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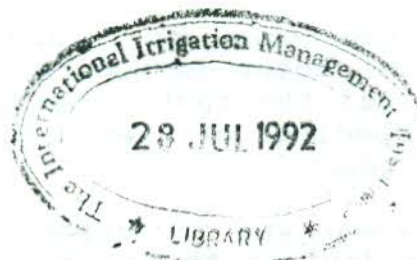
women / peasant workers / rural women

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# Research Report

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## BEYOND THE CHADAR AND CHARDIWARI : WOMEN IN THE IRRIGATED AREAS OF PUNJAB



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June, 1992.



## EXECUTIVE SUMMARY

This paper represents the results of study conducted to explore the role of women in irrigated agriculture in the command areas of Gugera Branch Canal in the Lower Chenab Canal in Punjab's Rechna Doab. Specifically, women interviewed belong to Mananwala and Pir Mahal distributary, its Junejwala minor and Rasool area.

The gender division of labor exists in agricultural responsibilities in Punjab. Women are forbidden from participating in land preparation and irrigation. Hence, men have high inputs in early stages of crop growth through land preparation, fertilizer application and irrigation, which are rigidly male-specific tasks. Women, acting as subordinates to the men, provide their labor during the later stages of crop production, especially during weeding, hoeing, harvesting and post harvesting activities. Harvesting of female specific-crops such as cotton, peas and pepper is entirely done by women in which women have autonomy to some extent in labor management.

Irrigation is categorized as a male responsibility. Under normal situation, women do not participate in this task. Hence, women who deliver water into the field are de facto heads of households or heads of the family having small or marginal landholding. In such households men are either old, not matured or of ill-health; therefore, women are compelled to take all the responsibilities in order to optimize their limited resources.

The livestock management falls under women's responsibility. Women's role in this sector is much more recognized than in crop production sector. All the tasks related to livestock management are either female specific or shared tasks with the exception of four male specific tasks.

In Punjab, a woman who can afford to remain within the four walls of her house depicts the better resource-endowment of her family and is considered as the sign of pride and honor for the whole family. Hence, the socio-economic status of the family is the most important indicator of women's participation in agricultural activities. The effects of various factors such as land holding size, tenure type and cast system in women's participation in agriculture are highlighted in the paper.

Women's household chores is similar in all the areas. The problem of salinity and waterlogging reduces the women's on-farm workload in these areas due to the reduced crop yield and its impact on cropping pattern. Women are aware of these problems, however, their participation in reclaiming the land from the salinity and waterlogging is insignificant. At the end the paper recommends the possible direction the gender program of IIMI-Pakistan can take.



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## **1. INTRODUCTION**

This report depicts the results of a reconnaissance survey conducted by the author as a research intern of IIMI-Pakistan, under its Salinity and Water Logging project. It can be considered as the first full-fledged attempt of IIMI-Pakistan to address the gender issues in irrigated agriculture. However, a very short and an informal survey was done on this topic by a team of two French women and a man in South Punjab prior to this research. It was not focused on irrigation or agriculture but was aimed to point out some interesting issues on the rural socio-economic landscape.

The main purpose of this study was to explore the role of women in irrigated agriculture in the Punjab province of Pakistan. In this respect, the specific issues to be discussed are:

- a. The degree of women's involvement in agriculture and irrigation ;
- b. Influence of women in the decision making process in both agricultural and household work, and
- c. Impact of salinity and water logging on the workload of rural women.

## **2. DATA COLLECTION**

### **2.1 LOCATION OF THE RESEARCH SITE :**

The study was conducted in the area served by Gugera Branch Canal in the Lower Chenab Canal (LCC) in Punjab's Rechna Doab. The map of Rechna doab is shown in Fig.1. The women interviewed belong to the command areas of Mananwala distributary, Pir Mahal distributary and its Junejwala minor. Few women were interviewed in Rasool area which is in the vicinity of Farooqabad.

Mananwala distributary off-takes from Upper Gugera branch in Farooqabad sub-division. The distributary is 45 Km long with a design discharge of 5.2 m<sup>3</sup>/s. It serves a cultural command area of 27,064 ha with its 125 outlets and three minors. Mananwala distributary is located in the rice-wheat agro-climatic zone of Punjab with rice and wheat being the major crop during Kharif and Rabi, respectively. Further downstream Upper Gugera branches off into Lower Gugera and Burala divisions.

Rasool is located in between Lagar and Gaud-dhaud distributary of Upper Gugera branch. It is irrigated by private tubewells. The early tubewells were established in this area during 1960's under SCARP (Salinity and Waterlogging Reclamation Project). Located in the vicinity of the head reach of Mananwala distributary, the cropping pattern of Rasool area is similar to that of Mananwala.



Pir Mahal distributary has its off-take from Lower Gugera branch at Bhagat head regulator. The length of the main canal is 47.5 Km and its design discharge is 4.76 m<sup>3</sup>/s for a cultural command area of 14,891 ha. It directly supplies 50 outlets and four minors, namely, Thera, Magneja, Junejwala and Jundwala. The distributary is located in the area in transition between the rice-wheat and cotton-wheat agro-climatic zones. In the command area of Pir Mahal distributary cotton is predominant during Kharif season, though rice is also found in some areas and wheat is the main Rabi crop. In the command areas of both the distributaries and in Rasool area other crops such as sugarcane, fodder crops, vegetables, corn, tobacco, orchard, etc., are also grown.

## 2.2. SAMPLE SELECTION AND DISTRIBUTION :

The main criterion for the selection of the sample for interview was that the woman should belong to the agricultural household. In this respect, much preference was given to interview the female family member of IIMI's sample farmers in these areas. Realizing the women's seclusion towards the outsiders in Pakistan, the main intention behind selecting this criterion was to get easy access to the women. It was not always possible to interview the oldest female member of the household due to their absence at that particular hour. Hence, the female member present at that time were interviewed. The first problem faced in the course of data collection was that no woman was ready to be interviewed. The female family members of IIMI's sample farmers in these areas were used to the visits paid by IIMI's field staff at their houses and were more responsive and less scared by the idea of being interviewed.

The total number of women interviewed was 87, out of which 80% were the female family members of the IIMI's sample farmers and the remaining 20% were women introduced by them. The main characteristic of such introduced women was the greater participation in the agricultural activities as compared to the female family members of IIMI's sample farmers. The spatial distribution of the sample is given in table 1 and 2.

Table 1 : Sample Distribution At The Various Locations

Location	Sample Size
Rasool Area	7
Command area of Mananwala Distri.	53
Command area of Pir Mahal Distri.	15
Command area of Junejwala Minor	12

