

Empowerment of women in agriculture

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“Empowerment with women” is the central issue that has been pervading the development debate after the 80s. Improving their status and empowering them would go a long way in accomplishing egalitarian gender relations in society. Women who are *hitherto* constrained by their social structure for their self-expression constitute the target of most of the development programmes, which aim at bringing them into the mainstream of the development process.

What is empowerment?:

Empowerment implies on overall positive change in the physical quality of life, this positive change for the better encompasses economic as well as social aspect.

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The status of women in India:

Public Information Centre of World Bank Group (No. 97/ 1292 SAS), Women are a vital part of the Indian economy, constituting one-third of the national labor force and a major contributor to the survival of the family the poorer the family, the greater its dependence on women's income. Despite progress in several key indicators, a gender analysis of most social and economic data demonstrates that women in India continue to be relatively disadvantaged in matters of survival, health, nutrition, literacy, and productivity. More than 90 per cent of rural women in India are unskilled, restricting them to low-paid occupations. Women generally have no control over land and other productive assets, which largely excludes them from access to institutional credit and renders them dependent on high-cost informal sources of credit to secure capital for consumption and/or productive purposes. Women form the backbone of agriculture, comprising the majority of agricultural laborers in India. Gender divisions in agriculture are stark, with all activities involving manual labor assigned to women, while all operations involving

machinery and men generally perform drought animals. Female agricultural laborers are among the poorest sections of Indian society. Agricultural wages for women are on average 30-50 per cent less than those for men.

Women in Agricultural families perform many farm-related activities, both within and outside the household, in most parts of the country. They constitute a large part of the total work force in agriculture. Although the pattern of division of labour between men and women varies greatly from region to region, women are involved in most of the operations in agriculture, including subsidiary enterprises like dairy, poultry, beekeeping, mushroom cultivation, sericulture, fish culture, rabbit rearing, social forestry, etc. (Bajwa, 1983; Prasad and Chandra, 1991).

So far as crop husbandry is concerned, women participate in almost all activities, right from preparatory tillage to harvest, and even in post-harvest tasks like processing, storage and marketing. Ploughing is perhaps the only exception. There is a general taboo on women engaging in ploughing, but in exceptional circumstances even ploughing is done by them. In some regions like Garhwal, a hilly region of Uttar Pradesh, such taboo is quite less.

Women in rural India play major role in shaping the country's economy through their active participation in agriculture. At present, the women work force in agriculture and allied sector is estimated at about 61 million, which amounts to about 30 per cent of the total rural workers in the country. They actively participate in different crop production activities such as seed cleaning, seed grading, sowing, dibbling, transplanting, weeding, thinning, gap filling, interculturing, harvesting, threshing, shelling, hulling, winnowing, feeding cattle, and looking after milch animals and poultry birds are the main jobs for women. Activities such as processing and storage at home are performed exclusively by women. It may, however, be mentioned that regardless

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of the economic status, higher caste women usually avoid doing field work. Their activities are confined within and at best around the homestead. By and large, the main role of women in high income group is supervisory. They also carry the burden of household work and management.

A small and marginal women farmer is poor, as they could not take advantage of the modern technology due to remote location of the area. Therefore, it was realized that the productivity of the rural poor could be improved by convincing them to adopt the new innovative technologies.

Srivastava (1985) stated that all women irrespective of land status of the family provide 14 to 18 hours of productive physical labour in different chores. Women spend long hours with much labour in repetitive operations resulting in fatigue and drudgery. Therefore empowerment of women was visualized as goals with the sharp focus on eliminating their age-old drudgeries in the context of agriculture and animal husbandry by their technological empowerment.

The concept of women's empowerment:

The concept of empowerment of poor women is a relatively new especially in the realm of development. It is a process of changing the existing power relations in favour of the poor and the marginalized women. It is a long-term process that requires changes in knowledge, attitude and behaviour of not only women, but also of men and the society at large. Empowerment of women in general and poor women in particular, is the thrust area of development initiatives in India today. Empowerment is a process of awareness and capacity building leading to greater participation to greater decision-making power and control, and to transformative action. The concept of women's empowerment has become the catchword today.

The concept of the empowerment of women as a goal of development projects and programmes has been gaining wider acceptance in the 1990s. Women's participation in grassroots organizations is increasingly recognized as crucial to their empowerment and as a way for them to help shape development policies. According to Khan (2001) and Sinha (2002) the eighth Five Year Plan (1992-97) makes a shift from 'development' to 'empowerment' of women. Policies, programmes and projects designed to assist and uplift the low-income women, have shifted from "welfare approach" to an "empowerment approach". Hence, a number of measures have been taken by the Government in this direction for social and economic emancipation of women.

