prior residents of the area and those evacuated from flooded areas are entitled to receive land regardless of gender, by April 1985, 1,179 out of 5,866 (or nearly 30 percent) of the assignees of irrigated plots were women, according to the manager of System B (Benson and Emmert). According to the case study, about 30 percent of the irrigated farms in the project area are managed by women. Some are widows, but many have husbands who are employed by the Government or run businesses.

The project allots small farms, usually 2 acres of irrigated land and 1/2 acre for homestead, to voluntary settlers from different parts of Sri Lanka. Because rice is a dietary staple as well as a major cash crop, until recently the Mahaweli Authority has heavily emphasized paddy production. There is no provision for chena cultivation, which eliminates a major source of nutrition for farm families as well as a source of insurance in case of low rice production. Because female heads of household could support their families by chena cultivation and allow their paddy fields to be sharecropped by others, lack of chena cultivation also removes an important form of social insurance.

To some extent, the nutritional and economic benefits of chena cultivation are to be replaced by intensively cultivated homestead gardens. Wet zone gardens in the Kandyan highlands, from which many of the settlers originate, are very important to the nutritional status of the family and also provide a steady income throughout the year. These gardens may contain 16 or more food-plant species, including fruits, vegetables, coconut, and spices, which are a major cash crop. Officials on System B are encouraging settlers to establish similar homestead gardens; demonstration plots have been set up in villages, and seeds and young trees are being provided. Raising livestock for daily production is also encouraged on the plots, where additional land is available for grazing or fodder production.

There are two problems with the plots. First, they are not irrigated, so crops must depend on rainfall or be watered by hand. This demands either substantial labor investment or restricting the varieties that are planted. Some women use pitcher irrigation, particularly for tree crops, but the project has not yet investigated the costs and benefits of this strategy. The second problem is that the homestead plots are too small. A Project Paper for System B quoted in the case study states that "the decision to increase homestead size from less than 0.2 ha to nearly 0.3 was based on complaints made by women settlers in System H that the smaller size did not provide sufficient space for gardening, tree crop production, and livestock raising, all activities in which women were actively involved" (Benson and Emmert). Nevertheless, according to the case study, the change in size has not been implemented in System B.

Fortunately, other lessons of importance to women have been transferred. In contrast to System H, where settlers were mixed without regard to similarity of origin, in System B the decision to locate fellow villagers or kin in the same hamlets wherever possible has provided women with important support networks, especially for the care of young children. Women's mobility and ability to earn income was severely restricted on System H because they had no relatives or trusted neighbors to care for their children. In both Systems B and H, day care centers supported by UNICEF have been set up; these centers free mothers for farm work during the busiest season and also serve the children a high protein meal.

Serious labor shortages occur during peak periods in the paddy cultivation cycle, and there is seasonal immigration of labor. About 20 percent of paid agricultural laborers are women, many of them young married women with children, who work to provide necessary family income. In contrast to many other Asian situations, both men and women receive approximately the same daily wage for agricultural and construction work.

Professional women are also employed in substantial numbers as Community Development workers because of a Government directive requiring that each block have one male and one female officer, with female officers concentrating on women and on child welfare. Young women are also trained as health volunteers. Although they receive no salary, there is considerable prestige attached to the training and service. Most of the professional positions filled by women are at the lower levels and are concerned with household and human capital development. There are no female agricultural officers and only a few female field assistants.

The case writers observe that, despite the substantial number of woman-managed farms, male officials clearly assume that health, nutrition, and child care are areas of female interest, and agriculture is not emphasized. However, the curricula of the female-staffed Home Development Centers diverge from this pattern by emphasizing agriculture, dairy production, and income-generating skills such as dressmaking, in addition to home science and health. These Centers teach a 4-month curriculum for young women who have completed the tenth standard, and graduates may return to use the equipment such as sewing machines and canning equipment to make products for sale. The income-generating efforts are in very early stages, and it is difficult to judge how effective they will be.

At present an abundance of paid employment on project construction is available in System B for those needing income, so the need to generate income from small enterprises is still minimal. In System H, employment from construction has ceased, and income must now come from crop production, agricultural labor, and off-farm activities. Concerned about employment for the second generation, authorities recently established several vocational training programs, including those at the Home Development Centers. The need for shops, machinery repair, and other services has already created new local businesses. One constraint to the growth of such enterprises is the reluctance of banks to extend credit except for crop loans because they are dubious about the profitability of most local businesses at the current low levels of demand.