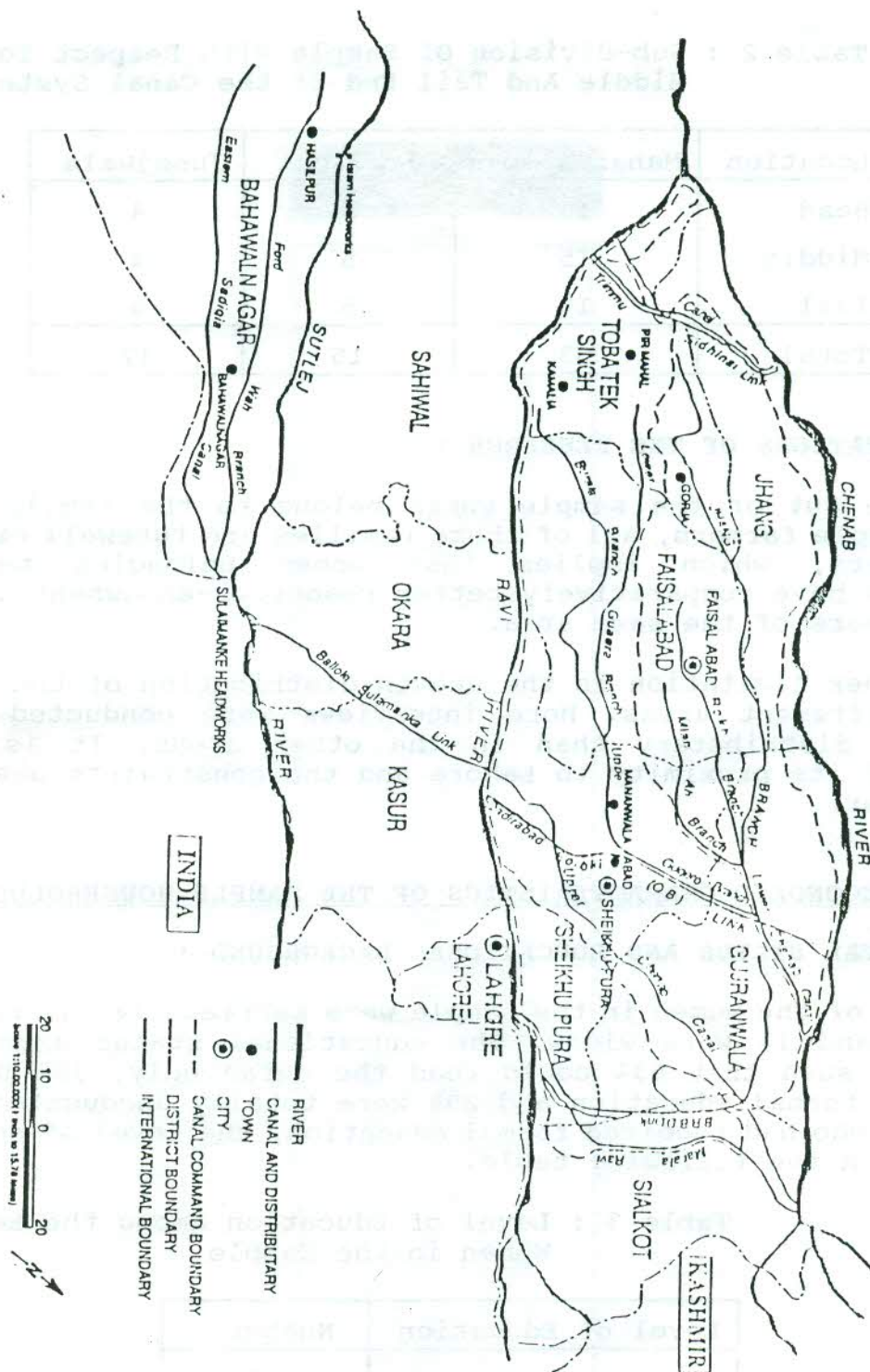


Fig. 1 : Map of Rechna Doab



Table 2 : Sub-division Of Sample With Respect To Head,  
Middle And Tail End Of the Canal System

Location	Mananwala	Pir Mahal	Junejwala
Head	19	5	4
Middle	15	5	4
Tail	19	5	4
Total	53	15	12

### 2.3. LIMITATIONS OF THE RESEARCH :

Since 80% of the sample women belong to the family of the IIMI's sample farmers, all of these families are tubewell owners or shareholders, which implies that women belonging to those households have comparatively better resources-endowment than the other farmers of the same area.

Another limitation is the uneven distribution of the samples in the different areas. More interviews were conducted in the Mananwala distributary than in the other areas. It is mainly because of its proximity to Lahore and the constraints put by the interpreter.

### 3. SOCIO-ECONOMIC CHARACTERISTICS OF THE SAMPLE HOUSEHOLDS

#### 3.1. MARITAL STATUS AND EDUCATIONAL BACKGROUND :

91% of the women in the sample were married, 7% unmarried, 1% divorced and 1% were widow. The educational status among these women was such that 53% could read the Quran only, 18% had some degree of formal education and 29% were totally uneducated. Among the women who had received formal education, the level of education is given in the following table.

Table 3 : Level of Education Among the Educated  
Women in the Sample

Level of Education	Number
Primary	10
Middle	1
Matric	4
FA/FSc.	1

In most of the sample households (91%), male was the head of the family and the remaining 9% were female headed households. On average, each family had 8.6 members.

### 3.2. RELIGION AND CASTE :

Most of the women interviewed (97.7%) were muslims. Among the muslims, the largest number of women were Jat. The distribution of sample according to the caste system is given in the table below.

Table 4 : Distribution According To The Caste System

Caste	% of Women in Sample
Ansari	1.2
Arain	18.4
Awan	4.5
Dogar	5.7
Gujar	16.0
Jat	23.0
Kummoh	2.3
Rajput	21.0
Sial	2.3
Syed	3.4

### 3.3. SOURCE OF INCOME :

Agriculture was the main source of income of most of the sample households, however some households had some other sources of supplementing their family incomes.



Table 4 : Sources Of Income Of The Sample Households

Source	% (of the Sample)
Agriculture only	63.2
Farm labor only	5.7
Agriculture + farm labor	4.6
Agriculture + off-farm employment	20.7
Agriculture+ farm labor + off-farm employment	2.3
Farm labor + off-farm employment	3.5

#### 3.4. LAND TENURE TYPE :

The family of 36% of the women interviewed have their own land. In case of other women, the distribution on the basis of land tenure system is given in the Table 5.

Table 5 : Sample Distribution According To The Land Tenure

Tenure Type	% of Sample
Ownership only	36
Lease only	6
Sharecropping only	8
ownership + Lease	18
Ownership + Sharecropping	19
Ownership + Lease + Sharecropping	5
Lease + Sharecropping	2
Farm Labor only	6

#### **4. RESULTS AND DISCUSSIONS**

##### **4.1. WOMEN AND AGRICULTURE :**

Agriculture is the backbone of Pakistan's economy. It accounts for 23% of the GDP, in which contribution from the crop sector is 70% , 28% from the livestock sector and the remaining 2% is represented from fishing and forestry sector. Agricultural sector is responsible for 70% of the total export earnings. This sector also employs about 50% of the country's total labor force. In spite of the country's effort to diversify the agrarian economy towards industry, agriculture remains to be the mainstay of the rural population. 70% of the total population living in the rural areas depends on agriculture for their livelihood.

In the countryside men usually like their women to observe purdah and remain within the four walls of their houses. A woman who can afford to remain inside the house is considered to be a sign of prosperity and honor of the family. Therefore, male members of the rural family are often reluctant to admit the participation of their women in the agricultural works. However, 87% of the women interviewed were involved in agricultural activities apart from their household chores.

##### **4.1.1. WOMEN'S ROLE IN THE CROP PRODUCTION SECTOR**

###### **4.1.1.A. GENDER DIVISION OF LABOR :**

In Pakistan land preparation falls under men's responsibility. In the research areas no incidence of a woman's involvement in plowing was cited. Even in the female headed households and in situations where the male member of the family is either old, ill or not mature enough, land preparation is done either by male relatives/neighbors or by hired labor using either tractor or the traditional animal power. The exclusion of women from plowing is strongly reinforced by taboos and myths illustrating the danger involved if women were to participate in this task.

Fertilizer and chemical application at the field level is also categorized as a "men's job" in Punjab. Only 1% of the women in the sample were doing this job in absence of the male member of family. In case of the female headed households and women de facto heads of households, it is usually accomplished either by the hired labor or by male relatives or neighbors.

Activity wise men have higher inputs in early stages of crop production through land preparation and mechanical/technical inputs which are rigidly male-specific tasks. Whereas women's participation is higher during harvesting and post harvest processes.



In some areas rice transplanting is women's responsibility while in other areas women's participation varies from plucking the rice seedlings, making the bundle, transferring the bundle to the field and actual transplanting or the combination of these tasks. Many women complained that rice transplanting is a strenuous task as they have to bend for hours and hours. Harvesting of rice is a shared task done by both male and female.

Figure 2 shows the women's involvement at the various crop growth stages in case of rice grown in the research areas. The vertical axis of all of the figures number 2,3, and 4 represents the % of women performing the task out of the pool of women involved in on-farm work.