The information given in Table 1 reveals cent per cent participation of farm women in the listed agricultural

Table 1 : Participation in Agriculture: extent of participation (N=540)

High participation	Low participation
Weeding	Marketing
Drying	Plant protection measure
Cutting	Nursery-raising
Picking	Threshing
Winnowing	Irrigation
Cleaning	Ploughing
Storage	

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operation viz., weeding, drying, cutting, picking, winnowing, cleaning, storage. While least participation (0-20%) was observed in marketing, plant protection measures, raising nursery for seedlings, threshing, irrigation and ploughing.

This reflects their ever-increasing need for latest technical know-how in agriculture for empowerment. Average time spent per day for performing different activities was 2.85 hour/day over the year. Most of the agricultural activities were done by manually by women. Traditional tools were used for most of these activities except for threshing and shelling.

Table 2: Participation in animal husbandry: extent of participation (N=540)

Cent-per cent	No participation
Offering water to animals	Purchase of fodder
Cutting, collection and making bundles of fodder	Purchase of feed
Transportation of fodder	Disinfecting cattle shed
	Deworming
	Taking animals
	- for vaccination
	- for artificial insemination
	Removal of ticks
	Sale of milk products

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Based on the information given in Table 2 women participation was as high as 100% in activities such as offering water to animals, cutting/collection and making bundles of fodder, chaffing of fodder, transportation of fodder, feeding of animals, cleaning of cattle shed and boiling of milk. However, task where no participation (0%) was registered included, purchase of fodder, purchases of feed from market, disinfecting cattle shed, deworming, taking animals for vaccination, taking animals for artificial insemination, removal of ticks and sale of butter, ghee, khoa, cheese.

Average time spent per day per animal for performing different animal husbandry activities was 0.65

hour/day/animal. Their was 100% involvement in animal husbandry tasks with the exception of ones which required outside mobility might be viewed as evidence of their predominant participation in these activities due to possibility of successfully combining it with household work. Most of the animal husbandry related tasks were performed using traditional methods. However, chaff cutter and manger were the popular technologies that had per cent adoption in the selected area.

The results of paired comparisons of 10 agricultural operations in prioritizing perceived drudgery Table 3 showed harvesting to be the most drudgeries task followed by transplanting, carrying load on head, weeding and winnowing. However, least drudgeries tasks were perceived as picking and shelling.

Response pattern of 120 farm women paired comparison of 8 animal husbandry operations in terms of ranking perceived drudgery revealed chaffing, feeding and cleaning of cattle sheds to be the most drudgeries tasks. However, churning and milking were perceived as least drudgeries activities (Table 3).

Assessment of improved technology/tools in terms of reducing/minimizing drudgery was measured through

physiological cost of work involved.

As per Table 4, seven improved implements *i.e.* sickle, maize sheller, rake, shovel, handle operated cleaner grader, paddle operated cleaner grader and hanging type cleaner grader were introduced. The drudgery reduction of these implements was measure with the help of heart rate and energy expenditure.

The graphical representation shows that with the use of every implement, the heart rate and energy expenditure was reduced. Women in the selected area were saddled with a triple burden of home, agriculture and animal husbandry relate tasks. Seasonal changes and fluctuating economic conditions also had an impact on women participation in agriculture. All activities that were time and labour intensive, required large inputs of time and labour and relatively fewer inputs of managements were being performed by women. The focus must therefore, be on the drudgery reduction and economic empowerment with special emphasis on management and marketing related skills.

Why women empowerment?:

The following sections focus upon necessary

Table 3 : Perceived drudgery in agriculture and animal husbandry (n=540)

Sr. No.	Agriculture	Rank	Sr. No.	Animal husbandry	Rank
1.	Harvesting-cutting	1	1.	Chaffing the fodder	1
2.	Transplanting/ cleaning or leveling of field	2	2.	Feeding the animals	2
3.	Carrying load on head	3	3.	Cleaning of cattle shed	3
4.	Weeding	4	4.	Procurement of fodder	4
5.	Winnowing/sowing	5	5.	Cleaning of cattle	5

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Table 4: Ergonomic assessment of improved and traditional Implements (n=540)