The Mahaweli settlement has been fairly successful in increasing agricultural production. By 1985 Sri Lanka was nearly self-sufficient in rice, which was at least partly due to the extension of cultivated area in Mahaweli. The first yields in System B averaged over 100 bushels per acre, about double the customary yield in Sri Lanka. Nevertheless, a 1982 survey found the area producing far below the potential technical ceiling. Major problems included drought, which sharply reduced the amount of water available for irrigation, and farmers' inadequate knowledge of water management and lack of capital. The program has been evaluated as moderately successful and proceeding slowly toward greater success.

The approach to constrained bliss is mixed. Women are receiving a substantial share of the project's credit and land, although much of this share may be lost to the next generation because of the inheritance laws. Although woman-managed farms do not appear to have direct access to extension, and agricultural production on the homestead plots is constrained by limited land and water, project resources are being invested on demonstration plots and inputs. Although women are employed at lower levels professionally, they receive equal pay in agriculture and construction. They are receiving training in health, home science, and, to a limited degree, in agriculture through the Home Development Centers, although not through extension. All things considered, although the project could be better, it could also be worse.

Ratings: Project Success, Moderate, Slow; Benefits to Women, Mixed/Likely

Nepal Institute of Agricultural and Animal Sciences
(FY 1974-1984)

This 10-year institution-building project was designed to "relieve the trained manpower shortages and maldistribution effects of recruitment, staffing and placement upon Nepal's agricultural sector to speed introduction of improved agricultural practices and viable on-farm production activities" (Project Logical Framework Goal Statement). It focused on the Institute for Agricultural and Animal Sciences, the only institution in Nepal offering Bachelor's and Master's degrees in agriculture. Inputs included third-country M.S.- and Ph.D.-level training for faculty; funds for planning and construction of physical facilities; and technical assistance in site planning, curriculum development, and faculty research from the contractor, a consortium of U.S. land grant universities. From the beginning, the curriculum was strongly practice oriented, with a heavy emphasis on laboratory and fieldwork, off-campus projects, and study tours.

The original project plan included development of training programs for mid- and high-level personnel from the Ministry of Agriculture, vocational agriculture teachers, and B.S. candidates and junior technicians who staff the Ministry and the extension service. Over time, the program has come to focus exclusively on B.S. and junior technician training. Because the Institute of Agriculture and Animal Science is the only institution in Nepal that grants B.S. degrees in agriculture and animal science, it is central to building Nepal's indigenous capability in these areas.

Despite fluctuating Government priorities and support and major problems with the quality and cost of construction, the project has been reasonably successful. In 1980 the first group

of 80 students graduated, and by 1983 enrollment was approaching the target of 700 full-time students. Twenty-six faculty members earned M.S. degrees; 6 Ph.D.s and 15 M.S.-level students were still in training in 1981.

According to the 1983 revision of the Project Paper, enrollment of women was not even considered during project planning. The joint A.I.D./Nepal study on the status of women in Nepal put women's agricultural work on the public policy agenda

by documenting that women contribute approximately 69 percent more family agricultural labor than do men, and independently make 42 percent of the farm management decisions, as compared to 28 percent made independently by men.... Despite this dominant role of women in agriculture, very few [Government of Nepal] extension agents are women, and... it is sometimes difficult for male extension agents to work with women. The Ministry of Agriculture is committed to increasing the number of women employees.... There are few trained women agriculturalists who could be employed by the ministry... and it has been difficult for women to break into the male-dominated [Institute for Agriculture and Animal Studies]. In 1980, one woman enrolled, and then dropped out. In 1981-82, three enrolled, and in 1982-83, four women enrolled on the main campus, and six at a branch campus.... The lack of adequate housing facilities has made it especially difficult for women... who initially had to live off-campus and walk [3 miles: ed.] to classes.... In early 1983 [the contractor] turned over one of the guest house trailers to use as a temporary women's dorm. This has enabled the three current women students to continue at the institute, but will not accommodate increased enrollment in the next years. A women's dormitory is a priority need for the campus (Project Paper Amendment 2, p. 14).