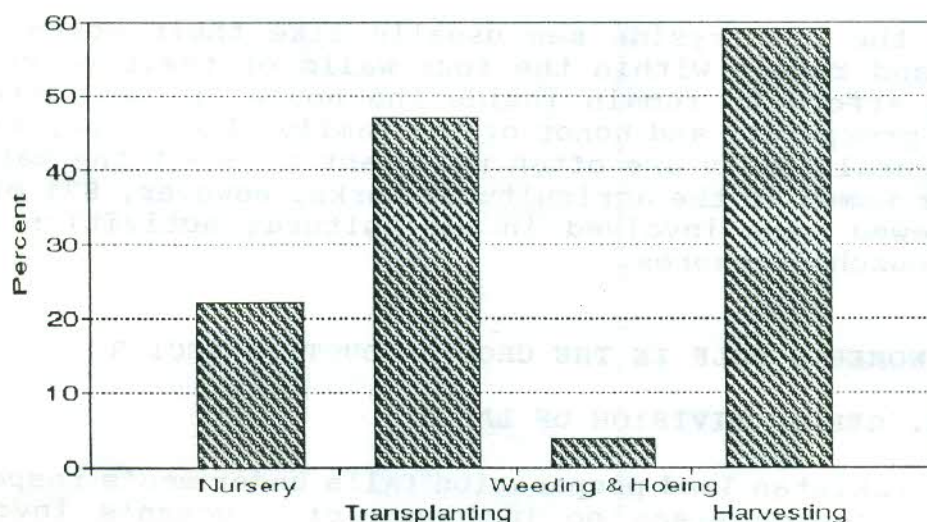


Fig. 2 Percentage of Women Involved in Rice Production.

The harvesting of crops such as cotton, peas,pepper and vegetables are entirely done by female. After the harvesting of grain crops such as rice, wheat, etc., women are responsible for cleaning the grain and storing them.

Figure 3 depicts the women's involvement in Peas, Pepper and vegetable production. Similarly, Figure 4 shows the percentage of women involved at various stages of growth of wheat, cotton, corn and sugarcane.

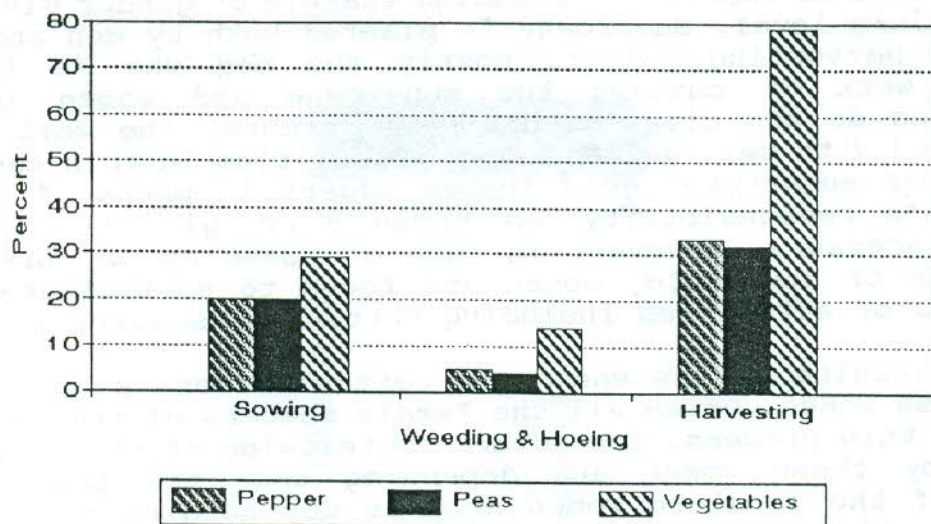


Fig. 3 Percent of Women Involved in Pepper, Peas and Vegetable Production.

In Figure 4 wheat is characterized by the largest percentage of women's participation during the harvesting process among cotton, corn and sugarcane and wheat, mainly because cropping pattern in all the research areas includes wheat as a major Rabi crop.

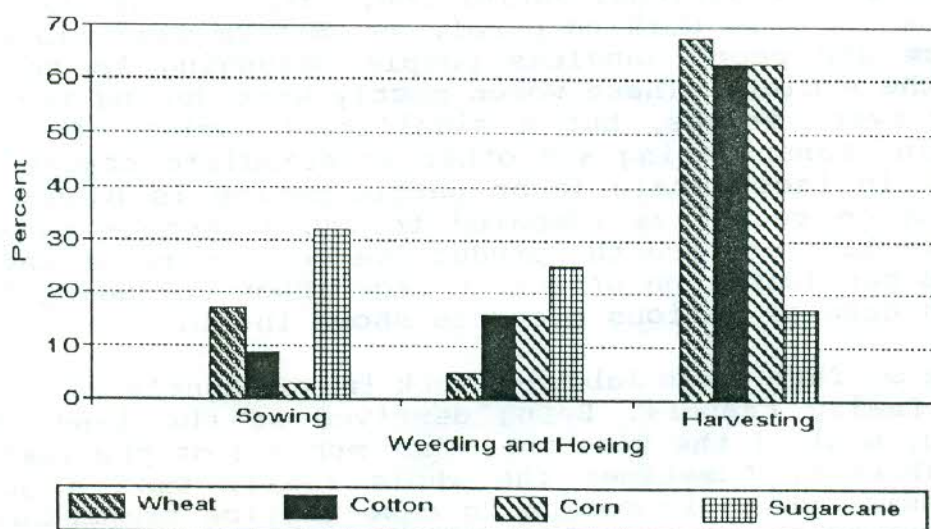


Fig. 4. Percentage of Women Involved in Wheat, Cotton, Corn and Sugarcane Production.



Sugarcane is another interesting example of gender division of labor at micro level. Sugarcane is planted both by men and women. But while harvesting, it is mostly the men who do the more strenuous work of cutting the sugarcane and women as their subordinates do the cleaning of the sugarcane. The work is well orchestrated with well defined responsibilities in this case. From the juice of sugarcane, gund (brown sugar) is prepared which is mainly men's responsibility but women might give their helping hands if necessary. However, in case of women as de jure and de facto heads of household, women are found to participate in all these types of activities including cutting of sugarcane.

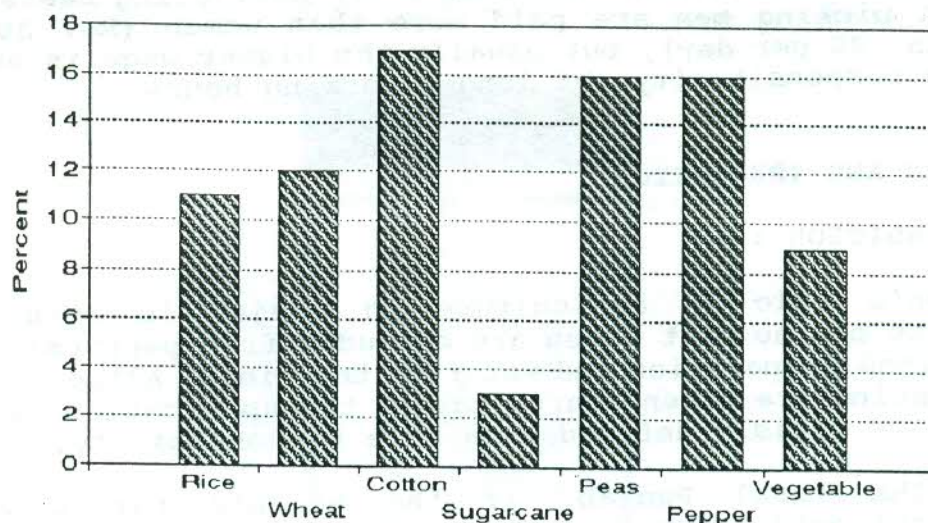
The gleaning of the wheat and cotton is done mostly by poor and landless women. Often all the female members of the family get engaged in this process. The advance permission of the landlord is required by these women and depending upon the philanthropic attitude of the landlord women need to pay nothing or a certain portion to him. The gleaned wheat is just an addition to the portion of grain allocated for household consumption.

#### **4.1.1.B. WOMEN AS AGRICULTURAL LABORERS :**

In the rural areas, cooperation among friends, relatives and neighbors is often found in the form of labor in exchange for the major agricultural activities. It is most common in female-specific tasks. If the definition of agricultural laborers includes the labor in exchange, more than 50% of the women who participate in on-farm work can be classified as agricultural laborers. However, according to the traditional definition, only 5.7% of the women in the total sample were working purely as on-farm wage laborers and all of them are poor, landless people belonging to the lowest strata of the society. These women mostly work during the harvest and post harvest stages, but a significant number of women are involved in transplanting and other intermediate stages of crop production. In fact female labor participation is higher in the crop production sector as compared to the livestock management. These female laborers are the productive co-earners of the family income. The participation of female wage labor including labor in exchange in case of various crops is shown in Fig. 5.