Name of equipments	Average working heart rate b/min. practice		Physiological work load		Average energy expenditure kg/min.		Physiological work load	
	Local	Improved	Local	improved	Local	Improved	Local	Improved
Sickle	114.0	100.7	Moderately heavy	Light	10.04	7.87	Heavy	Moderately heavy
Maize sheller	105.9	99.8	Moderately heavy	light	8.12	7.15	Moderately heavy	Light
Rake	124.6	115.2	Heavy	Moderately heavy	11.10	9.60	Heavy	Moderately heavy
Shovel	155.2	138.8	Very heavy	Very heavy	15.96	13.35	Very heavy	Very heavy
Handle operated cleaner grader	122.8	107.5	Heavy	Moderately heavy	10.80	8.37	Heavy	Moderately heavy
Paddle operated cleaner grader	122.4	112.3	Heavy	Moderately heavy	10.74	9.18	Heavy	Moderately heavy
Hanging type cleaner grader with sac holder	125.2	117.8	Heavy	Moderately heavy	11.18	9.90	Heavy	Moderately heavy

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Fig. 1 : The dudgery in manually operated equipment was studied

dimensions for attention to facilitate meaningful women empowerment, which are ultimately considered to be the key, factors in social development.

Economic empowerment:

The fact is that women though largely absent from the formal workplace and hence from official labour statistics, are nevertheless heavily engaged in subsistence agricultural and informal sector of economy. There is a constant effort to put women's income in bracket in order to consolidate the position that women are only reproducers and not producers. This idea needs to be changed. Women's economic right is definitely an important indicator for enhancement of their status. So, women's labour needs to be recognized. Education, more employment avenues, political awareness etc would all lead to women's economic emancipation.

Social empowerment:

A major limitation to the advancement of women is the institutionalized set of social prescriptions that limit their participation in socio-economic activities and their input in decision making. Efforts to increase the potential for women's social participation extend down to the level of the household. Intra-family dynamics affects use of income and decision over resource allocation along gender lines (Heyzer, 1992). While empowering women requires fundamental changes at many levels of society, arguably the most complex and elusive transformation may be in the relations within the household and family (Sen et al., 1994).

Physical empowerment:

Most women in the Third World Countries work very long hours at numerous tedious tasks as well as take care

of their children and homes. Until we recognize the physical hardships endured by women from meeting their productive and reproductive responsibilities and make-concerted efforts to improve upon their health status, other advancements will have limited impact for them. Physical empowerment is dependent upon each of the other dimensions as all have contributory effects.

Psychological empowerment:

It is a common occurrence for women in Third World Countries to belittle their own position in the society and their contribution to the economy. When asked of their 'occupation', the majority of rural women will say they have none, despite the fact that they may engage in three or more income-generating and productive activities to help meet the needs of their families. Due to cultural view of the low position of women in many societies, the women themselves often have a negative view of their potential and importance. To accomplish this goal, Akande and Kuye (1986) state that women must understand the structural sources of their powerlessness and feel the need for change ready to be active participants in the changes, both as individuals and groups. Education can be a powerful force to change the subordinate view that women have of themselves (Isiugo-Abanihe, 1996).

Extension needs related to farm women:

Some important issues specific to farm women as listed by Randhawa and Chandra (1993), are—

- The extension service should be gender-sensitive so that women farmers have full and appropriate access to meeting, demonstrations, field days, and other activities that can increase their farm production and income. In some cases, this may require separate meetings; in other cases, opportunities for joint participate of both men and

women in common extension activities may be culturally acceptable, and the women should be strongly encouraged to attend.

- Informal communication networks and channels are frequently gender-specific. Therefore, extension personnel need to learn how to use these traditional networks more effectively to disseminate improved technology to women farmers.

- In some cases, it may be necessary to organize women into functional groups to increase their access to credit, inputs, and even marketing services. In these cases, they will need leadership and management training to operate these self-managed groups effectively.

- Extension system will be required to develop new extension training materials that are gender-sensitive and appropriate for women farmers. The placement of extension announcements, posters etc. should be in places that are easily accessible to both rural men and women.

- More attention needs to be given to the employment of women in all aspects of agriculture extension services. These efforts should not seek to create separate extension systems for men and women; rather the objectives should be to develop an integrated system that is both gender and culture-sensitive, and will thus effectively serve the needs of all farmers.

- Mainly two types of training may be organized for farm women for effective and efficient utilization of their potentiality. These are: (a) training in latest advances in agriculture; and (b) training in leadership to motivate them to play an effective role as change agents.