Nevertheless, plans for building a women's dorm were cut from the project because of cost overruns in earlier construction. Students protest d vigorously in public demonstrations, and the Nepal Government submitted a formal request to A.I.D. for additional money. A.I.D. responded that it did not have the money but would try to find another donor. Other donors expressed reluctance to finish up what was considered an A.I.D. project, and the money was not forthcoming.

In a country where women have major agricultural responsibilities, such resource allocation is neither equitable nor efficient.

Ratings: Project Success, Moderate, Mixed; Benefits to Women, Low

Burma Maize and Oilseed Production Project
(FY 1982-1986)

Since the mid-1970s, the Socialist Government of Burma has given increasing priority to agricultural production and has initiated a series of institutional and policy reforms designed to improve the performance of the agriculture sector. According to the Project Paper, over the past decade the average increase in food production varied between 1.98 and 2.18 percent, while the average population growth rate was 2.28 percent. Although much has been accomplished, population growth is still outpacing food production, and continued innovation is necessary.

Efforts began with the adaptation of high-yielding varieties of rice from the International Rice Research Institute (IRRI); extension activities for the distribution of seeds, fertilizers, and cultural practices such as double cropping began with the Whole Township program in 1978-1979. This program, which involves active participation of elected township and village councils and party officials as well as extension officers, has resulted in steady and impressive gains in rice production, with paddy harvest in the 1980s the largest ever recorded.

With increases in rice production underway, the Government has shifted its attention to increasing the production of maize and oilseeds, which are key national crops. Oilseed crops comprise 19.5 percent of total sown acreage, and cooking oil is second in prominence to rice in Burmese diets. The goal of this project is "to increase production of oilseed crops and maize in 28 demonstration townships in rural Burma with positive effects on rural income and employment and on national food supply and nutrition." Increased production will be almost entirely for domestic consumption, reducing the need for imports and foreign exchange. The Whole Township strategy for adaptive research and extension, which was successful in rice, will also be used for oilseeds. Four fully equipped and staffed maize and oilseed farms will also be developed, together with a functional rhizobium facility for inoculation of groundnuts and soybeans. Because lack of fertilizer is a major constraint to production, the project will supply 70,000 metric tons, in addition to agricultural equipment, technical assistance, and overseas training for 11 Ph.D. candidates and 25 M.S. candidates.

The social science annex to the Project Paper notes that

Burmese women are independent and accustomed to a high degree of freedom.... Even when married they carry their dowry and maiden name with them through life.... In agriculture, they play a significant role in both direct production and in making basic farm management decisions. Household budgeting, adoption

of new cash crop technologies, dealing with government agency representatives, and actual fieldwork and marketing of crops are all parts of the role women play. At the farm level, women will exert an important influence in the decisions of the average farm family to participate in the program.

The literacy rate for both men and women is close to seventy percent, and women are encouraged to compete for regional college and university seats. Women now account for about fifty percent of university graduates.... Recently, women have begun to make up as high as sixty percent of the enrollment of agricultural institutions: 250 out of 400 incoming students at Yezin in 1980.

Although there are no resources targeted specifically to women and the mid-term evaluation does not mention gender, it seems likely that women are being integrated into the project. The structure of the extension service, in which 10 or 12 extension workers are stationed in a production camp from which they service individual villages, makes it feasible to station women throughout the system. The high proportion of women agricultural graduates increases the probability that professional women will participate in both adaptive research and extension. The five high-technology sites, at which recommended practices are first tested on farmers' fields, receive technical support from the agricultural research station at Yezin, and it is reasonable to assume that farmer feedback will be received from both men and women. The active involvement of the political party at the local level, given its strong commitment to gender equity, can also be expected to strengthen the involvement of women, much as it did in Cape Verde.

Ratings: Project Success, Unknown; Benefits to Women, Unknown

3.2 The Need for More Information

It is unfortunate that more information is not available in the Asian cases because it would be useful to understand how resources flow through these pooled systems as modernization occurs. Although many of the Asia Bureau interviewees spoke of women as co-managers of farm households, the projects made no attempt to track the flow of resources by gender. The projects seem to be based on an implicit assumption that the strength of women's position in traditional systems would ensure equitable

distribution. The case studies display a more complex reality.

