

## MEASURING GENDER GAP IN AGRICULTURE AND RURAL DEVELOPMENT

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### ABSTRACT

This study was conducted in the Department of Home Economics, Government College University, Faisalabad, Pakistan during 2007-08. The main objective was to investigate and carry out the situational analysis for measuring gender gap in agriculture and rural development particularly in Punjab. Punjab province is the most populous among other provinces and its land is very fertile. About 70 percent population of the country is living in rural areas. In these areas, women are actively involved in all spheres of life they participate in agricultural farm operations, make feed, collect fodder, clean animals and their sheds, make dung cakes, collect manure for organic fertilizer, milk the animals, process animals' products and market them, rear the children, work as laborer and participate in all social functions. However, there are some gender specific roles being performed by both genders. But there is gap between both genders and level of participation which varies from region to region, and socio-cultural differences are also prominent. The socio-cultural norms are more binding and less female participation is observed. The study in hand was designed to explore the involvement of both genders in agriculture and rural development in rainfed region of Punjab (Chakwal district) and also to identify the gender gap for performing their roles and reasons for not involving females in decision making process of agriculture and rural development. In this study a cross sectional survey research design was used to collect the data. Men (husbands) were more educated than women (wives). Similarly, contribution of men to household income was higher than women, however, reverse was true for house hold expenditure. Men had more access to formal or non-formal education, extension services, credit availability, and access to marketing, employment, and technology than that of women. Women participation was more in crop and animal production; livestock, community management and natural resource management, whereas male participation was more in crop protection, marketing of crop produce and animals, water management, poultry husbandry and animal protection. The major reasons for not involving women in decision making process were male dominance, cultural values and ego.

**KEYWORDS:** Agriculture; rural development; gender gap; Pakistan.

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## INTRODUCTION

It is generally held that women as a class, belong to the category of under privileged (27). Within the hierarchies of a patriarchal world order, regardless of class and national divisions, both decision making powers about women's participation in rural development and control of civic and economic resources are vested in hands of men and women fall in dispossessed and exploited peoples. Therefore, disparity between economic growth and social indicators is increasing every day (11, 19, 21).

Development experts are interested in gender issues which should be addressed by policy interventions for rural development. The neglect of policy is neglect of potentially powerful and far-reaching strategic interventions which can do more than a million little woman-oriented projects to mainstream rural women (9).

Full participation of both men and women is the best way to build and sustain society that will resolve conflict and achieve human development goal. Comprising over 50 percent of the world's population, women are essential to address the challenges of new era (28). The working women in rural areas of Pakistan are facing a number of challenges ranging from lack of access to education, resources, property rights and skill development to gender discrimination in labour markets (11).

Gender has become a major topic in food production in developing world (32). Rural women are involved in food production activities such as crop production, livestock management, food storage and processing. But they are more malnourished than males. It is believed that women are deprived in overall socio-economic situations in Pakistan (22). They have lesser access to education (8) and training, extension service (19) and technology (16, 20) as compared to their male counterpart.

Rural women have greater role in agriculture and rural development in South Asian countries. Their role become important when small holdings exhibit declining return. The farmers replaced hired male labour with female household members as unpaid helpers. Still women are not considered full time agricultural workers due to too much household work in addition to agricultural work (28). The situation of rural women is almost same in developing countries like in Nepal, where on an average, women work for 12 hours and 47 percent higher than men who work for eight hours. In Sri Lanka, women perform over 70 percent of all agricultural activities. In India,

women constitute one half of labour in rice cultivation. Women responsibilities related to livestock vary across regions. In 90 percent of families, indoor jobs related to livestock management such as milking, feeding, cleaning of animal and sheds are done by women while management of animals and fodder production tasks are performed by men (33).

In rural communities of Pakistan, 90 percent of households are headed by men. The female-headed households are belonging to poor strata of the society. 79.4 percent of rural women are engaged in agriculture where they work for 12-15 hours a day for various economic activities and household chores (21).