Building extension contact with farm women:

The difficulty in building extension contact with farm women lies in the fact that an extension agency generally does not have a sound understanding of farm women as their clients. It also lacks a working knowledge of their perceptions and predispositions, needs and interests, or their strengths and weaknesses.

Reaching farm women, according to Dwarakinath (1999), is a difficult task for the male extension agency, particularly in a traditional setting. But, once farm women recognize that external contacts are not violative of the basic norms and customs, and such contacts are indeed consistent with their own interests, they become less shy and withdrawing. However, the extension service must always be on its guard in starting and maintaining the contacts with farm women. The steps suggested for building extension contact with farm women are as follows:

Initiating contacts :

It is often helpful if the extension agency begins farm

women extension work with the support of village leaders. Whatever necessary, the first few meetings may be held with village leaders participating. This will provide the required legitimacy to the programmes.

Working through elderly women :

Among the farm women, the elderly female members have lesser inhibitions in interacting with the male staff, and are frequently quite frank in their expressions. Since they enjoy the respect of younger women, they may function as opinion makers in the group.

Identifying contact groups:

There is increasing evidence to the effect of that extension contacts are more effective women groups compared to individual contacts. Farm women have been found to be more comfortable in groups, more free to seek and share information, and to derive greater satisfaction from the experience. Therefore, in consultation with farm women extension staff should identify existing friendship groups or more promote interest groups to develop a working relationship.

Developing mutual trust:

Nothing is more important in extension work than building the initial rapport with the clientele. This is especially important in working with farm women. Having elderly women in the lead, extension staff should establish the regularity of contacts at acceptable periodic intervals. It is also necessary to ensure transparency in the interaction by conducting the meeting at acceptable common places and for predetermined and widely known purposes.

Need-based and skill-based extension :

Extension staff will achieve greater acceptability by starting with the felt needs. Simple technologies will go a long way. This will prepare the client to consider more complex technologies gradually. Women generally take pride in the new skills they learn and become more willing to share their experience with fellow women. Also, it is important to ensure that different improvements introduced do not add to the drudgery of farm women who are already overworked.

Link workers are helpful:

In situation where local women are of a 'withdrawing' kind and where the extension service does not have female staff to help initiating extension work, link workers will be especially useful. In other situation they can work as multipliers. These are local women with leadership qualities, and are often more literate and

progressive persons, who function as para-extension workers. They may be paid or honorary functionaries. If properly chosen, trained and utilized, they can impart enormous multiplier effect to the extension work.

ICTs tools are for the empowerment of women:

The value of ICTs in achieving the empowerment of women has added a new dimension. As explained by Mijumbi (2002) the project developed a package of ICTs-based learning materials about micro enterprise responding to the self-identified needs of rural women in Africa aiming to : (a) increase women's access to information utilizing new ICTs; (b) motivate women to use telecentres when looking for information's; (c) increase collaboration and networking opportunities among women and NGOs. Women became trainers of other women in ICTs; they experienced improved reading skill, productivity and crop yield; they developed idea for new business; and they experienced greater awareness and interest in use of ICTs and other communication tools such as mobile phones.

Decision making power:

Every family makes countless decisions on several matters. Who makes these decisions in what matter in an important issue. Greater the amount of decision making vested in a person, greater is the "Empowerment" in her role. In one Indian study, Gandhi *et al.* (1987) reported that women empowerment in the Indian farm families is only to the extent of 3.2 per cent as against men at 16.70 per cent.

Data presented in Table 5 further indicate that family joint decision is most prevalent in Indian families particularly in economic activities like purchase of household-goods, purchase of clothing, and house construction, etc, where 50.5 per cent decision are made jointly in consultation with parents and children. This study further throws light on one more striking feature, *i.e.* that a large number of socio-economic and farm-related activities are carried out under the influence of others. These "contact others" are the village-opinion leaders and relatives who exercise their influence on various matters

Table 5 : Decision making power of women in three groups of activities (Figures are in percentages)

Sr. No.	Activates	Husband	Wife	Family jointly	Contact others
1.	Economic	11.8	3.7	50.5	34.1
2.	Social	8.4	5.0	38.4	48.8
3.	Farm	30.0	1.0	34.0	35.0
	Average	16.8	3.2	41.0	39.0

Source: Gandhi, et al (1987)

particularly in social activities like selecting spouses for their daughters and sons, education in their daughter and sons, vaccination and immunization, religious ceremonies and festivals to the extent of 48.8 per cent.

