Empowering African Women through Agricultural Technologies: The Case of Irrigation Technology in Northern Ghana

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Abstract

Poverty in sub-Saharan Africa is both rampant and widely spread. However, its distribution is skewed to the arid and semi-arid agro-ecologies, rural parts and to some of the socially disadvantaged groups, such as women. The Guinea-savanna agro-ecology of Ghana is a case in point where one can find an interface between the agro-ecological and social layers of poverty. The Upper East Region is one of the regions located in this agro-ecology in Ghana. In this region more than 95 % of the population, which are mainly rural based live under the poverty line. Erratic rainfall, poor soil quality and increasing population pressure among others contribute to the prevalence of poverty in the region. In addition, the social construction is biased against women by depriving them entitlement to resources such as land. Most proponents of gender equality advocate for policies and technologies which are designed to generate income to women usually in the form of small trade. However, in a social set up, where women are deprived of title to resources the contribution of such endeavors towards emancipation of women is marginal. Therefore, the challenge ahead of researchers and policy makers is to identify appropriate technologies and policies that can address poverty in its totality. In this paper we analyze the effect of irrigation technology, on overall household income, gender differentiated income. It was found out that irrigation technology being a labor intensive technology is able to create huge employment to the increasing population in general and to women in particular. However, the sustainable utilization of its potential contribution depends on factors such as, the performance of input and output markets and other institutional factors.

Introduction

In spite of the limited progresses, in fighting poverty in most part of the world the trend in sub-Saharan Africa (SSA) is discouraging. The rate of poverty reduction in 1990-1998 was less than one third of what is needed to halve extreme poverty during 1990-2015 and, it was six times less in SSA (IFAD 2001b). What is also disturbing is, the fact that, it is skewed towards the arid and semi-arid agro-ecologies, rural parts and to some of the socially disadvantaged groups, such as women and minorities. The Guinea-savanna agro-ecology of Ghana is a case in point where one finds an interface between the agro-ecological and social layers of poverty.

Particularly the issue of women in poverty alleviation endeavor came to the forefront of development discussions since long time. This is well reflected from the fact that, the latest attempt to put guidelines on poverty alleviation, the Millennium Development Goals, has put "Promote Gender Equality and Empower Women" as one of its six goals (African Development Bank 2002). Most of these focuses on women seem to agree on one point that is gender discrimination is a cause not the effect of poverty in most of the poor countries. Though, women's access to resources can not be controversial, the causality is not always one way. However, it looks that the accepted norm in the main stream development strategy the causality that, gender inequality is the cause not the effect of poverty in most developing countries.

> The removal of gender inequalities in the face of poverty has been as much a cause as an effect of growth: depriving a good farmer of land, or a bright child of schooling, because she is female, is not only unfair, it is also a barrier to growth (IFAD 2001b).

This school gets much of its backing and even sometimes pressure from feminist and other social groups in the west.

In this paper we try to show that, the causality can work in the opposite direction than, what is taken for grant. That is, agricultural technologies designed to address overall poverty in a given region, if other market conditions are satisfied, can address the gender

empowerment issue. To this end we analyzed the impact of irrigation technology on overall poverty and empowerment of women in the northern semi-arid part of Ghana. This particular case study has been compared with similar technology in the same agro-ecologies, in Cameroon and Ivory Coast.

The remaining part of this paper is organized as follows: The first section will discuss the poverty condition and its source in the UER, followed by a section which discusses the impact of irrigation technology in addressing the overall poverty issue and that of women in particular. The last part compares the case study in this paper with similar cases in West Africa.

Rainfall Variability and Poverty in the Upper East Region

In West Africa in general, in several countries with a savannah in the north and a forest in the south, rural poverty tends to be significantly higher in the north. In Ghana, which is the focus of this paper, poverty incidence is higher in rural savannah areas (IFAD 2001a). The study area in particular and the savanna in general is not only faced with chronic poverty but also poor success in the alleviation efforts (Table 1). The UER is located in the Guinea savannah agro-ecology, where the major source of agricultural risk is the erratic nature of rainfall. The onset of rains is usually not predictable and the first rains are usually torrential with only a small amount percolating into the soils; rainfall patterns are usually uncertain, while unexpected droughts lead to crop failure (Braimoh 2004).

In addition to the bio-physical constraints, socio-economic factors specific to the region also play crucial role in the overall poverty and the marginalization of women in particular. During the colonial period people in the north were major source of labor for the commercial plantations in the south and there was very little attention given to the provision of social services in the north (Konings 1986).In addition to that women have no right to land, though they- more particularly married and previously married women- might acquire from their husbands or family elders temporary access to a small plot of land (usually 0.5-1 acre) on which they could grow crops like groundnuts, vegetables, potatoes or rice, both for consumption and trading purposes (Konings 1986).