In Islam, the status of women is equal to men and both are equal in their humanity, dignity and accountability to perform their tasks and be judged according to their performance. The Quran regards men and women as complementary to each other but not considers woman as an extension of man, always following or obeying him. Woman has full responsibility and individual freedom. The Quran treats individual, whether men or women, in exactly the same manner (31).

In the process of rural development, roles, resources allocation and needs of women had been changing. Nevertheless, inequalities between men and women persist in many important areas (18, 35). As a result of these inequalities women are subjected to different gender based violence. Until and unless they are fully involved in agriculture, rural development and their decision making, leadership and management skills are not enhanced to fully participate in rural as well as other areas of development, violence and exploitation against women will continue (28).

The International Fund for Agriculture Development has also recommended gender analysis for designing, guiding and making a frame work to promote rural women in civil society (7). Antrobus (13) explained that economic systems propagate oppression. The production-oriented approach to rural development is flawed failing to address women's lack of access to land, credit, training and new technologies.

Syal (35) disclosed that in Pakistan male members of rural households feel ashamed of acknowledging women contribution in family income and they have full control over women's labour power. Male households are also feared of rebellion by educating their daughters and sisters.

Acharya *et al.* (1) described that a community development strategy to empower rural women through educational and small-scale household economic activities is more feasible and appropriate as compared to other strategies. Gender issues in agriculture and rural development policy in Asia and the Pacific (4) has recommended that it is essential to collect rural women statistics for formulation of policy regarding rural development in Pakistan.

In this research work, present status of gender gap in agriculture and rural development in rainfed region was evaluated to explore the reasons for non-involvement of females in this respect.

## MATERIALS AND METHODS

This study was conducted in the Department of Home Economics, Government College University, Faisalabad, Pakistan during 2007-08. Rural area of district Chakwal was selected with its four tehsils i.e. Chakwal, Talagang, Choa Sadan Shah and Kallar Kahar. It has total population of 1059,491 persons as per census of 1998 (6). Its present estimated population is 1.31 millions. Total literacy rate of this district is 69.02 percent. There are 58 rural and 10 urban union councils in the district. The total number of villages is 461.

A cross sectional survey design and multistage random sampling process was used for this study. Two tehsils were selected by simple random sampling technique. From selected tehsils, five villages were selected randomly and 20 households (farming and non-farming families) of each village were further selected using systematic random sampling technique. One married couple from the selected households was selected as respondent and in all 400 respondents (200 female and 200 males) were interviewed. The data were collected through pre-tested interview schedule survey. The collected data were analyzed by using statistical package for social sciences (SPSS). Moreover, data were analyzed by calculating simple frequencies and percentages.

## RESULTS AND DISCUSSION

### Indicators depicting gender gap

**Education:** Education is a helpful tool in bringing change in the behaviour of an individual (2) and solving all society's disorders (25). Mean education

level among husbands and housewives in surveyed area was 6.66 and 2.19 years of formal schooling, and difference among males and females was statistically highly significant (Table 1). This difference is mainly attributed to the presence of educational facilities as well as attitude of parents for educating female children. The literacy rate of husbands and housewives was 78 and 28 percent, respectively. Only 8.5 percent husbands and 1.5 percent housewives had college education. Forty percent of husbands had education upto 8 years of formal schooling whereas about 30 percent possessed matriculation certificate (Table 1). This implies that nearly 70 percent male-household-heads had a basic education necessary for some lower level job in urban private sector, lower rank employment in army or some other job involved low level of skills.

**Table 1: Frequency distribution of male and female respondents by their education levels.**

Education levels	Wives		Husbands	
	Number	Percentage	Number	Percentage
Illiterate	144	72.0	44	22.0
Primary-Middle	32	16.0	80	40.0
10 years education	21	10.5	59	29.5
Above matriculation	3	1.5	17	8.5
Total	200	100.0	200	100.0
	Chi-square value=101.613		Significance level=0.000	
Mean education	2.19		6.66	
Standard deviation	3.78		4.20	
Coeff. of variation	172.83%		63.09%	
	F-Ratio=124.966		Significance level=0.000	

The large literacy gap between both genders is a major barrier to females participation in rural development. These results are in line with earlier findings (8) who reported that vast difference in education of men and women had triggered the effects on women's social, economic and educational life. In rural areas, education gap from primary to higher level increases stepwise and widens too much (5) which hinders in finding employment.