What happens in systems where women have traditionally inherited land and government land registration is done in the name of the husband, as is the case in Mahaweli and Northeast Thailand? What happens when large numbers of women receive an agricultural education, as in Burma and Thailand? How are they absorbed into the extension system and the bureaucracy? What difference does their presence make? Such questions await further investigation.

4. PROJECTS TARGETING RESOURCES TO WOMEN ONLY IN AGRICULTURE SYSTEMS IN WHICH BOTH MEN AND WOMEN WERE ACTIVE

Upper Volta: Women's Roles in Development (FY 1977-1982)
Upper Volta: Training of Women in the Sahel (FY 1978-1984)

Both of these projects were designed within a year of one another in the same country. Both drew on the experience of a very successful UNESCO project, and yet both suffered similar difficulties in implementation. The UNESCO project had been successful with individual gardens, collectively owned motorized grinding mills, collective poultry raising, and collective fields from which produce was sold for cash to restock the village dispensary. Each new project was to provide a revolving loan fund, training, and technical assistance to support the development of micro-projects for women in carefully selected villages. The micro-projects were to respond to the expressed needs of the villagers and were to have high potential for benefits, self-sufficiency, and replicability within 2 or 3 years. Loan application reviews included village-level dialogue. A simple feedback system was to provide general information on what was working and what was not.

The Women's Roles in Development project was housed in the new national Rural Domestic Economy Unit (RDEU), with five staff members to supervise 75 women agents in 11 regional Rural Development Offices (ORDs). In-country training was designed for paraprofessional and village women; four women professionals were to receive out-of-country training.

Because A.I.D./Washington was uneasy about the credit arrangements, these were detailed more extensively than in other, larger Sahelian credit programs. To ensure sustainability of the revolving fund, a higher than usual rate of interest was charged, and a great deal of energy was expended in trying to keep track of the money. Yet accounting for the money proved to be the rock on which both projects foundered. Technical assistance was given to the national RDEU for training

and organizing local women, but 80 percent of the credit was handled through regional CRDs, which were burdened by the elaborate procedures necessary to disburse each loan. As a result, money moved slowly and more went to individual women than to village groups. There was such confusion among the regional ORDs about reporting the movement of money that at one point the USAID Mission blocked disbursement of funds.

The mid-project evaluation concluded that project designers had overestimated "the abilities of the implementing agency, RDEU; the linkages between the ORDs and the RDEU and the skill level of extension agents." The project attempted more than either A.I.D. or the local infrastructure could support. Difficulties were compounded because the project had five directors in 3 years, all hired directly by the USAID Mission. Just as the project began, the Voltaic counterpart, regarded as crucial to project success, left with her husband, who was transferred to a regional post. An adequate replacement was not available. Within 4 years, the RDEU was dissolved and the project was transferred to the rural credit agency, but by then funds were blocked and no new activities could be undertaken. In her final report, the last director of the project summed it up in this way:

The designers of the project enormously over-estimated not only the previous training of personnel at all levels and the percentage of time these women agents could commit to the demands of the project but also the speed with which information could be communicated within the system. From the beginning the project was too imprecise concerning activities which would be sponsored and put much too heavy a managerial load on an undeveloped women's extension service that was only two years old.... It seems clear that resources could be better used if loan activities were limited to a small number of interventions. Although needs identification at the village level is essential, identifying needs is not the same thing as identifying projects. Village women speak of their need... for cash income... to reduce hours of labor in food transportation. The solutions to these problems are not obvious and will not be found by individuals working in isolation.... Because the project lacked a clearly defined program of appropriate income-generating activities planned by experienced professionals with local advice, the project was so shapeless that it could not move forward (Postle 1982, 2-6).

The final evaluation and the project report differed on how many loans went to groups, but they agreed that there was a strong demand for credit, that placing group

loans required more intensive management than placing individual loans, and that the rate of repayment for both individual and group loans was high.

The Training of Women in the Sahel project, which began later, was never fully funded and withered after less than 2 years for many of the same reasons.

Both projects attempted to address equity within the Mission portfolio rather than within individual projects. Equity would have been better served had efficiency been higher. Managing such detailed and complex projects demands high levels of administrative skill within both donor and host country organizations. These skills were in short supply not only in women's projects but throughout the Sahel.

