

INCREASING WOMEN'S BENEFITS FROM IRRIGATION DEVELOPMENT

Smallholder Irrigation in the Kano Plains, Kenya

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Introduction

In the approach of the Kenyan Provincial Irrigation Unit (PIU), Nyanza Province, that works within the framework of the Smallholder Irrigation Development Project (SIDP), the participation of the users of the schemes has a high priority. In the late eighties, however, the project realised that the farmers involved in the project's interventions were almost exclusively male, while women's contribution to irrigated agriculture in Nyanza is important. PIU and SIDP felt the need to adapt the project interventions towards a more gender-balanced inclusion of all users in irrigation development. By increasing women's benefits from rice cultivation, their interest in the project could be ensured.

J. Hulsebosch was asked to formulate and execute research that could lead to such actions. A study into gender-based division of labour in 1989 (Hulsebosch, 1990b) was followed by a study on decision making of women in joint, migration and widow's households (Hulsebosch 1990a). The issue of control over rice produce and the division of benefits at household level was started in 1991 (Hulsebosch, 1992). Based on research findings and recommendations, experimental actions were developed. In this way, a credit scheme was started in 1992 to stimulate rice farming at the household level. At the scheme level, women got more involved in collective decision making.

This article describes an analysis and recommendations that concern production at the individual farm level. Issues on women's inclusion in the design process and in Water Users' Organisations are beyond the scope of this article. This paper first examines the research framework. This is followed by discussion of the project approach and the nature of rice farming in Nyanza Province. The main research findings are given in Section 2. Data on labour (section 2.1), land (section 2.2) and control over

rice produced (section 2.3) is used to assess the main constraints and benefits in rice farming for the different types of households (section 2.4). Finally, the recommendations for action at the farm level that were based on the research will be presented in section 3.

Set-up of the research

Insights into gender-based division of labour resulted from a study of a PIU-assisted scheme (Gem Rae) in Kisumu District in 1989 (Hulsebosch, 1990b). It monitored labour allocation in rice farming of five households on a daily basis, 30 households were interviewed twice during the rice season. The labour analysis revealed that women are important actors in rice farming.

This research was followed by a study on decision making of women in different types of households (Hulsebosch, 1990a). Distinction was made between:

1. Households that were *de-jure* headed by a woman. In this research they were all *widow's households* and are subsequently described as this.
2. Households that were *de-facto* headed by a woman. The husband has migrated, but remittance of goods and/or money takes place. In this research they are called *migration households*.
3. *Joint households*, were both husband and wife/wives are active in irrigated agriculture. The man is the head of the household.

Interviews were held with 21 women (seven in each category) and 14 husbands by means of a questionnaire concerning farm decisions. The closed character of the questionnaire limited the results; the area of women's control over rice remained especially unclear.

In order to highlight the issue of control over rice produced, research on the division of benefits at household level was started in 1991. Three rice schemes in Kisumu district were included in the research: an operational scheme, a scheme that was recently implemented and a scheme in a future project area. In each scheme a list of plot owners was available (male heads of households and widows with a plot). At random, 30 names per scheme were selected from this list. In the 90 selected households the wife was interviewed, especially on control over produce and benefits from rice farming. In the case of polygamous households one of the wives, who was at home, was interviewed; in five households the husband as well. To cross-check information, group discussions were held with women about benefits from rice farming. In 1992 several special meetings for women were

organised within the context of a series of meetings with farmers to discuss results.

For the study set-up the researcher was inspired by participative observation, living with families in the area and taking part in community life and activities¹.

Project approach

The Smallholder Irrigation Development Project (SIDP) aims to assist small-scale irrigation development in Kenya by institution-building: The project is a cooperation between the governments of Kenya and the Netherlands since 1977. An Irrigation and Drainage Branch (IDB) has been set up within the framework of the Ministry of Agriculture (MoA). On the provincial level, Provincial Irrigation Units (PIU's) have been constituted to develop small-scale irrigation in their province.