**Household total annual income:** The household monthly income plays an important role in access to resources. It is evident (Table 2) that 79.5 percent households have annual income upto Rs. 1, 00,000. Comparable behaviour was observed by Antrobus (13) and Nosheen *et al.* (29) that men contribute largely in household income, whereas women were chiefly inclined to meet household expenditure.

**Table 2. Household total annual income.**

Annual income (Rs.)	Number	Percentage
Upto 1,00,000	159	79.5
Upto 2,00,000	30	15.0
Above 2,00,000	11	5.5
Total:	200	100.0

**Gender-wise sharing of household monthly income and expenditure:**

The data (Table 3) show that distribution of gender based contribution into total household income is forming inverse triangle to one another. In other words, the proportion of households increased with increase in males' share in total household income whereas opposite was observed in case of contribution from family females. It was found that in half of respondent families, males contributed more than 75 percent to total household income while share from family females was only 10 percent. The gender based difference in contribution to total household income was highly significant statistically (Table 3) indicating to much stronger position of males than females in economic empowerment in household.

**Table 3: Frequency distribution of respondents by extent of contribution from male and female members in total household income.**

Income sharing groups	Males		Females	
	Number	Percentage	Number	Percentage
Less than 25%	3	1.5	110	55.0
25 to 50%	28	14.0	55	27.5
>50 to 75%	71	35.5	20	10.0
> 75 to 100%	98	49.0	15	7.5
Total:	200	100.0	200	100.0
	Chi-square value=199.649		Significance level=0.000	

Information about role of household head and housewives in managing total household expenditures was also explored. The results (Table 4) revealed that in 82.5 percent cases, female household heads were managing more than half of total household expenditures whereas corresponding figure for male was only 20 percent. It seems that female role in managing total household expenditure is statistically significant in study area. This also implies that wives of the household head seems to enjoy good degree of empowerment in deciding where to and how much to spend. Males' role in this area seems to be limited (29) quite opposite to that observed in case household income.

**Table 4. Frequency distribution of respondents by extent of contribution from male and female members in total household expenditure.**

Expenditure share groups	Males		Females	
	Number	Percentage	Number	Percentage
Less than 25%	93	46.5	10	5.0
25 to 50%	67	33.5	25	12.5
>50 to 75%	30	15.0	60	30.0
> 75 to 100%	10	5.0	105	52.5
Total:	200	100.0	200	100.0
	Chi-square value=174.536		Significance level=0.000	

**Access to resources:** Access to resources is main determinant for deciding the role of both genders. The data (Table 5) indicate that there was gender gap regarding this parameter. The access to resources by husbands was higher as compared to wives. Male respondents have more access to education, non-formal education, extension services, credit, marketing and technology as compared to female respondents (wives). It is concluded that gender gap in rural community prevails due to lack of access to resources like credit, employment, technology, extension services, education and health. The major cause of these limited access is strict compliance of local customs, lack of security, subordinated position of women in rural society, economic dependency, myth of women as a weaker sex, patriarchal society and male ego. Similar observations were noted that women had poor access to employment (11, 26), extension education services (19), credit (18, 35) and technology (16, 20) as compared to men.

