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## GENDER AND IRRIGATION

a manual for the planning and  
assessment of small scale irrigation projects

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## PREFACE

This manual on Gender and Irrigation has its origins in a policy decision of SAWA in 1990.

In that year SAWA decided to make 'gender' one of its priority concerns. SAWA has ten years of consultancy experience on integrated rural development, land and water management, water supply and sanitation and institutional development. Field experiences and reading had increased the staff's awareness of the need to consider gender issues in development projects, but practical knowledge and instruments on how to do this were still felt to be lacking.

In response to this need, some staffmembers embarked on a study of the subject as it applied to the field of irrigation technology. It was found that most of the available literature was of little practical use with an overall absence of attempts at gender aware planning of irrigation projects. What we needed was a practical methodological tool that we could use for our consultancy purposes. Therefore, this manual brings together various aspects of farming systems, user's characteristics, irrigation technologies and gender issues with the different stages of the project cycle.

Different studies of the subject by SAWA staffmembers were resumed and have resulted, finally, in the present manual. It shows how insights from gender studies in agriculture can be used in consultancy for small scale irrigation projects.

The manual was initially intended for SAWA-consultants and their counterparts working in the field. As other professionals in the field of rural development showed their interests, we decided to make it available on a larger scale. SAWA appreciates it very much to receive your comments to this manual and to learn from your attempts of putting our suggestions into practice.

I gratefully acknowledge the support and critical comments which I received in completing this manual from Simon Dermijn, Sonja Vlaar, Lenie van Goor (SAWA) and Barbara van Koppen (Agricultural University of Wageningen).

Lisette van der Wel

## 1. INTRODUCTION

In the '80s public awareness has increased about the often detrimental effects of development projects for women. The main reason for this has been the failure to consider women's needs and interests (next to men's) in relation to the project concerned.

This awareness has led to a growing attention for gender aspects in development projects among policy-makers and development practitioners.

However, there still seems to be a gap between policy and practice, between knowing and doing. This may be due to a lack of understanding of the problem, or a reluctance to consider it seriously. But often the bottleneck also seems to be that one does not know how to integrate attention for gender issues into one's field of work. What is missing is a method.

This manual intends to fill the gap by linking insights from gender studies with the technological requirements of irrigation projects.

Before proceeding with this, we need to clarify the vision which forms the basis of our writing.

Various views exist on why to consider gender issues in development work. One predominant view among development planners and policy-makers is that women's participation in development programmes or projects will contribute to project *efficiency and effectivity*. In this view, women's (economic) participation is assumed to lead to greater equity. The problem with this view is that women are seen entirely in terms of their capacity to contribute to increased agricultural productivity. This does not necessarily lead to a genuine improvement in their position and opportunities.

A second view on women in development acknowledges women's subordinate position in society and puts *equity* considerations central. Addressing gender issues in development projects and programmes is seen in the perspective of social justice, that is, women's right to equal access to land, water and other resources, and to the benefits generated by the productive use of these resources. [Moser, 1989]

## 2. LINKING IRRIGATION TECHNOLOGY AND GENDER

Nowadays it is generally accepted that irrigation technology - like any technology - is not value free. Decisions made in the design of irrigation systems not only have technical consequences. They also have effects for the socio-economic position of the users' group. These effects concern, among others, the access to and control of land; the inputs needed for cultivation; the knowledge and skills required for irrigation; and the organization and relations within and between households. Because of these multiple effects of technology decisions on the users' group, it is important to have a closer look at the users' group.

The users' group can be heterogeneous in many ways, e.g. by ethnicity, class, religion, age or gender. Of these, *gender* has proved to be the most useful category for analyzing relations and decision making within and between households as these affect farm production.

By categorizing the farm household along gender lines it has become clear that in many cases households are not homogeneous decision-making units within which members pool economic resources. In various places, men and women can have their own productive sub-systems and considerable autonomy with regard to labour allocation and income utilization. [Safilios-Rothschild, 1989]

### 2.1 Farming systems

Based on the extent to which men and women are involved in agriculture, have individual access and control of land, participate in agricultural decision-making and are responsible for different agricultural tasks, crops and livestock, at least four different types of farming systems can be identified.

#### Dual farming system

In a dual farming system both husbands and wives are full-time farmers but their agricultural production is separate, although there is an intricate system of exchanges and interdependencies between the two production systems. The size

The reality of different types of farming systems means that men and women farmers perform different roles and tasks in agriculture. Congruent with these tasks, they have different abilities and knowledge, and apart from common interests specific private interests, possibilities and demands with regard to an irrigation system. One should therefore take into account the characteristics and needs of both men and women farmers as users of irrigation projects.