In Nyanza province the PIU Kisumu is mainly involved in rice development. The area under smallholder rice irrigation in Nyanza Province has expanded from 100 ha in 1979 to 1500 ha in 1990 (Kimani and de Vries, 1991). These irrigation schemes range typically from 40-250 ha and in membership from 60-450 plot owners, who are organised in Water Users' Associations (WUA's) (Ombara, 1990). The participative approach adopted since 1988 implies an active participation of the users before, during and after implementation of a scheme.

The experience with this participatory approach has been that very few farm women have been participating in the discussions concerning design, implementation, operation and maintenance and few have taken a seat at WUA's. Farmers have been approached as an homogeneous group: in practice mainly male farmers have been participating.

Since 1990 the PIU Kisumu has been involved in an ambitious effort to implement the South West Kano Irrigation Project. The project involves 1130 ha of mainly newly available rice land, and over 2500 male plot owners.

¹ These research issues appeared to be similar to those suggested in the conceptual framework developed by Feldstein, Poats et al., 1990 for "selectively identifying and organising the information for gender analysis which will contribute directly to Farming Systems Research/Extension in a particular location and in light of a project's objectives". This framework defines four themes where gender analysis improves the understanding of the farming system and the changes induced by a project: labour, access to and control over resources, control over benefits and inclusion in project activities.

Project area and the place of rice farming in the farming system

The South West Kano irrigation project and most PIU-assisted schemes are situated in the Kano plains, where 80% of the farmers are smallholders. The Kano plains are densely inhabited: 177 people per square kilometre in 1979 (Noy and Niemeyer, 1988). The average landholding amounts to 2.3 ha and consists of 0.4 ha of rice land and 1.4 ha of upland crops. Upland crops are maize, millet and sorghum which are grown during the rainy season from February-July. Upland crops are grown for subsistence purposes, maize is the main staple food of the area. Occasionally green grams, cassava and vegetables like tomatoes and kales (swahili: *sukuma wiki*) are grown.

The irrigated rice crop is grown from August to January and is mainly used as a cash crop. On average 10% of the produce is kept for family consumption (Mbogoh, 1989). Rice cultivation is very profitable: one hectare can yield 50-75 bags (4-6 tons), equivalent to 25-38.000 ksh (= 760-1150 U\$). On the other hand rice cultivation is labour consuming: the average labour input is 4000 hours per ha (Hulsebosch, 1990). Therefore, rice farming depends on cash to hire additional labour. In a study in a smallholder rice scheme in Kisumu District the average cash input to hire casual labour in the season 1989/90 was 5500 ksh/ha (= 167 US\$/ha) (Hulsebosch, 1990). Lack of cash at household level can force farmers to lease out their plots or can delay cultivation operations and reduce yields. Many households, especially migration households, do not have access to labour and cattle for ploughing; 75% of all households depend on cash to hire ploughing.

The area is inhabited by members of the Luo society. The Luo society is organised by lineages which are formed by descents from a common ancestor. The marriage system is exogamous and virilocal: women who get married move to live with their husband's lineage. In Luo, the customary practice in land inheritance is patrilineal. Men have access to land by belonging to a lineage. Women hold usufructuary rights by means of their marriage. Originally Luos are nomads and cattle still takes an important place within the farming system. Cattle are used for ploughing, payment of bridewealth and as a kind of savings account: when cash is needed cattle can be sold.

Research Findings

Women's labour in rice farming

The research on labour input in rice farming confirmed that women are important labourers on their own plots, their husband's plots and as casual labourers. As a result of male out-migration (40% of the households in Western Kenya) many women were responsible for their husband's plots.

In the research three types of plots were distinguished:

1. plots owned by men but managed by their wives because the men had migrated: 27% of the plots;
2. plots owned by widows or allocated to women by their husband: 37% of the plots;
3. plots owned by resident men; part of the labour was provided by wives: 37% of the plots.

The labour source and the contribution of women's labour differed according to plot type, as shown in Table 1.