**Table 5. Distribution of respondents about extent of access available to various facilities /services.**

Facilities/ services types	Female respondents (n=200)					Male respondents (n=200)					X <sup>2</sup> - value	Sig. level
	1	2	3	4	5	1	2	3	4	5		
Formal education (admission, fee, books)	16 (8.0)	14 (7.0)	28 (14.0)	45 (22.5)	97 (48.5)	2 (1.0)	13 (6.5)	62 (31.0)	49 (24.5)	74 (37.0)	27.034	0.000
Informal education	21 (10.5)	44 (22.0)	51 (25.5)	56 (28.0)	28 (14.0)	15 (7.5)	46 (23.0)	44 (22.0)	45 (22.5)	50 (25.0)	8.963	0.062
Extension services	62 (31.0)	42 (21.0)	52 (26.0)	28 (14.0)	16 (8.0)	40 (20.0)	47 (23.5)	47 (23.5)	46 (23.0)	20 (10.0)	10.101	0.039
Credit	118 (59.0)	45 (22.5)	18 (9.0)	9 (4.5)	10 (5.0)	48 (24.0)	51 (25.5)	49 (24.5)	31 (15.5)	21 (10.5)	60.240	0.000
Technology	143 (71.5)	33 (16.5)	11 (5.5)	5 (2.5)	8 (4.0)	75 (37.5)	44 (22.0)	53 (26.5)	13 (6.5)	15 (7.5)	56.031	0.000
Employment	115 (57.5)	47 (23.5)	17 (8.5)	13 (6.5)	8 (4.0)	58 (29.0)	57 (28.5)	53 (26.5)	22 (11.0)	10 (5.0)	40.793	0.000
Marketing	123 (61.5)	39 (19.5)	19 (9.5)	13 (6.5)	6 (3.0)	59 (29.5)	44 (22.0)	54 (27.0)	26 (13.0)	17 (8.5)	49.182	0.000

Scale: 1= to some extent; 2=to below average extent; 3=to average extent; 4=to above extent; 5=to much extent. Figures in parentheses are row percentages.

The same order was found in ranking by both female and male respondents, based on mean score obtained (Table 6). Although the differences in mean value of scores on access to different facilities was highly significant statistically, yet magnitude of these values was relatively higher in males than females, except education. These observations are according to our *a priori* expectation because last four variables were more pertained to males than females. With regards to women access to education, earlier workers (8, 35) also considered that low levels of education among women had not only a negative impact on economic growth of a country, but also shut them out of regular work. Similar views were also reported by Hill and King (23) and Assaad and El-Hamidi (14). Regarding access of women to employment, it has been pointed out earlier (8, 24) that women earned only two thirds of men's pay and less than three quarters of wages of men. Correspondingly, Breth (15) confirmed that women had limited access to credit, due to illiteracy and lack of collaterals.

**Table 6. Gender based ranking by mean scores about extent of access available to various facilities / services.**

Facilities types	Female respondents (n=200)			Male respondents (n=200)			F-ratio	Sig. level
	Mean <sup>1</sup>	Standard deviation	Ranking order	Mean <sup>1</sup>	Standard deviation	Ranking order		
Formal education	3.965	1.277	1	3.900	1.012	1	0.318	0.573
Non-formal education	3.130	1.212	2	3.345	1.282	2	2.968	0.086
Extension services	2.470	1.279	3	2.795	1.277	3	6.463	0.011
Credit	1.740	1.117	4	2.630	1.289	4	54.439	0.000
Marketing	1.700	1.075	5	2.490	1.272	5	45.000	0.000
Employment	1.760	1.108	6	2.345	1.154	6	26.724	0.000
Technology	1.510	0.997	7	2.245	1.233	7	42.918	0.000

Scale: 1 = to some extent; 2 = to below average extent; 3 = to average extent; 4 = to above extent; 5 = to much extent.

In case of marketing, Moore (27) stated that women were dominant in labour as compared to men both in field and household; whereas men are dominated in sale of produce. Likewise, Diouf (17) stated that women cannot apply for credit in their own names. A wife cannot enter into a contract; she cannot hire the equipment and labour needed for farm operations in Kenya.

### Gender gap dynamics

The results (Table 7) reveal that male and female role in agriculture and rural development are diversified. The extent of participation in main



Table 7: Frequency distribution of respondents by participation level in different activities.