This "contact-others" phenomenon clearly indicate that the rural women and even their men-counterparts are not conscious if their role in decision making on matters of their own concern. Therefore, there is a strong need to activate them especially the women to come out of this "Insubordinate-stigma". Greater the involvement in their activities decisions, greater the empowerment achieved. This is where the attention of agents is needed the most so far as the question of "women empowerment" is concerned.

In one Indian study, Sardana *et al.* (1988) reported that Indian farm women play dominant role in 8 agricultural activities. These are (in descending rank order): (1) tending dairy cattle, (2) collecting fodders from the field, (3) selling livestock produce like milk, (4) storage of farm produce, (5) weeding operations, (6) cattle treatment, (7) harvesting of crops, (8) making of compost manure.

Data in Table 6 indicate that the soft, easy and gender-related activities like dairy cattle operations are done by women almost to the extent of 95 per cent. The arduous tasks like field preparation, manuring and fertilizer application, irrigating the crops, and construction and repair

Table 6: Role of farm women in different agricultural activities (Figures are in percentages)

Sr. No.	Agricultural activities	Dominant role	Supporting role	No-role
1.	Field preparation	14.00	13.67	72.33
2.	Paddy transportation	31.66	26.67	41.67
3.	Compost making	49.33	25.67	25.00
4.	Carrying Inputs to field	11.66	25.33	63.00
5.	Manuring and fertilizer	3.33	29.33	67.33
6.	Irrigation the crops	3.00	11.67	85.53
7.	Construction of field-channels	11.00	14.33	74.67
8.	Weeding operation	59.67	37.00	3.33
9.	Harvesting the crops	49.66	26.67	23.67
10.	Threshing operations	2.67	51.00	46.33
11.	Transporting produce	13.33	36.33	50.34
12.	Storage of farm produce	60.33	30.34	9.33
13.	Tending farm cattle	95.33	2.67	2.00
14.	Collecting fodders	92.00	2.33	5.67
15.	Selling livestock produce	69.67	13.33	17.00
16.	Marketing livestock	8.00	47.67	44.33
17.	Cattle treatment	54.34	17.33	28.33
	Average	37.59	22.00	40.45

Source: Sardana *et al.* (1988)

of field channels are still the monopolistic work of men-folk. There are several other activities in which women are found to play significant but supporting role such as paddy transplantation, thrashing operation and marketing of livestock.

Training needs of women worker:

There is a need for adequate training for women worker in agriculture so as to up-date their technical knowledge. In one of the studies conducted in Nigeria, Asiabaka(1992) reported that job performance of women worker in agricultural activities is “poor” not because of any other factor but because of their lack of skill and knowledge in agriculture.

As can be seen in Table 7, Asiabaka(1992) reported that their knowledge in almost all the fields of agriculture is “Below-Average”. It, therefore, makes a strong case that they need training in varied fields of agriculture.

Rivera(1993) emphasized that women workers’ training should be focused not only on technical content of agriculture but also on extension education practices which are required for effective transfer of packaged-technology and programmed skill slated for women farmers.

Table 7 : knowledge possession and skill acquisition of women field workers in agriculture

Sr. No.	Fields of agriculture	Mean score	Scale
1.	Crop science	5.8	9- High
2.	Farm management	4.9	
3.	Farm loans	4.8	5-Average
4.	Animal science	4.6	
5.	Soil science	3.8	1-Low

Source: Asiabaka(1992)

Improving upon local capacities for empowerment of women:

Jiggins *et al.* (1996) describe these local social assets in the following manner: -“It is a mistake to believe that rural women in developing countries do not possess skills and techniques which are an asset to the development process. Where groups are already exist, capacity building can be more successful than forming a new group to which members are less likely to be committed. Similarly, rural people are less likely to resist adoption of an innovation when the new techniques are based upon a concept or procedure they are already familiar with”. Isiugo-Abanihe (1996) recognizes the potential of education in the broadest sense as a powerful resource for women’s development, especially in the Third World Countries. It is a resource more easily accessible to women

than other resources such as land and capital. Once a woman acquires information or knowledge, no one can take it from her.

Developing technologies for farm women:

In order to develop women-oriented technologies, the women specific jobs and their perspectives have to be identified. Following Samanta (1995), the principles for developing technologies for farm women, are-

- Improving farm women’s productivity/work efficiency.
- Increasing their income generating capabilities.
- Increasing their employment opportunities.
- Reducing the drudgery and health hazards in working for farm and home.