Table 1: Labour source according to plot type (n=30)

Plot type ¹	Labour source					total (%)
	hired	wife/wives	husband	children	other ²	
1	45	31	-	14	10	100
2	39	24	-	24	13	100
3	29	21	7	36	7	100

¹ See page 5 for classification

² For example sisters, daughter's-in-law, reciprocal labour arrangements

The labour of the wife was crucial to all plots. On the men's plots 7% of all labour was performed by the owner, on the women's plots a quarter of the labour. It should be noted that apart from cultivating their own plots these women, with the exception of the widows, were also required to work on their husband's fields. For instance, one of the wives of a polygamous man with a plot of 0.4 ha worked 18 days on her husband's plot apart from the labour on her own plot.

On all plots a considerable amount of labour was hired, but mostly on the plots of migration households; the husbands provided cash to enable rice cultivation. The men's plot of joint households relied considerably on children's labour. In absolute figures these plots were cultivated with more labour input than the other plots.

Although men performed all the labour for slashing and ploughing, women did most of the labour-intensive operations. They provided 61% of the labour for seedbed preparation, 51% of first harrowing, 62% of second harrowing, 81% of weeding, and 70% of threshing. When children's labour is excluded women performed 60% of all labour in the rice cultivation (Hulsebosch, 1990b).

Women's access to irrigated land

In the Luo land tenure system land belonged to the lineage and both men and women had well defined rights to land. Men, together with male clanmates, had rights to allocate land. Women hold use rights to a plot for cultivation by means of their marriage. Land could not be sold as it belonged to the clan. This situation changed after the Swynnerton plan in 1954 which introduced individual titles to land in Kenya. Land in the Luo area has been registered and adjudication on personal titles has taken place.

While all women used to have usufructuary rights under the former Luo land tenure system the research showed that in the project area only 54% of all married women had rice plots allocated by their husbands. These plots will further be called women's own plots, though this does not imply absolute ownership. This low figure might be due to a general decrease in landholding in the past. The total rice land size of the households where the wife had her own plot was higher than households where the wife did not have a plot: over 0.80 ha compared to 0.40 ha. Here again the allocation of plots to women depends on the total quantity of land of a household.

The access to, and size of, plots differed per household category. The widows had the best position regarding access to land: they had access to an average of 0.60 ha own rice land. In the joint households 51% of the wives had their own rice plot, the size was 0.32 ha on average. Their husbands held 0.56 ha on average. The other 49% were active in the cultivation of rice on the plots of their husbands (0.40 ha on average) but had not been allocated their own plot. The women of migration households were mainly cultivating the plots of their husbands who were absent (on average: 0.60 ha). Only 23% of these women had their own plot (on average 0.16 ha).

Table 2: (a) Women owning a plot for type of household (b) Average size of women's plots for type of household (n=90)

<i>Household type</i>	<i>Women owning plots (%)</i>	<i>Average plot size (ha)</i>
Widow's household	100	0.60
Migration household	23	0.16
Joint household	51	0.32

Women's control over irrigated rice produce

Women's control over rice produce was assessed according to the general reasoning and answers of respondents to questions about produce and expenditure. In this way three categories appeared:

- *Women with high control over the rice produce*

The 'high control' women were talking in terms of "this year I may give my husband one bag after the harvesting of my plot" or "last year I decided to trade with my rice". The interpretation was that they could decide rather independently on the usage of the harvest of a plot.

- *Women with indirect control over rice produce*

In the case of indirect control the expenditure was discussed between the spouses: "we decide together how we will spend the money from the rice harvest". The level of influence depended on the negotiation power of the women. Control over products of their own labour is in this case influenced by many factors like absence/presence of the male head of household, the total amount of female labour and female cash input, the personal relationship between husband and wife and access to off-farm income (Mackenzie, 1990). It was hard to determine whether indirect control resulted in high or low benefits.

- *Women with low control over rice produce*

The women responding that their husband used the rice harvest and at best would give them 1-2 bags were categorised as 'low control' women. They were working in the rice cultivation but their husbands controlled the rice produce and decided independently on the rice harvest. Like the 'indirect control' women, they sometimes benefitted indirectly from rice cultivation because part of the revenues were used for household welfare, but this was not within their direct control.

The level of control over produce was related to the type of household and to the type of ownership.