## 2.2 Users' characteristics

According to Edquist and Edquist [1978], the following users' characteristics should be considered when designing an irrigation project.

### Interest in technology

In different farming systems, men and women farmers will have their own indigenous technology system. This needs to be investigated in relation to the new technology which one intends to introduce: to what extent is the new compatible with the old, to what extent are men and women interested in the new technology and will they benefit from it.

### Access to land, inputs and technical support

For participation in an irrigation project, it is essential to have access to land. As there is a wide variation in traditional arrangements regarding use and access to land (ref. types of farming systems), it should be checked what rights to hire or own land exist for men and for women. Another important requirement for participation in irrigation is access to inputs like fertilizers, seeds, ploughs, labour, etc. These inputs demand financial means as well as transport facilities. Because women often have limited financial means (ref. point 4), it is difficult for them to get these inputs. Technical support is another basic requirement. Women's lack of formal education, on the one hand, and the male bias in extension services, on the other hand, pose a challenge on how to provide technical services in a way that is accessible and relevant to men as well as women farmers.

### Organization of activities

A condition for a positive development of an irrigation project is that the users' group should be able to organize itself. Considering the existence of unequal power relations between the sexes, mechanisms should be developed for a meaningful presence of women in this organization, either as individuals or through collective representation. Existing forms of organization should be involved in the organization of activities.

## 2.3 Context

In addition to the users' characteristics related to the irrigation design, one should also consider the context in which the design is introduced. This is important for interventions to be sustainable. With 'context' we mean the following types of activities [van Koppen, 1990]:

### Activities concerning the destination of a product

It is important to consider how the products of irrigated agriculture will be used (home consumption and/or marketing) and who will decide on that.

A common assumption is that men grow cash crops and women food crops. Reality, however, is more diverse: women are also willing to invest in cash crops in order to earn the money needed to meet their family responsibilities. Men, on the other hand, do also have an interest in food crops for maintaining their families. Both men and women need to be consulted, therefore, regarding their crop preferences and their access to and control over post-harvest facilities such as storage, processing, transportation.

### Activities other than agricultural production

Often, the water from an irrigation system is also used for *non-agricultural purposes* such as drinking water, washing clothes, fish culture, etc. This reality should be taken into account in the design. It will affect, among others, the total water need and the lay-out of physical structures (e.g. washing sites).

### 3. INTEGRATING GENDER IN THE DIFFERENT STAGES OF AN IRRIGATION PROJECT

In this chapter the concepts and issues raised in Chapter 2 will be translated to the practice of consultancy work: how to integrate gender analysis systematically in the different stages of an irrigation project ? These stages are:

- Identification/formulation
- Design
- Implementation
- Consolidation

Before having a closer look at these stages, we will first make some methodological remarks which apply to all of these stages. The following paragraphs are based on the premise that it is a basic *right* of women and men farmers *to participate* actively in all the stages of the project.

#### 3.1 Approach

Opportunities for information-exchange, consultations and negotiations need to be created between all the different parties involved.

One way to structure this type of participation is through the *Objective Oriented Project Planning (OOPP) method*. This method consists of a series of logical steps and techniques for problem analysis, identification of objectives and planning of activities. Its merit is that it takes into account the viewpoints and interests of the different parties involved.

[MDF, 1991]

In OOPP sessions or in similar meetings where different actors have the opportunity to share their perceptions of the project and reach a consensus about goals and characteristics, the planner/designer/consultant has the task to inform the people about the consequences of options and decisions. [Kooijman, 1990; Hoogendam, Ubels & Povel, 1989]



## 3.2 Stages

### 3.2.1 Identification & formulation stage

#### Data collection.

For planning, designing or evaluating an irrigation project, a sound data-base is a prerequisite.

Traditionally, irrigation planners relied mainly on physical data about climate, soils, water availability, water requirement of crops, etc. The farmers concerned were assumed to act according to the expectations of the designers or the scheme promoters (usually the government and a donor organization), who reasoned from an 'optimum' use of the system.

The disappointing results with irrigation systems implemented on this basis, have led to the realization that *socio-economic aspects, including gender aspects* need to be considered as well. Such aspects are, among others, the nature of farming systems, the kind of social organization in the community, and external relations with government, markets, etc. [Hoogendam, Ubels & Povel, 1989; p.6]

Through participatory data-gathering with men and women from the users' group and/or other key informants, one should be able to get an insight in what women and men do and why, what tasks and responsibilities they have at household, farm and community level, and what constraints and opportunities they face with regard to irrigated agriculture.