Female on-farm wage laborers work independently or along with the other family members. Being deprived of the land for self cultivation, most of the time the other members of the family also work as laborers. Sometimes the whole family take a job on a contract basis, which is common in case of rice transplanting as well as harvesting and wheat harvesting. For such tasks the whole family labor is employed in it.





**Fig. 5. Women's Participation as Wage Laborers Including Labor in Exchange For Various Crops.**

The wage rate is usually set for a specific crop and for a specific task with very little room for bargaining from the laborer's side. In a very rare case the laborer gets the opportunity to set the price for his work. If all the family members are employed as laborers, it is the male member of the family who receives the wage on behalf of his family. During wheat cutting, the specific jobs to be done are cutting the crop, making bundles and collecting the bundles at a location where the thresher might be stationed. Because of the increasing use of threshers and blowers, the tasks in case of wheat is limited to making bundles only. The mechanized threshing is mostly done by men. However, in case of rice, all the harvesting and post harvesting process such as threshing and winnowing and collection of grains are done manually. The wage is paid in either cash or kind and is meager. For rice transplantation, for example the wage rate is Rs. 20 per day or Rs. 175 per killa whereas for rice harvesting, it is paid in kind at an average rate of 3.5 Kg for maund of grain threshed. The wage for wheat harvesting is usually based on the area with an average rate of 3.5 maunds of grains per killa of land harvested.

The average wage rate for the cotton pickers is 1/16 th of the day's harvest. With their wage paid in such way, they have two options: to sell it to the landlord for cash or to use for making a blanket for family use. Pepper pickers and cotton pickers are paid almost equal wages. For peas picking, women are paid Rs.10 per day. Both peas and pepper pickers get about 1 kg of peas and pepper, respectively to take with them at the end of the day. For all other types of farm work women are paid Rs.20 per day. Equal



wage is paid for both male and female for harvesting tasks. In case of carrot picking men are paid more than women (Rs. 30 per day versus Rs. 20 per day), but usually the higher wage is associated with more responsibility and longer working hours.

#### 4.2. WOMEN AND IRRIGATION

##### 4.2.1. TRADITION :

Women's role in agriculture in Punjab is structured to subordinate men so that women are excluded from performing the key tasks of land preparation and watering the field. Although planting and harvesting are often shared tasks, the application of water to the field is rigidly defined as a male responsibility.

In the rural Punjab, if the woman's participation in irrigational activities is questioned, the common answer one can get is either :

" Why should I irrigate? By the grace of Almighty Allah, my husband (brother, father) is alive to take care of this matter."

or

" Do you think a woman can irrigate ? "

One can vex the male member of the family if the question is asked in his presence.

Majority of women (86% of the women in the sample) are quite satisfied with this biological division of farm responsibilities. They perceive irrigation as a task which requires a large amount of strength which is not present in their arms. About a quarter of the sample women are aware of the fact that the energy requirement of some of their work is more than that of simply delivering water into the field. But they are bound to the traditional taboos which forbid women from participating in irrigation. Most of them (73% of women in the sample), lacking actual experience and confidence in themselves, think that the task of delivering water into the field can not be done by them, furthermore this idea is strengthened by the fear of night irrigation.

##### 4.2.2. NATURE OF PARTICIPATION :

Women's participation in irrigation is found exclusively in case of female headed households and the households with females being the de facto heads. 9 women in the sample were performing this key task and 4 of them are full time irrigators. In most of these households the male member of the family is either not mature

enough, or of old age and ill-health having no physical strength to work so that women are compelled to take all the major responsibilities.

Female part time (5 in number) irrigators are those who deliver water into their field occasionally, especially in the absence of the male members of their family. All of them are day time irrigators. Their responsibilities vary from switching on the electrically operated tubewell and opening the field inlet to the maintenance of field channels. The following table shows the detail about the female irrigators encountered.

Table 6 : Physical Location and the Socio-economic Characteristics of the Female Irrigators in the Sample

Area/ Disty	RD No.	Caste	Cultivated Land Holding (killa)	Tenure Type	Type of Participation
Rasool	-	Dogar	6.5	2 <sup>1</sup>	Part Time
Mananwala	7L	Ansari	7.0	3 <sup>2</sup>	Part Time
Mananwala	87R	Arain	22.0	2+3	Full Time
Mananwala	91L	Rajput	2.0	1	Part Time
Mananwala	143R2	Jat	3.0	1	Full Time
Pir Mahal	45R	Arain	12.0	1+3	Full Time
Pir Mahal	70R	Awan	5.0	1+3	Full Time
Junejwala	47R	Jat	14.0	1+2	Part Time
Junejwala	47R	Rajput	18.0	1+2 <sup>3</sup>	Part Time

Looking at the sample size in Pir Mahal distributary and its Junejwala minor, larger number of women are seen to participate in irrigational activities. However, due to the random selection of sample, it is difficult to conclude that women in the command area of Pir Mahal distributary more are involved in irrigation as compared to that of Mananwala distributary.

<sup>1</sup> 1 = Ownership

<sup>2</sup> 3 = Sharecropping

<sup>3</sup> 2 = Leasing



#### 4.2.3. RESPONSIBILITIES :

The responsibilities of the female and male full time irrigators are equal. Often for the night irrigation, the female irrigators are either chaperoned by their mother/sister, or accompanied by at least one male member of the family, as a factor of safety even though they are not physically fit to perform it by themselves. However, some of the women are brave enough to irrigate their field at night by themselves.

2 of the full time irrigators did their share of watercourse cleaning. Otherwise, it is either done by male neighbors and relatives or hired labor. The neighbors and relatives are very sympathetic to them and are ready to give a helping hand whenever the need arises. All 9 women engaged in irrigation have good knowledge about the crop water requirements. The main constraints faced by them are the limited access to canal water, load shedding limiting the already scarce source of water, high operation cost of the tubewell (and subsequent high water cost in the water markets) and the higher elevation of their land restricting the water to reach their field. Some of the changes that they would like to be implemented are the increased availability of canal water, lined watercourses, permanent distribution structures at the field level, etc.

Illegal activities such as cuts in the main canal and water theft usually take place during the night time, since the women's movement is restricted socially at night, involvement of the female irrigators in such activities is very rare. They are informed of their warabandi schedule by either the Patwari (personnel from irrigation department), the landlord or the village chief. While representation from all households is required when any decision at a village level is made, often the male member stand proxy for them. Because irrigation is traditionally defined as a male task, women are not hired to perform on-farm irrigation task. If the family is wealthy enough to afford a hired labor, women are unlikely to irrigate.

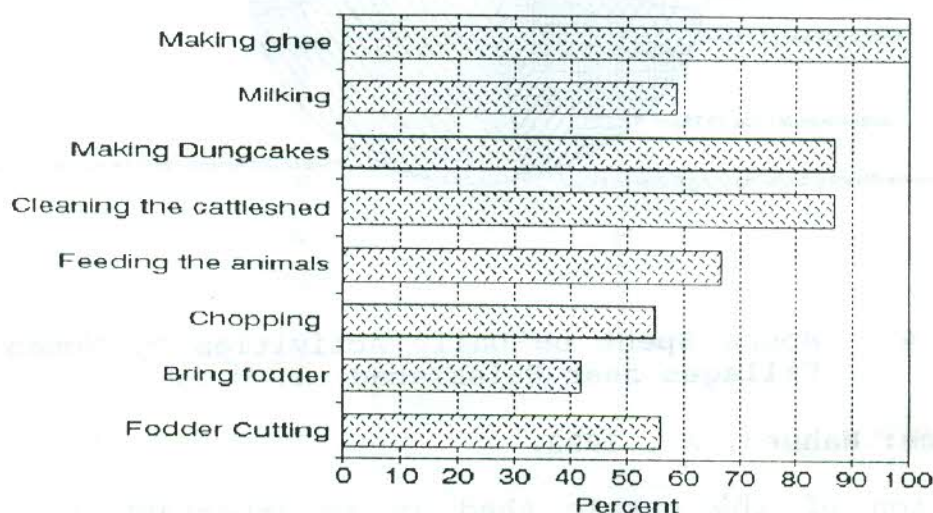
Thus, women who participate in the actual irrigation process mostly belong to subsistence farming class whose limited resources compel them to participate in it.