Activity types	Female respondents (n=200)				Male respondents (n=200)				Statistical test					
	Never		Often		Never		Often		χ <sup>2</sup> -value	Signif. level				
	Freq.	%	Freq.	%	Freq.	%	Freq.	%						
<b>Crop Farming</b>														
Crop production	49	24.5	34	17.0	117	58.5	39	19.5	59	29.5	102	51.0	8.884	0.012
Crop protection	152	76.0	21	10.5	27	13.5	75	37.5	81	40.5	44	22.0	65.483	0.000
Crop output marketing	151	75.5	16	8.0	33	16.5	103	51.5	70	35.0	27	13.5	45.604	0.000
Water management	139	69.5	28	14.0	33	16.5	171	85.5	22	11.0	7	3.5	20.923	0.000
Natural resource management	73	36.5	33	16.5	94	47.0	177	88.5	16	8.0	7	3.5	124.103	0.000
<b>Livestock Farming</b>														
Animal production	103	51.5	20	10.0	77	38.5	78	39.0	57	28.5	65	32.5	22.246	0.000
Animal protection	117	58.5	27	13.5	56	28.0	75	37.5	55	27.5	70	35.0	20.304	0.000
Marketing of animals	135	67.5	23	11.5	42	21.0	116	58.0	63	31.5	21	10.5	27.043	0.000
Livestock management	54	27.0	14	7.0	132	66.0	144	72.0	39	19.5	17	8.5	141.460	0.000
Poultry husbandry	117	58.5	30	15.0	53	26.5	179	89.5	14	7.0	7	3.5	54.071	0.000
<b>Household Management</b>														
Household chores	18	9.0	12	6.0	170	85.0	172	86.0	21	10.5	7	3.5	277.383	0.000
Child care	7	3.5	7	3.5	186	93.0	167	83.5	27	13.5	6	3.0	327.641	0.000
Fuel collection	74	37.0	32	16.0	94	47.0	178	89.0	17	8.5	5	2.5	127.523	0.000

activities of agriculture and rural development were measured through scales. The results indicated that females in rural society are actively involved in tasks related to agriculture like crop production, animal production, livestock management, community management, and natural resource management. However, least frequently performed roles by female respondents in this community include crop protection, marketing of crop produce, water management, marketing of animals, poultry husbandry (commercial) and animal protection. The females in rural society were also found as performing all public related activities side by side their male counterpart. The routine farm and household chores done by females are considered as social or cultural customs by male members of the society. It is revealed that male dominated culture restricts females to involve in decision making process regarding farm operations and rural development. There is a gender gap in decision-making. These results are in conformity with the findings of Antrobus (13) and Nosheen *et al.* (29) that cultural norms and traditional attitudes limit the women participation in developmental activities.

The data given in Table 7 were used for ranking the order of participation in various activities. The top three ranking activities of female household heads were; children care, sanitation and safety. Their lowest ranking activities were related to farming activities like water management, output marketing and crop protection. Top three ranking activities of male household heads were; crop production, animal protection and animal production. Their lowest ranking activities were related to household management like safety, fuel collection and handicrafts making (Table 8). Most of variables were highly significant statistically. The extent of female involvement in crop and livestock farming (Table 7 and 8) is similar to that reported by Taj *et al.* (37).

The data (Table 9) revealed that reasons for not involving spouse in decision making process were; male dominance, cultural values and personal egos involved. Similar findings were reported earlier (10, 12). Majority of female respondents (more than 80%) agreed that male dominance, cultural values and ego were the main reasons for not involving them into decision-making in agriculture and rural development. Similar results were observed by Prakash (30) and Nosheen *et al.* (29) for rural women, food security and agricultural cooperatives in India and Pakistan, respectively. Traditions, beliefs, patriarchal modes and misinterpretations of religious sanctions, practices and illiteracy of women play major role for not involving women into development sectors. A previous study (3) also concluded that personal, social and cultural values are major reasons for not involving women into development process.

Table 8. Gender-based participation ranking for household and farm activities.

