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GENDER ISSUES, WATER ISSUES

A Gender Perspective to Irrigation Management

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Executive Summary

THE INCREASING INTERNATIONAL awareness about the importance of women in agricultural development so far has had little impact on irrigation planning, designing and management. The thinking and practices of irrigation professionals have remained unchanged and unchallenged despite the fact that some of the most striking examples of project failures caused by wrong conceptions of the gender-based intra-household organization of production are examples of irrigation projects.

This paper explores where and how irrigation policies, planning, design and management can and should pay better attention to gender. It starts with a review of a number of documented irrigation examples to find out why many irrigation projects have persistently failed to accommodate prevailing gender relations, to the detriment of both the well-being of women and the success of projects. The review shows that most irrigation plans and designs remain to be based on the assumption that the farm household consists of a male farmer, his wife and a number of children. The male farmer is thought of as being the sole manager of all household and farm resources, and he is typically conceived and addressed as the single focus of decision making and as the person to whom all costs and benefits accrue. His wife is generally only referred to in terms of the units of labor she is expected to contribute to the irrigated agriculture enterprise.

There are a number of persistent assumptions that are derived from this unitary household model. These assumptions include, for example, that women can be automatically counted upon to provide (free) family labor to the production of irrigated crops and that the proceeds of irrigated farming are equally shared among household members. Because of the fact that these wrong assumptions do continue to guide irrigation policies, assessments of optimal performance levels of irrigation systems are often unrealistic and the specific needs and interests of women are often not recognized or accommodated.

Making use of existing frameworks for assessing the performance of irrigation systems, the paper identifies where and how gender relates to irrigation performance. Gender relations, first of all, structure the ways in which water is turned into agricultural products and how agricultural production in turn relates to welfare and other socioeconomic and environmental impacts. Women and men have differential access to productive resources (including water); they differentially contribute to irrigated agricultural production and are differentially affected by increases in production. This may lead women and men to differentially evaluate new irrigation opportunities, and explains why women and men are not always equally motivated to invest (additional) time and resources in irrigation and irrigated agriculture.

Because of divisions along gender lines in crops grown, labor used, and responsibilities carried out, women and men may also have different criteria to evaluate the adequacy, equity, timeliness, convenience and quality of irrigation water deliveries. This paper discusses possible differences and illustrates, with examples, how these affect both irrigation performance and the well-being of women.

Women are seldom perceived and addressed as direct stakeholders in irrigation development and irrigation management. Women are often not members of users' organizations, which is not only a

reflection of gender-biased irrigation planning but also of the unequal gender relations prevalent in many societies. Given the high involvement of women in agricultural tasks almost everywhere in the world, the absence of women in formal organizations is bound to lead to inefficiencies and is likely to perpetuate existing gender inequities. Possibilities and constraints to better involvement of women in formal irrigation management organizations are examined in this paper. One important conclusion is that not only the nature and degree of women's and men's interests and needs with respect to irrigation often differ, but women and men may also have different perceptions about the costs and benefits related to participation in users' groups. Organizations that function for men, do not necessarily function for women.

The general conclusion of the paper lists those gender biases that are persistent in irrigation planning and management. Opportunities for improving the performance of irrigation through a more realistic assessment of gender relations are explored. Although sustaining gender biases in irrigation policy, planning and management is sometimes functional to the achievement of performance objectives, often there will be trade-offs in terms of health or environment. A focus on gender will help to more realistically assess the physical, economic and social sustainability of irrigation systems; it will draw attention to changes induced by irrigation interventions (especially in the areas of nutrition, health and environment) that normally escape the notice of irrigation professionals; it will enable to effectively devise institutional and legal frameworks that recognize and support existing rights and powers of all stakeholders; it will assist in making the provision of information and support services more effective by targeting them to the category of people responsible for using them; and it will help to devise effective irrigation intervention strategies.

The paper ends with an assessment of the empowering potential of changes in irrigation management practices and institutions. Often, changes in irrigation alone can hardly be expected to redress gender imbalances that exist in a society. Improvements that help to better meet women's specific practical needs with respect to irrigation will need to be backed up by other changes and support if more strategic goals of women conceptualizing and challenging their social position are to be met. However, if some of the more crucial needs of women relate to irrigation, changes in irrigation practices and institutions may very well be a good entry point to challenge inequities and lend support to processes of women's empowerment.

1. Introduction

1.1 The IIMI Program

THE GROWING AWARENESS of the importance of gender relations in understanding and improving agricultural development led the International Irrigation Management Institute (IIMI) to initiate a special program on gender issues in 1992.