#### 4.3. WOMEN IN THE LIVESTOCK MANAGEMENT

Livestock is an integral part of small farming systems in Punjab where animals are raised mainly for draft power, organic manure and local transport. Often they are treated as an important asset of the household.



According to the gender division of agricultural tasks, livestock management comes under the women's domain. Hence, the women's participation in this sector is much more recognized than in the crop sector. Here, women's responsibilities are fodder cutting, chopping, feeding the animals, cleaning of the cattle sheds, making the dung cake, milking the animals in some cases, collecting the eggs and making ghee. Figure 6 illustrates this trend in the research areas. The horizontal axis represents the percentage of women involved in livestock management out of the total number of women interviewed.

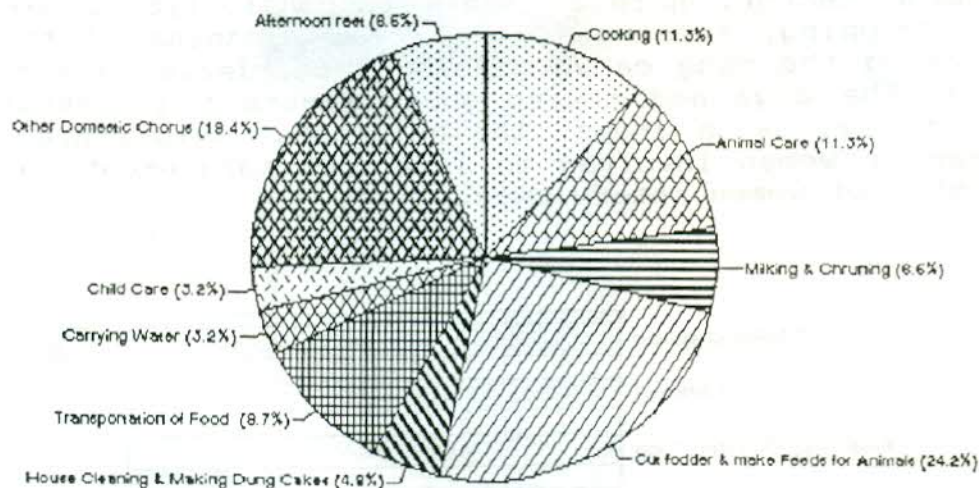


**Fig. 7 Women's Participation in Various Livestock Management Activities**

It has been estimated that out of 14 livestock management tasks, male participation outweighs that of female only in four : grazing and watering of animals, sale of animals to the agents and care of the sick animals.

In the research done by Anwar and Bilques in a village near Faisalabad, it is shown that women spent 30-40 % of their daily time in livestock management. Figure 7 shows the daily time allocation of women in different activities in the same research. The length of an average day in the research was of 15.5 hours.





**Fig. 6** Hours Spent on Daily Activities By Women in Villages near Faisalabad. 15.5 hours.

Source: Naheed, A., 1992.

The location of the cattle shed is an important indicator of women's participation in livestock management apart from family's socio-economic status and labor availability. If the cattle shed is located in the field which is at some distance from the house, the women's participation in managing the family livestock is likely to decrease. Women's involvement in this sector is found regardless of her participation in the crop sector.

#### 4.4. PHYSICAL ENVIRONMENT AND WOMEN'S PARTICIPATION IN AGRICULTURAL ACTIVITIES

##### 4.4.1. SALINITY AND WATERLOGGING :

##### i. PERCEPTIONS AND AWARENESS :

Almost all the women interviewed were aware of the salinity and waterlogging problems. 46% of women in the sample said that their land is affected by salinity or sodicity where as 10% of women reported that the land had been reclaimed. The percent of interviewed women reporting the prevailing problem of waterlogging was only 16% and 7% reported that the problem had been solved on their land. But the picture here is confused with the IIMI-Pak's research finding which indicates the extinction of waterlogging in those areas.



Women perceive salinity as the menace which gives the whitish appearance to the soil, makes the soil hard and difficult to plough. The main causes of the salinity problem as identified by them are : (a.) insufficient canal water, and (b.) poor quality tubewell water applied to the fields.

Women perceive salinity and sodicity as the main factors responsible for increasing the expenses of cultivation. Complaining about these problems, the wife of one farmer having small cultural land holding said :

" There is very less yield without chemical fertilizers, with the difficulty in availability and the soaring price of these fertilizers, it is almost impossible to feed the family ".

The increase in the total cultivation cost is not always offset by the increase in the crop yield and farm income.

#### ii. IMPACT ON WORKLOAD :

It was difficult for women to exactly define the change in their workload due to salinity and waterlogging. After a long thought, 45% of the women interviewed said that the salinity has some effect on their workload, a quarter of the sample replied it negatively and 29% did not know. Among those who could point out the positive changes, the three quarter of them felt that their workload has been decreased with the increase in the men's share of responsibility. These women were involved in various agricultural work. On the contrary, the rest (26%) perceived that their cooking workload has been increased as they have to cook for a greater number of farm labor that has to be employed in their land now due to the salinity problem. These women include all of the agricultural non-participants of the sample and a small portion of women actively involved in agriculture. No statistics of farm labor requirement before and after the salinity problem is found to support the above statement regarding increased labor requirement.

With the severity of salinity problem, crop yield decreases unless some management interventions are adopted. Subsequently women's on-farm workload is likely to decrease with less harvesting to be done and less grain to store. In the salinity affected areas, especially in the tail end of Mananwala, the cropping pattern in some areas is limited to the two major crops, rice and wheat. With less or no cultivation of the crops getting high input from women, such as vegetables, peas and pepper, women's participation in these areas is likely to be limited to rice and wheat only. Vegetables are comparatively sensitive to the salinity. Besides, being readily perishable in nature, vegetables are sown in the areas having easy access to the road for marketing purposes.



On the other hand, the sodicity makes the soil hard and the plowing becomes a more rigorous process. The crop sown in the salinity affected area dies at an early stage which necessitates resowing in which women are less involved. The various measures to mitigate the salinity/sodicity are performed by the male farmers.

The plastering of the mud house is one of the household chorus of women. The ingredients of the plastering materials are clayey soil, finely chopped straw and cattle dung. With the increasing problem of salinity in certain areas, one of the main complaints of women is the longer distance to be travelled in search of suitable quality of clay for plastering. In general women plaster their mud houses twice a year. Plastering with the salinity/sodicity affected soil lasts for a shorter period. Hence, the process has to be repeated more often.

### iii. MANAGEMENT INTERVENTIONS :

Women under normal circumstances do not participate in the reclamation of salinity and waterlogging affected lands. It is solely done by the male members of the family except for the households headed by females. They are familiar with all the reclamation methods, such as, (i) physical methods, eg. leaching, scraping or addition of the soil layer (ii.) addition of the chemicals and fertilizers, e.g. gypsum; and (iii) biological methods, e.g. addition of farm yard manure, green manure, growing salt tolerant crops, etc. Women have good perception of leaching through rice cultivation. The role of canal water in reclaiming the problem of salinity/sodicity was acknowledged by most of the women.

### 4.4.2. CROPPING PATTERN AND CANAL SYSTEM OPERATION :

The household chores were the same for every woman in all the research areas. 100% of the sample women have handpumps for drinking and other household purposes, so they do not have to go anywhere else in search of water. However, some differences were noted regarding their participation in the agricultural activities due to the canal system operation which in turn affects the cropping pattern and salinity.

As far as the equity of water distribution is concerned in the canal irrigated areas of Punjab, various research conducted by IIMI-Pakistan has revealed that the farmers at the tail end of the distributary get only a portion of the sanctioned discharge. Hence, the shortage of canal water occurs at the tail end of the system and consequently farmers in these areas have to depend on ground water to meet the minimum crop water requirements. This fact is directly related to the problem of salinity in the tail end of the distributary.