One useful tool to structure this data-gathering exercise is the "**Gender & Development, A framework for project analysis**" [FAO,1990]. This framework uses three interrelated components:

- (a) The *Activity Profile* is based on the concept of a gender-based division of labour. It delineates who does what, when, where and for how long in three spheres of activities:
  - productive activities
  - reproductive activities (household, child care)
  - community activities [our addition].

responses are called for. The consultant cannot and does not need to do the whole process of data-collection by him-/herself. His or her role can be facilitative in one of the following ways.

- One way in which a consultant can facilitate data-gathering is to ask for the cooperation of local teachers, health workers, etc. for conducting interviews. Experience shows that these people are often willing to help, particularly if they get the feeling that the data-collection process in which they are involved, is a process of sharing instead of extracting. In order to validate the data collected in this way, data from different key persons should be cross-checked with each other. Employing the help of these persons can also be advantageous from the point of view of saving time.
- Another option for data-gathering which reduces the impact of cultural differences, is to work together with a woman from the area. This woman could act as an intermediary in conducting interviews. She should grasp the consultant's concerns and be able to ask questions independently. The main advantage of this option is that it gives you access to local women who are often not allowed or do not feel free to talk to foreigners, particularly men. Local women will open up easier to women from their own culture, who speak their own language. Prior meetings with (male) local leaders are recommendable to get their consent and support, and thus pave the way for data-collection with local women.

#### Formulation of objectives.

On the basis of gender-specific data, project objectives/Terms of Reference can be formulated in a way that takes into account differential (apart from common) needs and interests of women and men with regard to the proposed irrigation project. Thus, the objectives should define, for example, women's equal access to irrigation facilities, in particular land and water.

Extensive research on farming systems has shown that reality is often different. In Africa, men and women generally have *separate production systems*, with different degrees of autonomy and interdependence. Married women traditionally had the right to use separate fields for the cultivation of their separate crops (usufructuary or user rights). The income they derived was personal and independent of their husband's control. [van Koppen, 1991; Gökgür, 1984].

In Asia different production arrangements exist. In Sri Lanka, for example, women under traditional Sinhalese law had the equivalent of full ownership of land [Schrijvers, 1984].

In the Philippines, farming is considered a joint enterprise of men and women, meaning that women have an equally strong stake in making farming profitable. [Illo, 1988].

When considering these facts, one can understand how the practice of granting formal land titles and individual ownership to male heads of households, as has happened in many schemes, has deprived women of their (user) rights and resulted in a loss of status.

The variety of traditional arrangements with regard to the access to and use of land make it necessary to look for relevant social and juridical entities for irrigated land. In the African context, the proper entity could be individual plots. In this way, women could have access to irrigated land for their own crops, in addition to irrigated land allocated for male-controlled crops or men's personal crops.

In the Asian setting of small holder families with one family budget, joint ownership of family plots could be the best alternative. Generally speaking, those tenure patterns should be established that motivate the users most. [van Koppen, 1991].

For a more detailed discussion of gender-sensitive land arrangements, it is suggested to read Dey, 1990, or van Koppen, 1991.

#### Size of plots

In determining the size of plots, designers have often started from the same assumptions as mentioned above, namely that the land would be farmed by a family, whereby the male head could mobilize the labour of all the family members. Thus, the "family plot" has become a popular concept.

These experiences suggest that, before a decision on the field size is made, it is important to ascertain:

- (a) who has access to and control over the field;
- (b) whether the family can be considered as a single unit or not, and who has access to and control over the labour in a family;
- (c) whether there are specific tasks that cannot be performed by women because of a sexual division of labour.

If this might be the case, one should avoid planning activities that cannot be performed by women, or provide additional education/extension for men and women so that they can perform these activities.

[van Hooff, 1990]

- (d) the other tasks/responsibilities of women apart from agriculture (household, trade, handicraft, etc.). These should be considered in relation to possibilities for time-saving measures/devices (e.g. nearby source of drinking water, corn mill).

Only when women farmers are convinced that irrigated agriculture will bring them benefits without unduly increasing their workload, they may be willing to participate.

#### Choice of crops

With regard to crop choice, a common presupposition of planners is that the yield of the crop will benefit the family, regardless of the fact whether the crop is cultivated by men or women.

That this is not necessarily so is shown, among others, by some irrigated rice-projects in Gambia. Rice cultivation was originally mostly a women's affair. When the rice price rose in relation to the peanut price (cash crop grown by men), the men also became involved in rice cultivation. This resulted in women losing their land.