The earlier UNESCO project had been much smaller in scale--9 villages rather than 60. Technical assistance, credit, and training had all been administered by one office, which significantly reduced communication problems. Finally, both the U.N. Development Program officer and Voltaic project manager had been outstandingly capable women who were with the project for 6 years. Each of these factors undoubtedly contributed to its success. Translating a small pilot project into a national program is always difficult. Administrative structure and personnel changes in the Ministry and a reduction in USAID Mission commitment contributed to the difficulties of these projects and reduced their ability to achieve project goals.

Ratings: Project Success, Low; Benefits to Women, Low

5. SPECIAL CASES

Camercon National Planning for Community Development (FY 1979-1982)

This was a small, interesting orphan of a project put together by a USAID official, who was leaving the country, and the head of the Community Development Office in a last-ditch effort to save the office, which was slated to be absorbed into the Ministry of Agriculture. Within 2 years the project was to hold meetings all over the country and develop a national plan for community development that reflected the views and wishes of all sections of the population. Implementation was the responsibility of the small community development staff and the even smaller contractor team of two men and one woman.

Improbably, meetings were held in every region, with very enthusiastic participation on the part of both men and women. The evaluation makes clear that this was the first time that the

regional community development staff had ever been asked for their views and recommendations; previous communication had all been from the top down. According to the contractor's final report, members of the community development staff had many useful ideas, and the national plan was based on their input. Among other recommendations, women were slated to receive half of all program resources and to be included equally in all project activities.

Unfortunately, no one outside the Community Development Offices was interested in the plan, and the Government went ahead with its stated intention to fold the community development activities into the Ministry of Agriculture. Recommendations on women were specifically rejected, in what appeared to be a clash of personalities, interests, and management styles between the contractor team and agricultural officials. Therefore, while women were very actively involved in project processes, they received no benefits beyond participation. Because the project was out of phase with current Government policy, it had little chance of success.

Ratings: Project Success, Mixed/moderate; Benefits to Women, Mixed: Process High, Outcome Low

Cape Verde Water Management (FY 1979-1985)

The Cape Verde project was the one project with a clear record showing that women had received an equitable share of project resources in an integrated project. Although there were many woman-headed households, there was no attempt in project design to target resources to women. The project paid people to build bunds, dikes, and wells to capture some of the scarce rainfall and to reduce soil erosion. Eventually, seedlings were introduced, and people were encouraged to plant them on the hillsides. The project was successful in providing employment and restoring the natural resource base. An interesting feature of the project was that extension agents came to the project during their rest periods and instructed people on reforestation and soil conservation and distributed free seedlings.

The national Government enacted new laws during the early days of the project requiring equal pay for equal work, and as a result women were paid the same wages as men. More important, the local political committee assigned the jobs and actively enforced the ruling that one person from every household should be employed before a second member from any household could be employed. Because of the many woman-headed households and the active role of the women's branch of the political party in pursuing their interests, this worked to the advantage of women who worked alongside the men throughout the project. The one flaw was that none of the women received training in skills such

as carpentry or stonemasonry that would have permitted them to advance on the salary scale.

Ratings: Project Success, Mixed, Generally High;
Benefits to Women, High

Jordan River Valley Development (FY 1973-1980)

Jordan River Valley Development was not one project but a series by several donors. Although few planning documents are available, an A.I.D.-sponsored evaluation of the total effort included discussion of the changes in gender roles. They found that the massive introduction of irrigation and rural infrastructure had produced more prosperous farms on which women's field labor had been replaced by male immigrants, piped water had reduced women's work load, many more girls were in school, and many farm women were working seasonally in a vegetable packing plant. They concluded that the younger, better educated women must be trained for interesting jobs, or they will leave. It is not clear from the evaluation which of these effects were actively planned for and which simply unfolded as part of the structural transformation, but the document gives an interesting picture of the gender effects of agricultural modernization in a particular setting.