There is need to incorporate knowledge and skill of women into the development of modern farm technologies by the scientists. The blending of indigenous wisdom of farm women with the modern technologies is also important. Their participation in all fronts of technology development and generation process is of utmost importance. Because of their involvement in the farming as well as in the household activities, the farm women often and hard pressed for time. While developing the technology, this point must be kept in mind by the scientists, so that a particular operation takes less time which is performed by the women, giving them ample time for other work and rest. A ‘woman’s angle’ should be built into all technologies, which are relevant to women.

Results as shown in Table 8 indicate that 84.7% of the women farmers were members of farmers groups, 75.5% belonged to various religious groups, while 67.7% belonged to women cooperative groups. This reveals that farmers groups, religious groups and cooperative group’s societies are the major forms of association that women farmers actively participate in.

Table 9 reveals membership status of the women

Table 8 : Women farmers membership of social groups (n=347)

Sr. No.	Membership	yes	No
1.	Religious group	262(75.5)*	85(24.5)
2.	Farmers group	294(84.7)	53(15.3)
3.	Village council	131(37.8)	216(62.2)
4.	Women’s cooperative group	235(67.7)	112(32.3)
5.	Market women association	150(43.2)	197(56.8)
6.	Thrift and credit societies	155(44.7)	192(55.3)
7.	Others	69(19.9)	278(80.1)

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* Figures in parentheses are percentages and are multiple responses

Table 9: Women farmers membership status of social groups (n=347)

Sr. No.	Groups	President	Secretary	Treasurer	Ordinary member	None
1.	Religious group	13(3.7)	13(3.7)	29(8.4)	207(59.7)	85(24.5)
2.	Farmers group	15(4.3)	17(4.9)	43(12.4)	219(63.1)	53(15.3)
3.	Village council	-	7(2.5)	19(5.5)	101(29.1)	218(63.0)
4.	Women's cooperative group	22(6.3)	16(4.6)	21(6.1)	176(50.7)	112(32.3)
5.	Market women association	8(2.3)	1(0.3)	20(5.8)	121(34.9)	197(56.8)
6.	Thrift and credit societies	4(1.2)	1(0.3)	27(7.8)	123(35.4)	192(55.3)
7.	Others	11(3.2)	-	16(4.6)	42(12.1)	278(80.1)

* Figures in parentheses are percentages

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Table 10 : Women farmers' level of attendance in social groups (n=347)

Sr. No.	Groups	More than once a month	Once a month	Once in 2-3 months	Once in 4-6 months	Once a year	none
1.	Religious group	212(61.1)	44(12.7)	4(1.2)	-	2(0.6)	85(24.5)
2.	Farmers group	130(37.5)	136(39.2)	26(7.5)	-	2(0.6)	53(15.3)
3.	Village council	42(12.0)	54(15.5)	32(9.2)	-	1(0.3)	218(63.0)
4.	Women's cooperative group	66(19.0)	132(38.0)	34(9.8)	-	3(0.9)	112(32.3)
5.	Market women association	54(15.6)	58(16.7)	38(11.0)	-	-	197(56.8)
6.	Thrift and credit societies	52(15.0)	92(26.5)	9(2.6)	1(0.3)	1(0.3)	192(55.3)

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* Figures in parentheses are percentages

farmers in the various social groups.

Findings indicate that 63.1% and 59.7% of the women farmers were ordinary member's of farmers and religious group, respectively.

Findings of Table 10 reveal that 61.1% of the women farmers attended meetings and other functions of their religious groups more than once in a month, while 39.2% of these women farmers also attended meetings of farmers groups at least once in a month.

This indicates that women farmers do actively participate in the various activities of the associations in which they belong.

The level of economic empowerment of women farmers has been shown on Table 11. Finding indicate that women farmers have had an increase in their income as a result of their being members of social groups($X=4.26$) while the income generating activities of the women had also improved($X=3.79$). Further more the women farmers were more aware of the various agricultural practices. This confirms that membership of social groups tends to improve the living standard and well being of its members.

Table 12 shows that extension agents were the major sources of agricultural information to women farmers (92.6%). Radio was the next major source of agricultural information to the respondents (72.1%). This was followed by agricultural shows organized by the ADPs (58.8%).