The fields that were formerly cultivated by them were for the greater part replaced by project fields under the control of men. [van Hooff, 1990]

In other areas too, it has been observed that when traditional crops get irrigated, or when new HYV's or cash crops are introduced on irrigated plots, this alters the balance of power between men and women. [Casey, 1991, on Indonesia]

and site mostly plays a minor role. For women, however, this distance is of crucial importance. Reproductive activities at different times of the day such as preparation of meals and child-care tie them to their home. A shorter distance may in particular induce younger women, who are usually very busy, to overcome the barrier of participating in irrigated crop cultivation. [Spaans & Rehbach, 1990]

#### Water management

Whereas planners generally find simple water management and proportional division important, other factors, such as time necessary for a particular irrigation method, and the possibility to irrigate or drain on self-chosen times, are also important for men and women farmers. A flexible water management enables them to be present during short periods they chose themselves. This is particularly relevant for women due to their reproductive tasks at home. These factors therefore have to be considered before the decision on the irrigation method is made in the design phase. [van Hooff, 1990]

A clear example here is the Jahaly-Pacharr project in Gambia where women strongly valued a flexible irrigation method, which should enable them to be present during short periods they chose themselves. The irrigation method was however not flexible. As a result, women did not follow the project directives with respect to the irrigation method. [van Hooff, 1990]

Flexibility seems not always to be decisive in water management, however. In the irrigated vegetable garden project for women groups in the Senegal Valley, planners attempted consciously to integrate gender aspects in the design by allowing for a maximum of flexibility in the water management (reservoirs and watering cans). The women concerned, however, were so motivated to use irrigation channels that they made special arrangements for their household responsibilities during watering. They even learned how to operate a pump which used to be a male activity. [Lot de Fraiture, 1991]. This example shows that gender-roles should not be dealt with in a rigid way.

- (a) All the different actors involved in an irrigation project - women, men, landowners, irrigation agent, etc. - should actively participate in the creation of an appropriate organizational structure. [Povel, 1990]
- (b) The organizational design should contain written by-laws prepared and approved of by those concerned. The by-laws should cover matters like land-use rights, water distribution and maintenance, meetings, financial management, the admittance and expulsion of members, etc. Members must periodically, e.g. during an annual general meeting, critically review and, if necessary, adjust the by-laws to changing conditions in the project or its environment. [Povel, 1990]
- (c) Because, in a farmer-managed scheme, the organizational design is closely linked with the technical design, it should have reached an advanced stage in its preparations before the designer, in cooperation with the user, can attempt to make the technical design. [Povel, 1990]

- (a) Lack of direct contact, due to the fact that women are not generally represented in village level institutions and/or are not invited to meetings;
- (b) Extension agents are usually men, used to communicate with men according to culturally prescribed and socially accepted codes of conduct;
- (c) More women than men are illiterate, which means that written extension messages often go unheeded;
- (d) Women's multiple activities - both on and off-farm, as household managers and child carers - make it physically difficult for them to attend meetings.  
[Casey, 1991]

These obstacles indicate a number of measures that would be helpful to make extension services more accessible and relevant for women farmers:

- (a) More female extension staff needs to be recruited and trained in extension and communication techniques. Women staff have a better access to women farmers and understanding of their problems;
- (b) As a corollary to this, male extension workers should receive some re-orientation training to make them more explicitly aware of the scope of women farmers' activities and problems;
- (c) To increase contact with women farmers, women should be invited to (special) meetings. Wherever possible, they should be integrated into water users' associations, and/or women's farmer groups should be set up.  
Existing women's organizations may be useful in making contact with women;
- (d) Efforts should be made to involve more women in demonstration plots, so that they may learn at first hand about new crops and strains, recommended cropping patterns, inputs, water management and irrigation practices;
- (e) Extension materials should be accessible to women. Videos, for example, should be shown in places and at times which suit women. Posters should be displayed at various points around the village,

A second option would be to link up with alternative credit schemes, with facilities specifically geared to the needs and circumstances of low-income men and/or women farmers. A well-known example of such an innovative scheme is the Grameen Bank in Bangladesh. In this scheme, group savings substitute for collateral provided by land and help women to resist claims of household men over their incomes and assets. [Jiggings, 1983]

Not always will a formal credit scheme be necessary or feasible. A third possibility is to set up a revolving fund or to build on existing credit systems within communities such as rotating savings and credit associations ("rosca's"). These are often especially popular among women farmers because of their limited access to other credit sources.

#### Users' organization

In the identification and design stages of an irrigation project the proper type of organization of the users should already have been identified and established (ref. p. 21-22). In the implementation stage, the existing organization should be guided towards increasing self-reliance in executing its responsibilities. Depending on the particular needs and circumstances of the men and women farmers concerned, this guidance could be supported by formal training and/or informal on-the-spot meetings between irrigation experts and users.