According to Vander Velde et al, 1992,

" The result of a rapid appraisal survey carried out in the command of seven Mananwala water-courses in 1989 to record the presence of salinity- either as surface salting or obviously salt-affected crops- and dense, hard subsurface layers strongly hint at a general deterioration in soil conditions towards the tail of distributary canal commands due to secondary salinity ".

Because of the shortage of canal water in the tail end, there is increasing dependence on ground water for cultivation and consequently increasing problem of salinity in the tail areas. Hence, women's participation in agricultural activities in these areas decreases. As already mentioned above, it was more obvious in case of Mananwala distributary, mainly because the number of major crops grown in a year is limited. Less rice is sown at the tail end of the distributary than at the head end with the exception for the command area of watercourse 143R where rice is sown for leaching purpose. In the Pir Mahal distributary and its Junejwala minor no such trend was noticed.

*to include  
+ other  
activities*

Groundwater quality is the key issue in irrigation in Punjab. The data collected by IIMI-Pak in Mananwala and Pir Mahal distributary shows the trend of degrading groundwater quality from the head to the tail end of distributary, which is indicated by increasing values of EC<sup>4</sup> and SAR<sup>5</sup> from head to the tail end. Consequently, the problem of salinity increases from head to the tail end of the distributary. However, according to Vander Velde, et al, 1992, the groundwater quality in the command areas of Mananwala is better than in other areas.

The problem of salinity is largely associated with the fallow land in these areas. IIMI-Pak's crop survey in Mananwala and Pir Mahal distributary shows the increasing trend in the percent of cultural land left fallow, as one moves from the head to the tail end of the distributary. More land is left fallow in the tail end of the distributary because of less accessibility to canal water and the greater problem of salinity. Hence women at the head reach are involve more in agricultural activities as compared to the women at the tail end.

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<sup>4</sup> Electric Conductivity

<sup>5</sup> Sodium Adsorption Ratio



#### 4.5. SOCIO-ECONOMIC ENVIRONMENT AND WOMEN'S PARTICIPATION IN AGRICULTURE

##### 4.5.1. CASTE AND RELIGION :

The Jat, Arain, Rajput and Syed are the predominant castes in Punjab with other castes such as Gujar, Dogar, Ansari, Awan, etc.

The Syeds, the descendants of the Holy Prophet's (PUBH) family, are proud of their ancestry and women of Syed family prefer to remain under Purdah as far as possible. However, depending on their socio-economic status they work in the fields. It was a coincidence that all the Syed women interviewed were poor and landless, working as agricultural wage laborers.

The Jat women have more flexible attitudes towards their participation in agriculture. They perceive themselves as the wives or daughters of the farmers and it is well accepted for them to share the agricultural tasks with their men. Only 1 in a pool of 20 Jat women interviewed, was not participating in on-farm work, partly because she had to take care of small children and one male member of the family has off-farm employment to supplement the family income.

The Rajputs, sons of Rajas or Kings, consider themselves the aristocrats. Out of 18 Rajput women interviewed, 22% were not participating in the on-farm work. Some of them, very proud of their caste said :

" We are the wives of the Rajputs, we will starve to death but will never work in the field."

However, 50% of such Rajput women who were not doing agricultural work also have another source of family income apart from agriculture, usually in the form of jobs held by the male member of the family. Hence, Rajput women, if the circumstances allow, would prefer to confine themselves to household work only.

The Arain are also considered to be associated with the land cultivation. In the sample only 12.5% of the Arain women interviewed were not involved in on-farm work. The two christian women interviewed were very poor and land less. They belong to the lowest layer of the social stratification in the research areas. They were engaged in off-farm labor such as cleaning of the cattle shed, household labor, etc.

Hence, women's participation in agriculture can not be solely attributed to the caste they belong to. The caste along with the land holdings, tenure type and family's socio-economic status is the important factor determining the women's level of participation in agriculture. Provided that the economic status of the family



allows, most of the women would like to refrain themselves from the agricultural tasks. They complain that their household chores consumes much of their time; on-farm work requires more strength and needs exposure to the extreme climate. However, most of them have to participate in it because of the economic pressure on them.

#### 4.5.2. LAND HOLDINGS AND TENURE TYPE :

Land is the most important asset for the farmers. Larger land holding generally means more income. Hence, women belonging to such families do not participate in the agricultural activities. Few women in the sample who belonged to the big landlord family, did not even know their exact land holdings. They are provided with all of their necessities and have access to all the modern facilities such as refrigerator, T.V, washing machine, toilets, etc.

The participation in agricultural activities by the women belonging to the families with medium size land holdings varies from actual participation in case of the labor shortage to the level of supervision for the female specific tasks such as cotton, peas and pepper picking, etc. The women from the small farm holdings very actively participate in the on-farm work. Their labor is directly related to the farm income. Often men of such households have some off-farm employment to supplement the family income. Women also work in the fields of neighbors and relatives as wage laborers.

Table 7 : Average Cultivated Land Holdings Of The Family of the Different Category of Women Interviewed

Types of Women in the sample	Average Cultivated Land Holding (killas)	Standard Deviation
Women participating in ag. work	16.5	13.3
Women not participating in agriculture	26.0	39.3
Women participating in irrigation	9.9	6.6

Most of the tenants employ their own family labor for all types of farm work. Hence, women of the tenant households participate in the production activities with great intensity. During the peak labor requirement period, both men and women work as agricultural laborers on other farm. The main complaint of women from these households is the uncertainty of access to land and also the difficulty in getting good quality land for cultivation.



Women from the leasee family have the freedom to choose the type of crop they wish to grow. Whereas in case of sharecropping, the tenants often do not have the rights of growing the crops of their own choice. Women of these families complained that sometimes the landlords don't allow them to grow vegetables and other crops like sugarcane which are more likely to be grown for household consumption.

For women belonging to the families having multiple tenure type, their participation in agricultural activities is a function of family's wealth and needs.

#### 4.6. WOMEN IN THE DECISION MAKING PROCESS

Women are the master of their household world, they are solely responsible for managing it, the only male intervention in it occurs when he does not get food in time. But they are on the periphery of all important decision making processes regarding crops to be grown in their family's own land. 67% of the females reported that it is the male members of their family who choose the types of crops to be grown and area under each crop. In most of the cases women think (as the main cultivator) men's knowledge is sufficient to make major decision in agriculture.

Women's power to influence the family decision increases with their age. Old women in some households are allowed to give their opinion. In some joint families opinion is taken from the mother-in-law but the young daughter or daughter-in-law is considered to be not matured enough to give her opinion. They are excluded from the decision making processes, be it the purchase of their clothes, shoes or the choice of the life partner. → Education ?!

Males occupy special position in the family. Even as a child, a male receives special attention and better nutrition and education opportunities as compared to the female child who is often considered as a burden to her family. 36% of the women in the sample said that their opinion is often asked regarding crop choice and 38% were never asked for their opinion.

Figure 8 shows the household decision making regarding the crops to be grown in the family land as reported by the women. However, no cross check was done in this matter by inquiring the male member of the family.

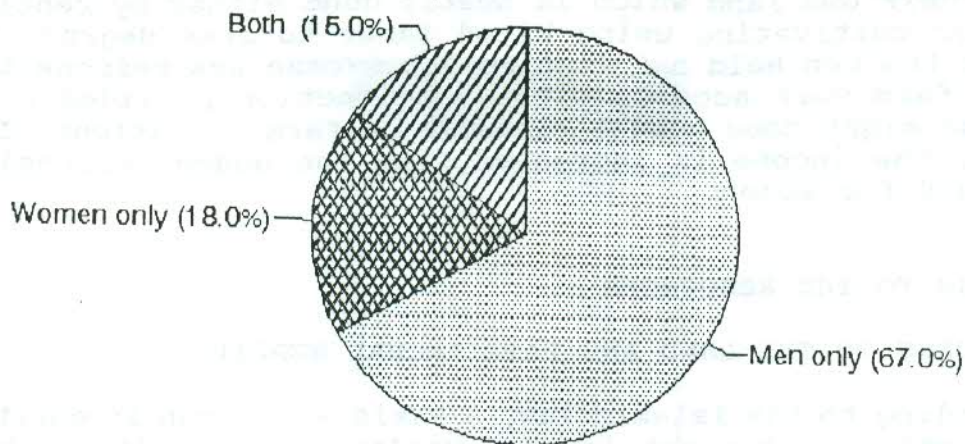


Fig. 8 Household Decision Making Regarding the Crops to be Grown As Reported by the Women Interviewed.