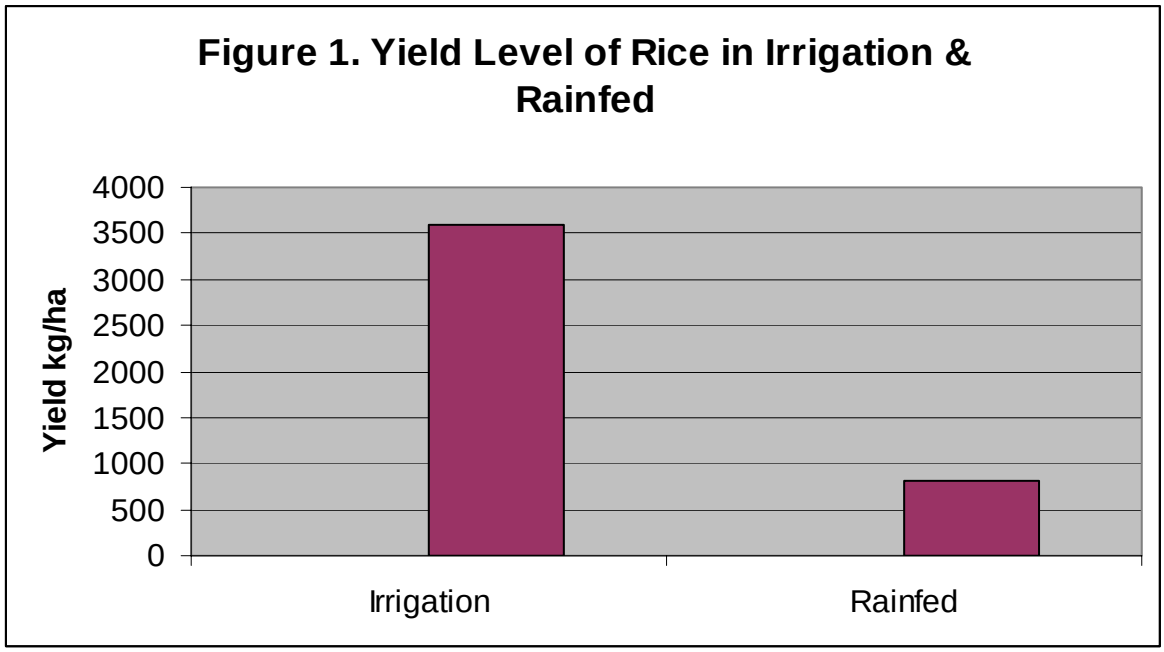
Table 1: Poverty Incidence by Locality 1991/92 & 98/99 (Poverty Line=900,000 Cedis)

Localities	Accra	Urban Coastal	Urban forest	Urban Savanna	Rural Coastal	Rural forest	Rural savanna	Ghana
1991/92	23	28	26	38	53	62	73	52
1998/99	4	24	18	43	45	38	70	40

Source: Extracted from (Ghana Statistical Service 2000).

Technology, Poverty Alleviation & Women in the UER

The bio-physical features, mainly the erratic nature of rainfall, made agriculture a risky venture. To offset this incidence, especially after the end of the colonial period, poverty alleviation focused on reducing the risk associated with rainfall variability and the uncontrolled influx of labor force from the north to the south. To this end provision of irrigation services which ensure water supply and help create local employment in place of migration was taken as a major strategy (Konings 1986). Tono and Vea were the two projects built in the Upper East Region (UER) with irrigation areas of 2490 & 850 hectares respectively (ICOUR 1995). In overall, irrigation technology has shown its potential in increasing agricultural productivity and directly contributing to the poverty alleviation endeavor (Fig. 1).



Women have played a significant role in traditional agricultural production technology in African societies. However in programs for improvement of agricultural technologies, women are seldom recipients of the benefits, although they no doubt are capable of using them (Kumar 1987). The experience, in the UER of Ghana shows that technologies, like irrigation positively contribute to the overall poverty alleviation and empowerment of women. However, these contributions, particularly to women, were significant because of the following conditions.

1. Direct Access to Irrigated Plots

Currently land allocation at the irrigation sites is undertaken through water users group. These groups represent farmers and will be allotted blocks of irrigation sites by the irrigation agency and they will distribute the block to their members. One of the conditions the irrigation agency puts on the farmers groups, is that the groups need to include women. The norm is 50 percent of the group members need to be women, though the norm may not usually be kept, significant number of women get plots on the irrigation sites. In the field work for this research it was documented that one of the farmers group in the *Korania* community had 13 female and 15 male members

2. Increasing Demand for Women Labor

Most of the agricultural activities in the irrigation areas heavily depend on women labor. These activities include, transplanting, harvesting and winnowing of rice and transplanting and harvesting of tomato. The irrigation technology supported by the demand for irrigation products, created demand for labor, particularly that of women. This has increased women's bargaining power in the labor market, both in the wage rate and terms of payment. In our survey we found that most farmers, who hire labor particularly for rice, would like paying in cash but laborers, majority of who are women, accept only payment in kind.

> For example, for each 33 kg of paddy rice harvested, winnowed, women earn 2.4 kg of rice as a wage rate. In monetary terms this is equivalent to 6000 Cedis, but women laborers do not accept cash.

The negotiation power they have in the labor market will increase their social capital and can also increase their negotiation power in other issues, like access to resources etc.

3. What are the lessons from other similar schemes?

(Kumar 1987) has compiled the impact of some technologies on women. Particularly, the document has information on irrigation farming in semi-Arid agro-ecologies of Cameroon and Ivory Coast. It can be seen from (Table 2) that similar technologies can have different impacts based on the institutional set up and market conditions.

Table 2: Comparing the effect of Irrigation Technology on Women

Technology	***Effect on Women's Labor***	***Off-farm creation***	***Market Orientation***	***Seasonal conflict on resources***	***Policy on women's access***	***Control of Women on returns***
1. Irrigated Rice in Cameroon	- displacement, - more labor requirement	- No	-Partly	-conflict with traditional crops	-women were allocated by local authorities	-By men
2. Irrigated Rice in Northern Ivory Coast	-Increased requirement	No	Poor	Conflict with traditional crops	No special access	-Poor return
4. Irrigated Rice in Northern Ghana	- more labor requirement	Yes	Fully	Not much	-Water Users Associations required to include women	By Women

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