Activity types	Female respondents (n=200)			Male respondents (n=200)			F-value	Sig. level
	Mean	Standard deviation	Ranking order	Mean	Standard deviation	Ranking order		
<b>Crop Farming</b>								
Crop production	2.340	0.847	9	2.315	0.780	1	0.094	0.759
Natural resource management	2.105	0.910	13	1.150	0.446	17	177.677	0.000
Water management	1.470	0.763	19	1.180	0.468	15	21.007	0.000
Crop output marketing	1.405	0.758	20	1.620	0.713	5	8.544	0.004
Crop protection	1.375	0.712	21	1.845	0.758	4	40.879	0.000
<b>Livestock Farming</b>								
Livestock management	2.390	0.884	8	1.365	0.635	7	177.230	0.000
Animal production	1.870	0.942	15	1.935	0.845	3	0.528	0.468
Animal protection	1.695	0.881	16	1.975	0.853	2	10.426	0.001
Poultry husbandry	1.680	0.867	17	1.140	0.437	18	61.864	0.000
Marketing of animals	1.535	0.820	18	1.525	0.679	6	0.018	0.894
<b>Household management</b>								
Child care	2.895	0.406	1	1.195	0.467	12	1509.673	0.000
Sanitation	2.890	0.359	2	1.205	0.494	14	1523.440	0.000
Safety	2.860	0.449	3	1.130	0.405	19	1638.479	0.000
Household chores	2.760	0.604	5	1.175	0.464	16	866.773	0.000
Family health care	2.725	0.567	6	1.195	0.478	13	852.639	0.000
Handicraft	2.505	0.750	7	1.095	0.356	21	576.765	0.000
Fuel collection	2.100	0.913	14	1.135	0.409	20	185.913	0.000

Table 9. Distribution of main reasons for not involving their spouse in decision making.

Reason	Female respondents		Male respondents		$\chi^2$ -value	Sig. level
	Yes (No)	Yes (%)	Yes (No)	Yes (%)		
Male dominance	5	55.6	169	94.4	18.773	0.000
Cultural values	6	66.7	167	93.3	8.276	0.004
Personal ego	7	77.8	160	89.4	1.164	0.281

## CONCLUSIONS AND RECOMMENDATIONS

- Men (husbands) were more educated than women (wives). Females should be encouraged to get education especially non- formal (extension education) which can promote their involvement in decision making process.
- Contribution of men to household income was higher that of women. However, reverse situation was noted for household expenditure.
- Men had more access to formal or non-formal education, extension services, credit availability, and access to marketing, employment, and technology than that of women.
- Women participation was more in crop and animal production; livestock, community management and natural resource management.

- Male participation was more in crop protection, marketing of crop produce and animals, water management, poultry husbandry and animal protection.
- The major reasons for not involving women in decision making process were male dominancy, cultural values and ego. Local influential leaders/people should try to change the wrong myths of rural society like male dominance, male ego and cultural values and that females are weaker, inferior and less empowered to take any decision.
- Rural home economics extension service in the province for education and uplift of rural women should be established.

## REFERENCES

1. Acharya, Yoshino, Jimba and Wakai, 2007. Empowering Rural Women through Community Development Approach in Nepal. *Comm. Dev. J.* Vol. 42, Graduate School of Economics and Business Administration, Hokkaido University, Sapporo, Japan.
2. Ali, T., M. Z. Y. Hassan and M. Ahmad. 2005. Effect of education on gender violence in the context of rural farm families of tehsil Dera Ghazi Khan, Pakistan. *J. Agric. Soc. Sci.* 1(3): 227-230.
3. Anon. 2008. Analysis of the Obstacles to Gender Mainstreaming in Agricultural Decision Making and Extension Work in the Punjab Pakistan. Unpublished Report of Higher Education Commission of Pakistan.
4. Anon. 2000. Conference of Ministers of Agriculture for Asia and the Pacific in Japan. FAO Rome, Italy. [http:// www.fao.org](http://www.fao.org).
5. Anon. 2006. Economic Survey, 2006. Federal Bureau of Statistics, Govt. of Pakistan, Islamabad.
6. Anon. 2007. Economic Survey, 2007. Federal Bureau of Statistics, Govt. of Pakistan, Islamabad.
7. Anon. 2004. Livestock Services and the Poor: a Global Initiative Collecting, Coordinating and Sharing Experiences. IFAD. Published by Ugo Quintily S. P. A., Rome, Italy.
8. Anon. 2002. Palestinian rural women: facts and figures. RWDS. [www.pal-arc.org/corda/rwds/publications/news-2002-factsfigures.html](http://www.pal-arc.org/corda/rwds/publications/news-2002-factsfigures.html).
9. Anon. 1993. Regional Expert Consultation on Gender Issues in Agricultural and Rural Development Policy in Asia and the Pacific. FAO Rome, Italy. [http:// www.fao.org](http://www.fao.org).
10. Anon. 2004. The Road to Gender Equality in Africa: An Overview. The African Union Commission (AUC), Addis Ababa, Ethiopia.