Attention to gender issues arises from two basic concerns. The first is concern over the ineffectiveness and inadequacy of technologies and institutional choices as a result of the neglect of gender considerations. This concern stems from recognition of the important roles of women in both productive and domestic activities. Women often perform many more tasks and are much more involved in agricultural activities than is generally assumed and reflected in official statistical sources. The success of policies aimed at raising the levels of agricultural production, or at alleviating poverty, depends to a large extent on identifying and addressing the appropriate target group. Just as there is a need to differentiate between large and small farmers for purposes of policy and project implementation, there is a need to distinguish between the roles of women and men in agriculture.

The second concern is over the differential impacts of development strategies on women and men. It has become clear that, in many cases, women have not benefitted equally with men from development efforts. In some cases, women have even become worse off. Studies arguing that economic development and technological change are not indifferent to the already existing class and gender inequalities and often tend to reinforce these, have shown how poor women have gradually and systematically lost access to and control over resources in favor of their husbands and male relatives.

Despite the widespread and growing awareness about the importance of gender issues throughout the world, very few attempts have been made so far to apply gender analysis to problems related to irrigation and irrigation management. There is very little documentation about the interactions between changing gender relations and the introduction of irrigation technology and about the ways in which gender relations structure, and are structured by, changes in irrigation management.

IIMI's Program on Gender Issues and Irrigation Management aims to increase knowledge and understanding about the relation between gender differences and irrigated agriculture. An increased understanding of gender divisions gives scope for working towards reinforcing shared and complementary interests of women and men, addressing conflicts of interests, and clarifying specific disjunctions between women's responsibilities on the one hand and their rights and control on the other. It will thus help to better understand and accommodate both male and female water user interests, improving the overall effectiveness of irrigation management and, ultimately, irrigation system performance.

1.2 Identification of the Problem

Very few irrigation systems in the world are operating at their full potential: areas cultivated are far below areas commanded; water deliveries rarely correspond in quantity and timing to the requirements of crops. Maintenance is often poor and problems of salinization and waterlogging are widespread in arid and semiarid areas. The importance of better use of water resources is enhanced by the growing scarcity of fresh water. Irrigated agriculture accounts for the largest single use of fresh water; a more efficient use of irrigation water will thus lead to substantial fresh water savings.

Since its establishment in 1984, IIMI has contributed to addressing problems of both food production and fresh water scarcity by working out better approaches to irrigation management. A greatly increased ability of traditional irrigation agencies to respond to changes in the physical, social and political environment, an increased accountability of managers to stakeholders, and a system of incentives for good performance are identified as major conditions for improving the use of existing irrigation systems (IIMI 1992a).

One area of important institutional change is the interface between irrigation managers and the farmers to whom they are providing water. In the past decade, it has become increasingly accepted that views of farmers or water users on benefits and costs, and on what is feasible and desirable, must be taken into account when managing irrigation systems (Chambers 1988; Uphoff 1986). In the irrigation context, the cause of differences among farmers that has received the most attention is water availability which is dependent on the location of the farm plot in an irrigation system. In highlighting these head-end, tail-end differences, other causes of differences among farmers have tended to be overlooked. Gender is one of them.

Gender refers to the socially determined attributes of men or women, including male or female roles. Gender roles are based on learned behavior, and are flexible and variable across and within cultures. Although the specific form which gender relations take varies widely, gender relations are present everywhere. Gender is one of the structuring principles in society and, more specifically, in the organization of agricultural production (Whatmore 1991; Whitehead 1990). Attention to differences based on gender implies a shift in focus from the male farmer only, who is assumed to be the main or sole actor, to both female and male farmers and/or water users. In the two problem areas IIMI is addressing, food production and fresh water scarcity, the roles of women have been identified as being of crucial importance.

First, women are estimated to produce more than half the food in developing countries. In Africa, women farmers raise as much as 80 percent of the locally grown food crops (Blumberg 1989:xvi). In addition, women often have a key mediating role in household welfare and nutrition. Second, women play an important role in water management. Although the specific roles, tasks and functions women may have in irrigation have been very poorly documented, the important roles women play almost everywhere in the provision of water for domestic use and in using that water are now widely acknowledged. Women often have very clearly defined interests with respect to the quality and quantity of water resources. In January 1992, an International Conference on Water and the Environment, in preparation for the United Nations Conference on Environment and Development (UNCED), was held in Dublin. The Dublin Statement adopted by the Conference says, as one of its four principles, that "women play a central part in the provision, management and safeguarding of water."

In short, a focus on gender divisions of labor, responsibilities, rights and interests can be considered as a means to start identifying differences between farmers as well as a way of highlighting women in their important roles as food producers and water managers.