Table 11: Women farmers level of economic empowerment

Sr. No.	Categories	Mean	Standard deviation
1.	Increase income	4.26	1.18
2.	Obtains loans more easily	2.70	1.48
3.	More land to cultivate	3.39	1.33
4.	More labour to work with	3.06	1.38
5.	Engaged in more income generating activities	3.62	1.35
6.	Not learned of any new Income generating activities	2.19	1.32
7.	Income generating activities have improved	3.79	1.38
8.	Better enterprises mgt skills	3.72	1.34
9.	More aware of agric. practices	3.76	1.45
10.	No increase in income	3.36	1.60
11.	Better marketing of produce	3.36	1.47
12.	No change in agric. Production	3.44	1.71
13.	Increased food and livestock production	3.46	1.79

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Also, women groups (51.1%) and children/husbands (32.9%) constituted another major source of information. This confirms the potential of mass media effects as explained in the Two-Step Flow Theory. This suggests that women farmers obtain agricultural information and other national issued from their husbands and children

Table 12 : Women farmer's sources of agricultural information (N=376)

Sr. No.	Information sources	Frequency	Percentage
1.	Extension agents Yes	348	92.6
	No	28	7.4
2.	Discussion with extension, agents Once a month	76	20.2
	Twice a month	209	55.6
	Thrice a month	4	1.1
	Weekly	75	10.9
	None	12	3.2
3.	Radio Yes	271	72.1
	No	105	27.9
4.	Television Yes	104	27.7
	No	272	72.3
5.	Newspaper Yes	50	13.3
	No	326	86.7
6.	Women groups Yes	192	51.1
	No	184	48.9
7.	Neighbours Yes	153	40.9
	No	222	59.1
8.	Children and husband Yes	124	32.9
	No	252	67.1
9.	Agric shows/ADPs Yes	221	58.8
	No	155	41.2
10.	Folk songs Yes	57	15.2
	No	319	84.8

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who may have heard about the information from any part of the mass media.

Only information related to agricultural programmes on the mass media is highly needed by most of the

respondents (56.10%). Thus, these findings reveal the significance of mass media in agricultural information dissemination.

That is, women's exposure to mass media could motivate their search for needed information. Since other forms of social information are moderately needed by women farmers (Table 13), there is need to produce more agricultural programmes in the mass media to meet these needs.

Table 14 shows that women farmers generally were highly involved in planting (76.9%), land clearing (72%), fertilizer application (68.1%), harvesting (67.3%), weeding (65.2%), storage (60.6%), processing (52%) and marketing (47.4%).

The role of women in agriculture ranges from managers to landless labourers. However, the extent of their involvement differs with the variation in agro-production system and land owning system of farm households but they provide crucial labour in farm operations.

Farmwomen's participation was crucial in various operations such as sowing/transplanting (86%), weeding (84%), storage of grains (78%), land preparation (72%), cleaning seed for sowing (70%), gap filling (68%), manure and fertilizer application (68%), harvesting (64%), and threshing and winnowing (62%). Nataraju and Lovely (1989).

Women also performed the task like breaking the clods during land preparation, carrying manure, sowing seeds, pulling out weeds, attending to hoeing, harvesting crops and stacking the hay (Mundy, 1994).

In overall farm production women's average contribution is estimated at 55 per cent to 66 per cent of the total labour with percentages much higher in certain regions (Venkateshwaran, 1992).

In animal husbandry also women play multiple roles

Table 13 : Wwomen farmers' social information needs (n-376)

Sr. No.	Information type	Degree of need				
		None	Very low	Moderate	High	Very high
1.	Cooperative associations	21.8*	1.1	23.1	32.5	21.5
2.	Social welfare	25.8	1.9	37.2	22.1	13.0
3.	Personal education	18.6	5.09	30.3	21.3	23.9
4.	Specialized commodities	28.7	3.2	34.3	23.4	10.4
5.	Agricultural programmes in mass media	14.4	1.6	27.9	23.9	32.2
6.	Media club associations	27.7	6.1	40.7	13.5	12.0
7.	Disaster relief	33.5	7.5	15.0	23.4	10.6
8.	Community self-help	23.9	2.4	22.6	33.5	17.6
9.	Community agricultural based practices	21.8	2.9	15.8	24.2	15.3
	Risk management in agric.	25.5	10.4	28.5	22.9	12.8

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* Figures are in percentages