11. Anon. 1999. Women in Nepal. Country briefing paper. Office of environment and social development. ADB Manila. <http://www.adb.org>.
12. Anon. 1997. Women in Pakistan: A Country Profile, ESCAP, United Nations, New York, USA.
13. Antrobus, P. 1987. Feminist Issues in Development, World Education Report.
14. Assaad, R. and F. El-Hamidi. 2001. Is all working the same? a comparison of the determinants of female participation and hours of work in various employment states in Egypt. *In: The Economics of Women and Work in the Middle East and North Africa*. E. M. Cinar (ed.). Amsterdam, Elsevier. The Netherlands.
15. Breth, S. A. 1997. Women Agricultural Intensification and Household Food Security. Mexico City: Sasakawa African Association.
16. Carr, M. 2000. Gender, science and technology for development in the context of globalization. *AWIS Magazine*. 29(4): 13-16.
17. Diouf, M. 1999. Poverty reduction through access to credit and women's income generating activities. *In: Reducing Poverty through Agricultural Sector, Strategies in Eastern and Southern Africa*. CTA, Wageningen, The Netherlands.
18. Giovarelli, R. 2004. Are rural women disadvantaged in asset ownership and business relations in Kargyz Republic? [http:// www.basis.wise.edu](http://www.basis.wise.edu).
19. Goldey, P., D. Ediz, B. Ozkan and V. Ceyhan. 2001. Identifying and enhancing women's role in agriculture: the case of women farmers in vegetable production systems in Turkey. Part 1. *Anatolia. Int. & Rural Dev. Dept.*, The Univ. Reading, UK.
20. Harding, J. 2000. Gender issues in science and technology in common wealth secretariat: paths to prosperity: science and technology in the common wealth 1999/2000, Common Wealth Secretariat, London, UK.
21. Haskell, L. and M. Randall. 1999. The policy of woman's safety: sexual violence, women's fears and public/private split. *Recourses For Feminist Research* pages 26(34).
22. Hassan, M.Z.Y. 2008. Analysis of the Obstacles to Gender Mainstreaming in Agricultural Extension in the Punjab, Pakistan. A Case Study of District Muzaffargarh. Ph. D Thesis, Department of Agri. Extension, Univ. Agri., Faisalabad, Pakistan.
23. Hill, M. A. and E. A. King. 1991. Women's education in the third world: an overview. *In: Women's Education in Developing Countries: Barriers, Benefits and Policy*. King and Hill (eds.) The World Bank, Washington, DC., USA.