Table 3 shows that ownership of land is positively related to the control over the produce from that land. However, this was not always the case. The pattern of control varied according to the type of household. In the next paragraph the control over rice produce will be specified for the different types of households. This will be combined with other characteristics of the different categories of households. In this way it will be possible to identify for each type of household the main constraints of the farming enterprise and the benefits for the women.

Table 3: Women's control over the rice produce for type of households and plot ownership (n=90)

household type	plot ownership	control			total (%)
		high	indirect	low	
widow's households	owned	76	12	12	100
	non-owned	-	-	-	100
migration households	owned	65	35	0	100
	non-owned	10	49	40	100
joint households	owned	67	29	4	100
	non-owned	-	56	44	100
all households	owned	72	22	7	100
	non-owned	3	54	44	100
average of all plots		44	34	21	100

Women's constraints and benefits in different types of households

In this paragraph the research findings mentioned above will be complemented and analysed in order to develop a concluding picture of the main constraints and benefits for women of the types of households.

Widow's households The access to land and control over the produce of widows was high (Table 3). Their constraints were: lack of access to male ploughing labour, lack of cash to hire casual labour and consequently a heavy workload. They controlled the land of their deceased husbands on

behalf of their sons. In cases where the widows were too old to farm, the sons had taken over rice farming and the widows depended on their sons.

In the sample 22% of the widows were not able to cultivate their plots in the season of 1990/91 due to lack of cash for ploughing. Instead they leased their plots to tenant farmers. The others who were able to start the cultivation had difficulties performing all cultivation practices in time; 25% of the widows were forced to cultivate their plots relying on family labour only. Delay in practices reduced the rice yields considerably.

Migration households Table 3 shows that although the women of migration households had to manage the rice cultivation of all household plots, 31% had no say about the rice expenditure, 46% had indirect control; 15% had a high control over a plot allocated to them and 8% had a high control over a husband's plot. Few of these women had been allocated their own plot (23%, Table 2). In many cases relatives of the husband, or the husband, returned at the period of harvesting, and exercised control.

The salary of the husband facilitated the cultivation of rice: all households were able to cultivate their plots in 90/91. In 54% of the cases the salary covered all costs of rice cultivation including the costs of casual labour which covered 45%-50% of all labour (Hulsebosch, 1990). A constraint to these women was that the money for rice cultivation was often sent too late (or in some cases, not at all).

Joint households Access to 'own plots' determined the constraints. Of the joint households women, 51% had her own plot (Table 2); 67% of them had a high control over the produce of this plot. None of the women without a plot had high control (Table 3). For the women without influence over rice proceeds, the situation was problematic. The men controlled the rice sales, with the result that irresponsible husbands could use the rice proceeds for their own entertainment leaving the wives without any say over the products of their labour. The women with their own plot had problems in cultivating it: the labour demand is high and they also have the obligation to work on their husbands' fields.

In this category the access to family labour was higher: 71% of the total labour (Hulsebosch, 1990a). Yet family labour is not sufficient: 14% of the joint households were not able to cultivate a crop in the season 1990/91 (either women's or husband's plots) due to lack of cash.

Research Conclusions and Recommendations for Project Action

The research on women's role in irrigated rice cultivation in the Kano Plains resulted in the understanding of both women's benefits and women's constraints in rice farming. Control over rice produce appeared to be closely related to the type of access to land. Women with a plot generally had a high control over the rice produce. They benefitted directly from the labour they put into rice cultivation.

As women in widow's households, migration households and joint households differ with regard to labour input, access to land and control over rice produce, the constraints they face and the benefits derived from rice cultivation differ too.

With these research conclusions in mind, recommendations for project action were formulated that would increase women's benefits from rice development in order to ensure their involvement in the project. Several ways to improve women's benefits from rice cultivation were identified. One way of improvement of the benefits of women who have low or indirect control over produce is by enabling them to get access to own plots. In this case this means enabling them to lease plots or stimulate husbands to allocate plots to their wives.

Another way is improving their negotiation power in rice expenditure. Control over produce depends on the negotiation power of the women which in turn depends on many factors like age, plot size, female labour input, and off-farm income. Negotiation power can thus be enlarged by reinforcing the economic position of women. By offering income-earning opportunities like cultivation of rice plots or other activities like trading, selling produce etc. this position can be strengthened.