1.3 Scope and Content of the Paper

This paper is a first attempt to explore the gender considerations of relevance to irrigation management, based on a review of available literature and on observations in the field. The objective is to identify appropriate concepts and analytical approaches which would enable the linkage of gender with irrigation. It is expected that this, in turn, will contribute to better recognition by irrigation professionals of gender issues of importance in their fields of work. Gender can be dealt with from various perspectives and with different objectives, implying different views on questions of equity and efficiency in relation to planned changes. Likewise, irrigation systems can be evaluated and looked upon from a wide range of different angles, reflecting different world views, priorities and concerns. Rather than embarking upon a discussion on the relative merits of each of the identifiable views and approaches, the objective here is to enable professionals dealing with irrigation to recognize and identify gender considerations of relevance to their field of work. How much weight should be attached to those considerations depends on the specific objectives to be achieved. It will often not be possible to avoid all gender (and other) biases in research, planning and implementing of irrigation interventions. But it is important to recognize that biases exist, so that opportunities for action can be identified.

A brief summary of the most important concepts and tools underlying gender analysis is given in section 2 of the paper. Section 2 also gives some examples of irrigation development which highlight how prevailing gender relations determine the outcomes of this development process. The examples also show how women and men are differentially affected by irrigation interventions. As such, section 2 provides the background against which a more narrow identification of gender considerations of importance for irrigation management (section 3) needs to be interpreted. Section 3 aims to draw together existing frameworks for assessing the performance of irrigation systems with methodologies for assessing and ranking gender needs. This section is the core part of this paper in that it documents how gender differences can be made visible and expressed in irrigation terms. In the last and concluding section, the implications of a gender-sensitive way of thinking for irrigation management will be explored by answering whether and how a focus on gender can contribute to performance improvements of irrigation systems and by examining to what extent better irrigation practices and institutions can be expected to contribute to the empowerment of women.

2. Irrigation Development in a Gender Perspective: Concepts, Examples and Trends

WHILE GENDER OR women may be a relatively new subject for many irrigation professionals, most gender specialists have heard and read about irrigation systems. The reason is that some very convincing arguments for more and better attention to women are derived from examples of irrigation projects. Settlement schemes in particular have provided some of the most striking examples of gender-biased development planning. These schemes have a similar format which ignores the scale and significance of women's independent farming or income-generation activities, leaving this realm unmodernized or sometimes debilitating it.

After brief explanations of some basic concepts underlying gender analysis, descriptions of some examples of these settlement schemes are given in this section. These provide the case for assuming differential impacts of irrigation development on women and men. Examples from settlement schemes also make clear why there is reason to believe that a better recognition of intra-household, gender-based production arrangements will increase the effectiveness and efficiency of irrigation investments. Rather than arguing that a deterioration in the status of women (where this has occurred) is due to uninformed, culturally biased policies and technologies, it will be shown how the structural position of women within their households and within the wider economy determines their access to resources and control over the disposition of household income. This is not to deny, however, that irrigation design and planning are gender biased. This will be illustrated with examples from Asia and Africa.¹ Intra-household factors which influence the nature and direction of the development of irrigated agriculture will be highlighted. Particular attention will be given to the positions of women within households and the wider society and how these positions influence the degree to which they exercise control over resources, the terms under which their labor is mobilized, and the share of the household needs for which they are responsible.

2.1 Women, Gender and Family Farms

The success of any irrigation policy or planned irrigation intervention ultimately depends on the willingness and ability of the final users of the irrigation system's outputs to use the irrigation water efficiently and effectively. Many disappointing returns to irrigation investments can be partly explained by water users and farmers behaving differently than they were expected to. A good understanding of water users' livelihood strategies, and their incentives to invest time, labor and other resources in irrigation and irrigated farming provides the basis for realistically planning and devising programs to enhance the performance of irrigated agricultural systems.

Such an understanding begins with the recognition that farming, almost everywhere in the world, remains primarily a family affair (Butler Flora 1988; Long 1984; Whatmore 1991). The persistent existence of small, family-based farms has attracted a lot of research and generated much

discussion. What has become increasingly clear from this debate is that family farming represents a distinctive form of production in relation to the dominant features of modern industry. Some of its distinguishing features are directly related to the biological base of agricultural production; others relate to the fact that part of the labor and resources are geared towards the direct satisfaction of family consumption. Because much agriculture is organized on the basis of the family, *the household* is generally used as the basic unit of analysis. Farm households can be defined as kinship-based groups engaged in both production and consumption with corporate ownership of some resources and a degree of joint decision making among members (Cloud 1988). It is within the household that decisions are made about what will be grown and how, who will work for wages, who will go to school, etc.