24. Ironmonger, D. 1996. Counting outputs, capital inputs and caring labour: estimating gross household product. *Feminist Economics*. 2 (3): 37-64.
25. Khan, T. 2005. A lost battle: *The Daily Dawn*, Karachi, Pakistan. March 2, p.4.
26. Meng, X. 1998. The economic position of women in asia. CLARA Working Paper No. 4 Amsterdam, The Netherlands.
27. Moore, D. 1996. Marxism, culture and political ecology. Environmental struggles in Zimbabwe's Eastern Highlands. *In: Liberation Ecologies-Environment, Development and Social Movements*. R. Peet and N. Watts (eds.), London: Routledge. p.125-147.
28. Nagy, I. 2006. Measuring the Global Gender Gap: An International Comparison Changing Role: Report on the situation of women and men in Hungary, TARKI Social Research Institute, Budapest, Hungary. p.192-205.
29. Nosheen, F., T. Ali, M. Ali and H. Nawaz. 2008. Exploring the gender involvement in agricultural decision making: A case study of district Chakwal., *Pak. J. Agric. Sci.* 45(3): 101-106.
30. Prakash, D. 2003. Rural Women, Food Security and Agricultural Cooperatives. Rural Development & Management Centre. New Delhi, India.
31. Rehman, N. F. 2001. Women and Gender in Islam. Yale University Press. USA. Research and News Bulletin No. 11.
32. Anon. 2002. Palestinian rural women: facts and figures. RWDS. [www.pal-arc.org/corda/rwds/publications/news-2002-factsfigures.html](http://www.pal-arc.org/corda/rwds/publications/news-2002-factsfigures.html).
33. Saghir, A., T. Ali and M. Z. Y. Hassan, 2005. Gender analysis in food production and its intake. *J. Ext. Systems*. 21 (1):84-97.
34. Shehzad, M. 2004. Daughters of the soil. *Lead Pakistan*. <http://www.lead.org.pk>.
35. Syal, N.H. 2004. WTO and working conditions of women in Pakistan. SDPI, Islamabad.
36. Tacio, H. D. 2003. Women hold key to food production. *The Manila Times*, May, <http://manilatimes.net/national/2003/may/2.7/business/20030527bus12.html>.
37. Taj, S., U. Farooq, N. Akmal and A. Majid. 2007. Economic and gender based employed impacts of introducing dugwells in the rainfed farming system of Punjab, Pakistan. *J. Sustain. Dev. Nigeria*. 2(2):40-52.

**Table 7: Frequency distribution of respondents by participation level in different activities.**

Activity types	Female respondents (n=200)	Male respondents (n=200)	Statistical test
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	Never		Sometime		Often		Never		Sometimes		Often		χ <sup>2</sup> - valu e	Signi f. level
	Fre q.	%	Fre q.	%	Fre q.	%	Fre q.	%	Fre q.	%	Fre q.	%		
<b>Crop Farming</b>														
Crop production	49	24.5	34	17.0	117	58.5	39	19.5	59	29.5	10	5.1	8.88	0.012
Crop protection	152	76.0	21	10.5	27	13.5	75	37.5	81	40.5	44	22.0	65.4	0.000
Crop output marketing	151	75.5	16	8.0	33	16.5	103	51.5	70	35.0	27	13.5	45.6	0.000
Water management	139	69.5	28	14.0	33	16.5	171	85.5	22	11.0	7	3.5	20.9	0.000
Natural resource management	73	36.5	33	16.5	94	47.0	177	88.5	16	8.0	7	3.5	124.103	0.000
<b>Livestock Farming</b>														
Animal production	103	51.5	20	10.0	77	38.5	78	39.0	57	28.5	65	32.5	22.2	0.000
Animal protection	117	58.5	27	13.5	56	28.0	75	37.5	55	27.5	70	35.0	20.3	0.000
Marketing of animals	135	67.5	23	11.5	42	21.0	116	58.0	63	31.5	21	10.5	27.0	0.000
Livestock management	54	27.0	14	7.0	132	66.0	144	72.0	39	19.5	17	8.5	141.460	0.000
Poultry husbandry	117	58.5	30	15.0	53	26.5	179	89.5	14	7.0	7	3.5	54.0	0.000
<b>Household Management</b>														
Household chores	18	9.0	12	6.0	170	85.0	172	86.0	21	10.5	7	3.5	277.383	0.000
Child care	7	3.5	7	3.5	186	93.0	167	83.5	27	13.5	6	3.0	327.641	0.000
Fuel collection	74	37.0	32	16.0	94	47.0	178	89.0	17	8.5	5	2.5	127.523	0.000