Once the crops to be grown have been finalized, the decision regarding women's participation in various activities is shown in Figure 9.

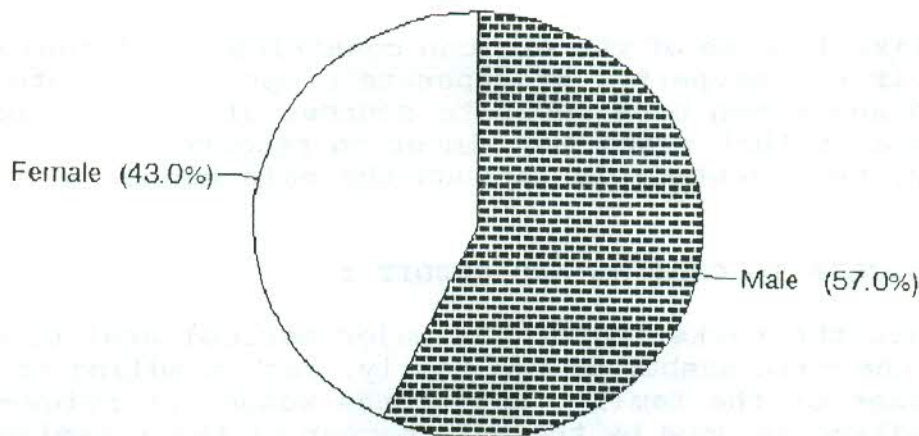


Fig. 9. Household Decision Making Regarding Women's On-Farm Activities.



In case of the male out migration, women are responsible for managing their own land which is mostly done either by renting out the land or cultivating using hired labor to some degree. In the case where the men hold a full time job, women are responsible for the major farm work according to the direction provided by their husband who might come home for the major farm operations. In both the cases, the income is increased with the added responsibility and workload for women.

#### 4.7. ACCESS TO THE RESOURCES

##### 4.7.1. ACCESS TO THE LAND AND PATRIARCHAL WEALTH :

According to the Islamic law, a Pakistani woman is entitled to a certain share of her patriarchal wealth, i.e., half of what her brothers are entitled to. With the increasing pressure on land, the tendency is to further disinherit women from their share in the property because of the fear that the property would pass to her husband after the marriage. In the feudal areas of Punjab and Sind it has been heard that an adult daughter is married to a child within the family or to the Holy Quran. Women are given dowry in the form of gold, cash and consumption goods, but it could be taken as a provision to dispossess the women from their land title. Although sometimes the dowry package includes a parcel of land, eventually the authority to use and dispose is exercised by the son-in-law. The gold and cash received in the dowry becomes a family property eventually that the woman can not dispose them of without the consent of her husband.

Unlike in some of the African countries, Pakistani women don't have their own property, of separate crops or separate animals so that men and women have separate sources of income. The important point here is that women own almost no resource to have a separate identity, her identity is through the male member of the family.

##### 4.7.2. ACCESS TO CAPITAL AND CREDIT :

Since the marketing of the major agricultural commodities is done by the male member of the family, cash handling is done by the male member of the family. 60% of the women interviewed said that cash handling is done by the male member of their family, mostly by husband or father or father-in-law or brother-in-law in case of joint family. In case of the remaining 40%, women do the cash handling in the family. Those women are usually more educated than the rest of the family members or old and trust worthy. Hence, women usually have limited access to capital.

Similarly rural women have very limited access to credit. This factor is closely related to the women's lack of assets which makes them powerless as most of the bank's credit programs require

→ Access to capital is something 24 else than cash handling

60-40  
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collateral. The First Women's Bank, which is established exclusively to serve the women, has its branches only in the urban areas. The Agricultural Development Bank of Pakistan has the provision of disbursing a nominal amount of credit through Small Farmer's Credit Program. It is targeted to provide credit to the farmers who own less than 2 hectares of irrigated land or 4 hectares of rainfed land, as well as landless rural households having assets worth less than 1 hectare of irrigated land. The salient feature of the program is that instead of collateral, personal securities are required in order to get the loan. The program again fails to facilitate rural women in obtaining credit as they have to depend on the male for personal security. It was the Gujranwala Agricultural Development Project which first introduced a women component in its credit program. Despite the imminent need, such schemes are very limited.

#### **4.7.3. ACCESS TO AGRICULTURAL EXTENSION AND INFORMATION :**

The access to the agricultural extension services for the female farmers is extremely poor. The dissemination of information regarding agricultural innovations and technologies is entirely through the male members of family, neighbors, relatives and friends who have relatively more access to these things. Due to gender segregation, women are not allowed to interact freely with the outside males. Hence, only female extension staff can gain access to the rural women. Ironically, there is a shortage of female extension staff at national level. The main reasons for it are : (1) very few educated women are allowed by their families to hold a job that requires frequent travel out of their hometown and interaction with other male staff and (2) low status and low salaries paid to these extension staff.

For 86% of the women interviewed, the author was the first person with whom they discussed about agriculture and irrigation. Often women in the rural areas are not allowed to watch TV or listen to the radio even if they are lucky enough to afford such items, as they are considered as anti-islamic activities. Such myths and taboos further restrict access to innovation, information and technology.

#### **4.8 RESOURCES MOBILIZATION**

Marketing of the major agricultural commodities are done by the male members of the family. It is forbidden for women to participate in the market economy. In 90% of the sample household, the selling of grain is done by the men. Even in those households where women are de facto heads of the household due to old age, ill-health or migration of the male of the family, the selling of the major commodities like rice, wheat and cotton is done either by the male themselves, male relatives or neighbors. In few areas,



buyers come to buy at the field itself so that women do not have to go to the market. The cattle and birds nurtured by the women are marketed entirely by men. However, women have permission to sell the minor commodities, such as milk, eggs, ghee, gund and grain if in excess. The boundary of their marketing premises is restricted to the neighbors and those vendors who come to their doors. In most of the cases women keep the money they make by selling these things. Often for the small farmers who barely grow enough to feed the family, it is the only source of cash income which they use to buy the things of basic necessity like soap, salt, clothes and medicine.

In the female specific tasks of harvesting of cotton, peas and pepper, women have some degree of autonomy regarding the resources mobilization. They manage the labor in the form of either female hired or exchanged laborers. Their own participation varies from actual participation to the level of supervision depending upon the socio-economic condition of her family and the availability of labor. In rural areas, cooperation among the neighbors and relatives is found commonly in the form of exchange of labor force for agricultural activities. However, the final consent from the male members of the family is required for both the employer and employee to work in the fields.

## **5. CONCLUSIONS**

Women in the agrarian society play multiple roles as mothers, wives, house keepers, and agricultural producers. Agricultural production is a collaborative effort, with the household as a unit of production and consumption. One of the major findings of this research is that the women are very active participants of the agricultural production in the irrigated areas. Activity wise men have higher participation in the early stages of crop production through land preparation and fertilization application. Women's participation is very significant in the intermediary activities such as weeding and hoeing but it is highest for the harvesting and post harvest activities. In case of irrigated crops such as rice, sugarcane, etc., rice transplanting in some areas is women's responsibility. And also women's participation in sowing, weeding and hoeing of the sugarcane is quite significant. Harvesting of the crops such as cotton, peas, pepper and vegetables is entirely women's responsibility. In such female specific crops, women have some degree of freedom regarding the labor management.

Women's input in agriculture is confined to mainly manual and unskilled labor. They have very limited access to new technology or mechanical innovations. Farm mechanization is said to have a negative impact on women in Pakistan. With the introduction of farm mechanization, men tend to take over the task which were traditionally female oriented. Male's agricultural responsibilities are more technical and less labor intensive.