Thirdly, the alleviation of the constraints in rice farming that the women of the different types of households faced, would also improve output and benefits.

A concrete action, that could stimulate women's interest and participation in rice development, was a flexible, multi-use credit system. Women who are able to control (part of) the rice harvest would probably invest in rice cultivation because it is profitable business with less risks than trade, for example. Women with high control might decide to use credit to improve the rice cultivation without leasing additional plots. Women with an indirect control could decide to lease a plot on their own, over which they would

probably have more control. Women with low control might prefer to invest it in trading activities. This would give them an income and strengthen their position within the household. It might indirectly support the rice farming as the profits of trading might serve as inputs for rice farming at critical stages. Trading is partly complementary to rice farming as many women trade with rice in the off-rice season.

Table 4: Intended credit use of women for level of control over rice produce (n=90)

<i>Intended use of the credit</i>	<i>Control</i>		
	<i>high</i>	<i>indirect</i>	<i>low</i>
Rice	50	37	18
Rice & trading	28	33	18
Trading	6	7	35
Consumption	1	15	6
No interest	6	4	16
Other	2	4	6
Total	100	100	100

The expectations were checked by an inventory of women's interest in credit and their intended use of it. The results are shown in Table 5. It can be concluded that the needs of the women varied according to category, yet most women indicated an interest in credit, for various purposes.

Women with high control over produce were slightly more willing to invest in rice cultivation than women with low control. The low control women had a preference for credit for trading purposes. This would improve their general position by means of getting access to an income which they can control.

The intended use of the credit was also specified for the different types of households. The widows would use the credit in order to ease their workload to enable them to cultivate their plots in time and with increased yields. For the women in migration households it would give them an opportunity to perform cultivation practices in time and/or to lease own plots where their control over produce is high. For the women in joint households: women with their own plots indicated that they would like to use credit to improve the cultivation of their plots. The women without own plots indicated that they were interested in credit to lease own plots and to

use some of the credit on their husbands' plots to improve their negotiation power and to keep peace within the household. When part of the credit is used to employ casual labour on the plot of the husband, he will benefit directly and will not accuse her of neglecting his plot was the argument of the women.

Thus it was recommended to the project to start a flexible credit system for varying purposes on behalf of farm women in order to enable them to get a controllable income from rice farming. The SIDP project staff recognised its importance and decided to implement the credit scheme.

A workshop was held with NGO's experienced in credit schemes to develop a sustainable credit system (MoA, 1992). A scheme has been developed and is run by the NGO 'Care International Kenya'. Some of the features of the scheme are:

- disbursement of credit will be done by means of women's groups in the area. A majority of the women (78%) are a member of at least one group. The activities of these groups are accepted and seen as beneficial for the whole community. The groups can enable women to keep control over the credit;
- the credit scheme will be flexible enough to allow activities outside rice farming. The choice on how to invest the credit will be left free;
- the groups may qualify for a revolving loan by raising an equity contribution of not less than one-third of the loan.

The credit programme in Ahero started in July 1992 with 11 groups, and loan repayments are going well, even before the ultimate repayment dates. An evaluation report is under completion by Joitske Hulsebosch.

Concluding Remarks

The research described in this article led to the recommendation to the Smallholder Irrigation Development Project to start a credit scheme, as well as to integrate women more in scheme management in order to increase women's benefits from the project and to ensure their participation. The project started implementation of both recommendations in 1992.

In the coming years the credit scheme will be closely monitored in order to assess in what ways the credit is used by women from different types of households, the profits they gain from these investments, the effect on rice

production, husband's opinions on credit, changing intra-household relationships and credit management by the groups.

The inclusion of women in scheme management will be another important issue for further action-research. In order to increase the participation of women in the South West Kano Irrigation Project, it is experimenting with a quorum of a minimum of 50% female attendants at all meetings and with women-only meetings. In the latter women express their opinions more freely. They are invited to discuss their needs and constraints and to prepare a strategy on their inclusion in irrigation management (particularly in the WUA's) (Daamen, 1992).

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