A time frame should be indicated within which the organization should become fully self-reliant in operation & maintenance of the project.

#### Monitoring and evaluation

Internal monitoring of project implementation and regular evaluation of the project's effects and impact on the users will help:

- (a) To detect timely any unexpected or adverse developments that might jeopardize the projected benefits for the users;
- (b) To identify corrective measures for realizing the original objectives or adjusting them to changed realities.



## 4. CHECKLIST: GENDER ASPECTS IN IRRIGATION PROJECTS

### 4.1 Approach

- Do women and men farmers who are to be the users of an irrigation project have the opportunity to participate throughout the different stages of the project ?
- Are meetings/workshops conducted with different actors involved in the irrigation project, and are these supplemented by meetings with the users' group?  
The latter could provide deeper insight in what men and women farmers do and why, what tasks and responsibilities they have at household, farm and community level and what ideas, feelings, needs, priorities and constraints they have with regard to irrigated agriculture.
- In case women farmers would feel inhibited to voice out their problems and opinions in a meeting together with men, are separate women's meetings conducted ?

### 4.2 Stages

#### 4.2.1 Identification & formulation stage

- Is data-collection participatory and gender-specific? Does it identify both men and women farmers' activities, resources, needs and constraints with respect to (irrigated) agriculture? A tool for gender-analysis has been suggested for this purpose in Chapter 3.2.1. Gender-specific data-collection also generates base-line data for monitoring and evaluation.
- Do project objectives and Terms of Reference take into account differential (apart from common) needs

- Has the location of plots been determined not only by factors such as type of soil and topography, but also by the distance to the village ?  
A shorter distance will increase women's opportunity to participate meaningfully in irrigated agriculture.
- Is the water management, in addition to being simple and proportionate, also flexible and economic in time ?  
This will give farm women (and men) the possibility to irrigate or drain during short periods they chose themselves.
- Has the total water need of the irrigation project been based on what is the most restrictive factor for women and men farmers ?  
Often, this is not water but labour.
- Have the existing power structures, including power differences between the sexes, been taken into account in the organizational set-up of the irrigation project?  
This could mean that a number of positions on committees responsible for land allocation, irrigation management, marketing, etc. should be reserved for women, or that separate committees should be created in situations where women feel constrained to participate actively in the presence of men.

#### 4.2.3 Implementation stage

- Does the demand on men and women farmers' labour for manual construction not exceed the time which they have available next to their ordinary tasks and responsibilities ? Are working hours flexible where possible ?
- Are extension services accessible and relevant for women farmers through measures such as:
  - recruitment of more female extension staff;

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**WORKSHEET 1A: ACTIVITY PROFILE**

ACTIVITIES	GENDER/AGE (1)	TIME (2)	LOCATION (3)
<p><b>A. PRODUCTIVE</b>  <b>CROPS</b>                      -                      -  <b>LIVESTOCK</b>                      -                      -  <b>MARKETING</b>                      -                      -  <b>EMPLOYMENT</b>                      -  <b>HANDICRAFTS</b></p> <p><b>B. REPRODUCTIVE</b>  <b>FOOD PROCESSING &amp; PREPARATION</b>                      -                      -  <b>WATER &amp; FUEL COLLECTION</b>                      -                      -  <b>CHILD CARE</b>  <b>HOME REPAIRS</b>                      -                      -</p> <p><b>C. COMMUNITY ACTIVITIES</b>  <b>ATTENDING MEETINGS</b>                      -                      -  <b>PARTICIPATING IN GROUP ACTIVITIES (REPRODUCTIVE /PRODUCTIVE)</b>                      -</p>			

**KEY 1:**  
 FA: Female Adult    MA: Male Adult  
 FC: Female Child    MC: Male Child  
 FE: Female Elder    ME: Male Elder

**KEY 2:**  
 Time Allocated to each activity e.g., daily, seasonal etc.

**Key 3:**  
 Within Home: H  
 Field or shop: F  
 Local community: LC

-----nd-----mun----- BC-----

WORKSHEET 2: RESOURCES PROFILE

(1) RESOURCES	(2) ACCESS TO RESOURCES BY GENDER	(3) RESOURCE CONTROL	(4) BENEFITS
(1) e.g.: Land, water equipment Labour inputs, training and credit	(2) KEY: M = Male F = Female	(3) e.g.: male head of household, the state etc.	(4) e.g.: food, income, skills, Land rights and status



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