While accepting that family-based farms form the principal unit of agricultural production, the world of farming has traditionally been depicted as a "man's world." Analytical attention has focused on the male farmer as business principal, farm manager, laborer and decision maker, the word farmer itself carrying masculine connotations (Whatmore 1991). The male farmer, in other words, is thought to represent the joint economic behavior of the household. As a consequence, the composite social character of the family farm has all too readily slipped from view. In particular, until the late 1970s, the role of women on farms had received scant attention, on the implicit assumption that it was much the same as that of any other married woman in western societies, namely that after marriage men are gainfully employed while women work in the house and have children (ibid.).

The major contribution of early research on Women in Development (WID) has been to show the inaccuracy of such an assumption and to catalog the varied combinations of labor roles performed by women on family farms. These include agricultural laborer on collectively owned fields, farmer of separate crops or fields, co-farmer and off-farm income earner. Some women contribute routinely to the production of the family food supply, others work only during the peak labor seasons. Women not only provide labor, they manage cropping enterprises that provide them with separate income streams (Cloud 1988). Much of the early WID work has been directed towards filling the vacuum created by official statistics on farm labor which tend to deal generically with the category "family labor" and fail to distinguish individual members' contributions within this (Whatmore 1991). However, while these studies demonstrated the economic importance of women's contributions to agricultural production, it remained difficult to incorporate their domestic or reproductive activities in the analysis of farm household behavior.

Underlying this difficulty is the narrow concept of labor that was common in earlier farm household analyses, which treated farms as firms. Only the activities geared towards the production of commodities for the market were included in this labor concept. This "productionist" concept has been criticized on the basis of evidence from developing countries, where much labor and land in farm households are devoted to food, clothing and equipment without ever passing through the market. This subsistence production in a way escapes the logic of the market, and is thus difficult to understand by referring to market prices.

In conventional analyses, subsistence activities performed by women were often automatically considered as "domestic" or "reproductive" and treated as the equivalent of household work performed by women in western societies. Irrespective of the exact nature of women's work, it was invariably conceived as the fulfillment of their domestic duties. However, in most family farms, domestic labor is characteristic of all household members' labor, across agricultural as well as subsistence production, and is not restricted to women's work. In fact, the very distinction between

subistence, reproductive and productive activities is often problematic. Many women trade some of the products of their subsistence activities in informal markets, selling products such as eggs, dairy products, cooked or processed food, home-brewed beer and handicrafts. They may also provide paid services, such as sewing, laundry, cleaning, healing, midwifery and child care. On the other hand, part of the crops grown for sale in the market may be used for home consumption.

A narrow concept of labor thus not only misrepresents the farm production process by obscuring the essential interdependence between productive and subsistence activities, it also implicitly helps to underestimate women's participation in farming. Gradually, and very much based upon evidence from developing countries, the early farm models have been expanded to include production for use as well as for sale, and some reflect both consumption and production behavior. As it has become increasingly clear that the home and the fields compete for capital resources and family labor, economists have expanded their definitions of the "products" of the farm enterprise to include women's productive activities. Recent models include women's labor time as a rationally allocated resource and economic values are assigned to the goods and services produced by women, even when these do not pass through markets.²

The newer farm models still treat the household as maximizing a single utility function, for purposes of analysis of its decision making.³ They assume that all resources of land, capital and labor are pooled and allocated where they will be most useful to the household as a whole. Empirical evidence, often based on studies that seek to explain unexpected outcomes of development interventions, has shown that this behavior does not occur in many parts of the world. It does not explain, for example, why incomes earned by women are spent in ways different to those of men. Nor does it clarify why male household head does not always have perfect control over the labor of other members of the household.

Within households there is an "internal economy" in which gender relations are an important structuring principle. This can be conceptualized as a continuum ranging from domestic units characterized almost entirely by "separate purses" among adult female and male members to domestic units where women have virtually no income-generating opportunities. Household production arrangements do not involve just one single household member, but different male and female members who play more or less interlocking and interdependent roles (Blumberg 1989). Male and female members of farm households may have shared, separate and conflicting interests within the household, and may wish to use the same resources in different ways. What is in the best interest of the household may not be in the best interest of particular members.

For explaining intra-household resource allocation, a bargaining model has been proposed as an alternative to the joint utility function model of the household. Bargaining models recognize that household members may have conflicting as well as complementary interests. The "weight" attached to an individual member's preferences depends on his or her bargaining power. A bargaining model of the household forces one to pay attention to those variables which give some household members greater leverage in determining the household resource allocation and expenditure patterns (Jones 1983). A bargaining model conceptualizes the farm household as

a political arena constituted by particularly dense bundles of rules, rights, and obligations governing relations between men and women, and elders and juniors. The rules defining property rights, labor obligations, resource distribution, and so forth are particularly subject to contestation and must be constantly reinforced and reiterated. The influence that different household members can wield in negotiations