Irrigation is a male responsibility in Punjab. Women's participation in irrigational activities is found only in case of female headed households and female de facto heads of households. Hence, women who are involved in the task of delivering water into the fields are generally assigned to a lower status in the society.

Socio-economic status of the family is the most important determinant of the women's participation in agricultural activities in rural Punjab. Land holdings and tenure type are its indicators. Hence, women belonging to the family who own a big size farm are less likely to participate in the on-farm activities. Caste system has some influence in the degree of women's participation in agriculture. However, women's participation in agriculture can not be solely attributed to the caste they belong to.

Salinity and waterlogging decrease the women's on-farm workload with a substantial increase in the men's workload. It is mainly because of the cropping pattern in these areas becomes restricted more or less to the salt tolerant crops. If the cropping pattern includes crops such as cotton, peas, pepper, vegetables, etc., women in these areas participate more in taking care of these female specific crops.

Both at the household and national level the women's role is not considered to be productive. The Labor Force Sample Survey of Pakistan, 1984-85, shows female participation in the labor force is 5.8% only, the figure for the year 1986-87 is 7.88 %.<sup>1</sup> This figure is low as compared to other South Asian counterparts. The main reason for this low figure is the conceptual and measurement-related problems in identifying women's participation within the definition of Labor force. At present stage because of the light of education, although very feeble in its intensity in the rural areas, women in these areas are aware of their position in the household and society. 63% of women in the sample felt that they are the most disadvantaged group of the society and 55% of them blame the male members of their family for their stagnating position in the family and in the society in general.

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<sup>1</sup> Khan, S., 1992.



## 6. RECOMMENDATIONS

Before incorporating the gender variable in research methods and analysis, it is important to understand the actual meaning of it. The term " Gender " as defined by Poats<sup>2</sup> :

" Gender describes the socially determined attributes of men and women, including male and female roles. In comparison, sex refers to the physical and biological difference between men and women. Gender is a useful socioeconomic variable to analyze roles, responsibilities, constraints, opportunities, and incentives of the people involved in agriculture ".

and again Poats<sup>3</sup> emphasizes the importance of gender analysis in agricultural research :

" Gender analysis is the analysis of the way male and female roles interact with research or project goals and outcomes. The focus of gender analysis is less on equity for women and more on the effectiveness and efficiency of development activities. Effective gender analysis leads to better definition of human resource needs and capabilities, and to rectifying the gender imbalance that exists among the professionals involved in research and development. It results in a more equitable allocation of resources and benefits ".

Hence, realizing the importance of gender analysis in research projects, IIMI's managements in unison with CGIAR decided to include a gender component in its ongoing and future research programs in its various country programs. At first a consultant ( Ms. Barbara Lynch) was hired by the IIMI to prepare a report on the role of women in irrigated agriculture and to make recommendations indicating the possible areas of research for IIMI. With the determination to propagate this gender program further, a female expert, namely Ms. Margreet Zwarteveen, was hired in March 1992.

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<sup>2</sup> see Poats, S., 1991.

<sup>3</sup> see Poats, S., 1991.



According to Ms. Zwarteveen the main objectives of the gender program in IIMI are :

- a. to assess to what extent gender makes a difference in water management, system performance and ultimately the quality of life for women and men in irrigated agriculture;
- b. to assess how gender differences are understood and addressed by irrigation engineers, managers and researchers;
- c. to analyze to what extent current research methodologies and concepts contribute to the invisibility of women as farmers, water-users and irrigation decision makers; and
- d. to assess if and how irrigated agriculture can contribute to the empowerment of women.

With the completion of this preliminary research on this issue, an important question to be addressed at this stage is "How does IIMI-Pakistan plan to incorporate gender issues in its research as well as follow up this research within the frame work of the gender program ?"

Since the long term aim of this program is to include gender analysis in most of IIMI's activities, the first step in this direction would be to find the point of congruence between the gender issues and the IIMI-Pak's ongoing research so that the gender issue can be made one of the component of its on-going or future research wherever applicable. In order to achieve this, the gender sensitive component of IIMI-Pak's research should be identified. As far as IIMI-Pak reaches or plans to reach down to the farmer's level, success of such programs can not be assessed without including the gender component in it. To remind again, gender does not mean women only. Gender analysis seems more suitable for IIMI-Pak's research on system performance measurement, be it measured in terms of productivity per unit of irrigated land or productivity per unit of water. Gender analysis can be incorporated into IIMI-Pak's tubewell related research in order to evaluate the gender division of responsibilities and women's empowerment brought about by changing the management interventions.

If the main aim of this gender program is to include gender issues in irrigation (defined as the physical application of water into the field), then looking at the very low participation of women in Punjab in irrigation and the already researched roles of men in this field, a full fledged gender program will be difficult to justify. Then the implementation of such a program might be easily justified in those countries where women constitute a larger portion of the water users group. Looking at the plight of rural women of Punjab, their imminent needs are education



opportunities, health facilities, better drainage and better living condition. However, IIMI being a research institution in irrigation and not a welfare organization, it can help the bureaucracies to formulate a suitable policy by pointing out the possible areas of improvement through its research findings in gender issues in the irrigated areas. Hence, in order to optimize the IIMI-Pak's resources to ensure the success of the gender program, the program can be launched in many different ways :

- a. by collaborating in the work with governmental organizations and NGOs involved in this area to hold workshops and training programs on gender issues in agriculture;
- b. by supporting the dissertation research pertaining to gender issues in irrigated agriculture in Pakistan;
- c. by assisting the concerned government departments to further human resources development in order to produce female professionals in all the sectors of agriculture with the special emphasis in extension services.

Addition of a new dimension of environmental issues to IIMI's research program will definitely attract the attention of most of its donors. Gender issues in such an extensive program is inevitable. However, the final decision has to be made by IIMI-Pakistan in order to identify the most appropriate strategy which justifies the gender program utilizing its limited resources.

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## ENGLISH AND URDU GLOSSARY

Caste : Ancestral, occupational grouping of people implying prestige gradations.

Chadar : An extended piece of cotton cloth that is draped around a woman's body in Pakistan.

Chardiwari : The boundary walls of the house.

Command area : The area served by a watercourse or a set of watercourses in a village.

Cropping Pattern : The combination and sequence of crops grown on a farm over a year's time.

Cultural Command Area : The cultivated area of a watercourse command area which can be served by gravity irrigation.

Discharge : The volumetric rate of water flow or delivery.

Distributary : The smallest water channel maintained by the government. The size hierarchy of channels would be, in descending order, major canal, minor canal, distributary. Moghas may be placed on any of these channels.

Doab : Land between two rivers.

Electric Conductivity of the Saturated Extract : A measure related to the salt concentration, dS/m.

Ghee : Rectified butter.

Kharif : Warm (wet) season cropping, approximately from April to October.

Killa : Unit of land measurement, 1 Killa = 220 ft \* 220 ft, or  
1 Killa = 1.1 acre

Landlord : Owner of land who does not cultivate the land.

Minor : A water supply canal smaller in discharge than a major canal but greater in capacity than a distributary.

Maund : Unit of weight, 1 maund = 40 Kg.

Province : Administrative unit such as Sind, Baluchistan, Punjab and North West Frontier areas.

Rabi : Cool (dry) season cropping, approximately from November to March.

Rechna Doab : Land between Chenab and Ravi rivers.

Saline Soil : Soil which contains a sufficient percentage of soluble (non-sodium) salts to impair crop growth.

SCARP : Acronym for the Salinity Control and Reclamation Project areas where public tubewells are used for lowering watertables and augmenting water supplies.

Sodium Adsorption Ratio (SAR) : A ratio for soil extracts and irrigation water used to express the relative activity of Sodium ions in exchange reaction with soil.

Tenant : A non-landowner who cultivates a block of land on a share-cropping basis with a landlord.

Tubewell : An irrigation well.

Warabandi : Rotational schedule of irrigation deliveries to the farmers.

Watercourse : A water supply channel placed on a 16 foot wide government right of way, constructed and maintained by farmers to deliver water from a mogha outlet to a farmer's field ditch.

Waterlogging : Soil condition where water table is at or above the ground surface.