Ratings: Project Success, High; Benefits to Women, Mixed,
Some High

BIBLIOGRAPHY

- Agency for International Development. Women in Development. A.I.D. Policy Paper. Washington, D.C.: A.I.D., 1982.
- Benson, Janet, and Jan Paul Emmert. "The Accelerated Mahaweli Program, Sri Lanka: A Women in Development Assessment." Washington, D.C.: Agency for International Development, 1985. Draft
- Binswanger, Hans, R. Evenson, C. Florencio, and B. White. Rural Households in Asia. Singapore: Singapore University Press, 1980.
- Blanc-Szanton, C., and A. Viveros-Long. "Northeast Rainfed Agricultural Development Project Case Study." Draft.
- Boserup, Ester. Women's Role in Economic Development. New York: St. Martin's Press, 1970.
- Buvinic, Myra, et al. "Women-Headed Households: The Ignored Factor in Development Planning." International Center for Research on Women, 1979.
- Carloni, Alice. Women in Development: A.I.D.'s Experience, 1973-1985. Vol. I. Synthesis Paper. Washington, D.C.: Agency for International Development, April 1987.
- Cloud, Kathleen. Sex Roles in Food Production and Distribution Systems in the Sahel. Proceedings of the International Conference on Women and Food. Tucson, Arizona: University of Arizona, 1978.
- Cloud, Kathleen. "Women's Productivity in Agricultural Systems: Considerations for Project Design." In Gender Issues in Development Projects: A Case Book, edited by Catherine Overholt, Kathleen Cloud, James Austin, and Mary Anderson. West Hartford, Connecticut: Kamarian Press, 1985.
- Dixon, Ruth. Assessing the Impact of Development Projects on Women. A.I.D. Program Evaluation Discussion Paper No. 8. Washington, D.C.: A.I.D., 1980.
- Dixon, Ruth. "Women in Agriculture: Counting the Labor Force in Developing Countries." Population and Development Review 8 (1983):3.
- Dwyer, Daisy. Women and Income in the Third World: Implications for Policy. International Programs Working Paper No. 18. New York: The Population Council, 1983.

- Fortman, Louise. "A Matter of Focus: The Inclusion of Women in A.I.D. Agricultural Development Projects, 1976-1984." Washington, D.C.: Agency for International Development, 1985. Draft.
- Lele, Uma. The Design of Rural Development: Lessons From Africa. Baltimore, Maryland: The Johns Hopkins University Press, 1975.
- Lycette, Margaret, and Janet Self. "A Preliminary Evaluation of A.I.D. Income Generation and Employment Projects." Washington, D.C.: International Center for Research on Women, 1984. Draft.
- McMahon, W. Walter. "Efficiency and Equity Criterion for Educational Budgeting and Finance." In Financing Education: Overcoming Inefficiency and Inequity, edited by W. W. McMahon and D. Geske. Urbana, Illinois: University of Illinois Press, 1982.
- McSweeney, Brenda. "The Negative Impact of Development Reconsidered: Study of the Women's Education Project in Upper Volta." Medford, Massachusetts: Tufts University, 1979. Unpublished Thesis.
- Mellor, John W. The Economics of Agricultural Development. Ithaca, New York: Cornell University Press, 1966.
- Overholt, Catherine, Kathleen Cloud, James Austin, and Mary Anderson (eds). Gender Issues in Development Projects: A Case Book. West Hartford, Connecticut: Kamarian Press, 1985.
- Palmer, Ingrid, Sukaesinee Subhadhira, and Wilaiwat Grisanaputi. The Northeast Rainfed Agricultural Project in Thailand: A Baseline Survey of Women's Roles and Household Resource Allocation for a Farming System Approach. Case Study No. 3. New York: The Population Council, 1983.
- Postle, Linda. Final Report: Women's Role in Development Projects. Washington, D.C.: A.I.D., 1982.
- Smale, Melinda. "Women in Mauritania: The Effect of Drought and Migration on Their Economic Status and its Implications for Development Programs." Report for A.I.D./Office of Women in Development and USAID/Mauritania. Washington, D.C.: A.I.D., 1980.
- Strauss, John. An Overview of Agricultural Household Models: Empirical Applications. Economic Growth Center Working Paper No. 451. New Haven, Connecticut: Yale University, 1984.

Ref-3

Timmer, C. Peter, Walter Falcon, and Scott Pearson. Food Policy Analysis. Baltimore, Maryland: Johns Hopkins University Press, 1983.

World Bank. World Development Report 1983. Baltimore, Maryland: Johns Hopkins University Press, 1983.