Table 14: Agriculture task performed by women farmers (n-376)		Degree of involvement				
Sr. No.	Task	Degree of involvement				
		Very high	high	Low	Very low	Not at all
1.	Land clearing	3.8*	33.2	4.0	2.7	25.3
2.	Ridge making	29.8	31.7	7.7	4.0	26.9
3.	Planting	50.5	26.6	2.7	1.6	18.9
4.	Thinning	27.9	35.9	6.7	1.3	28.2
5.	Fertilizer application	36.4	31.6	11.4	1.9	18.6
6.	Weeding	30.9	34.3	8.8	3.5	22.6
7.	Harvesting	39.6	27.7	6.6	3.2	22.4
8.	Storage	34.8	25.8	13.8	2.1	23.4
9.	Processing	25.8	26.3	17.0	3.2	27.7
10.	Marketing and distribution	18.1	29.3	19.1	4.3	29.3

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* Figures are in percentages



Fig. 2 : Transplanting



Fig. 3 : Seed treatment

ranging from care of animals, grazing, fodder collection, cleaning of animal sheds to processing milk and its products. In livestock management all indoor jobs are done by women in 90 per cent of families while management of male animals and fodder production are affected by men (Narayanan 1997).



Fig. 4 : Winnowing

Study conducted by World Bank in 1991 revealed that women accounted for 93 per cent of total employment in dairy production.

In fisheries sector division of labour depends on the scale and methods of production. In small scale aquaculture women are involved in all stages of fish production, processing and distribution.

Women are also involved in shrimp processing in the coastal states. In the marine sector as soon as the catch lands women are involved in grading, sorting, and marketing and carrying the head loads of fish to the processing yards. Women's key role in food production illustrates their contribution to food security.

The extent of participation of women in different horticultural production system depicts interesting regional



Fig. 5 : Animal husbandary

differences in India. In north India, women mostly participate in fruits and vegetable processing, flower gardening, ornamental nursery, kitchen gardening and to some extent in vegetable growing. In South India, besides these operations, women also participate in vegetable and flower marketing and nursery technology. Sixty per cent women participate in nursery raising, 70 per cent in irrigation of nursery, 60% in lifting of vegetable seedlings from nursery, 50 per cent in planting, 70 per cent in application of manures and fertilizer, 80 per cent in weeding and hoeing, and 80 per cent in post harvest and processing (Pandey and Pareek, 1990).

Women play an important role in the post harvest operations of plantation commodities also. Study on percentage share of women labour force in processing of plantation crops indicated that women's participation ranged from 20 to 80 per cent *i.e.*, 80 per cent in coffee, 72 per cent in coconut, 56 per cent in arecanut, 84 per cent in cashew, 70 per cent in black pepper (Nair and Das, 1990). Women constitute 90 per cent of labour force in cashew processing industry. Most labour intensive operations like shelling and peeling in cashew are done exclusively by women workers, while about 60 per cent of grading of kernels is carried out by women (Kannan, 1983 and Das, 1985).

In addition to their direct participation in food production women's other contribution to food security includes:

Preservation of biodiversity:

The preservation of biodiversity and plant genetic resources is now widely recognized as essential to food security. Because women are responsible for supplying their families with food and care, they often have special knowledge of the value and diverse use of plants for

nutrition, health and income. Consequently, they are frequently the preservers of traditional knowledge of indigenous plants. Moreover, women often experiment with and adapt indigenous species and thus become experts in plant genetic resources (Karl, 1996; Gunning and Hill, 1996).

Processing and preparation of food: Women perform majority of the work in food processing in developing countries. Food processing contributes to food security through reducing food losses, contributing to diversity of diet and supplying important vitamins and minerals. In addition to the time-consuming tasks of grinding and pounding the staple grains, smoking fish and meats, women process and preserve the fruit and vegetable produce from their home gardens and from the forests. Women are universally responsible for preparing food for their households and thus for the nutritional well-being of its members.

Ensuring nutritional security of the household:

Women perform virtually all the tasks required for household food security and ensuring good nutrition and healthy lives. These tasks include gathering fuel and fetching water, cleaning, cooking, child rearing, and caring for the sick.

Earning wages for the family:

Women are often responsible for providing food for their families, if not by production than by earning the income to purchase it. In waged labour dedicate a substantial portion of their income to the purchase of food for their families. Moreover, it is increasingly recognized that rural men and women often have different responsibilities for providing for the basic needs of their households, with women responsible for supplying food. Development planners have discovered that the increase of household income through the employment of men in cash crop production does not necessarily increase household income available for the purchase of food (Karl, 1996). On the other hand, when women have direct control over income, they tend to spend it on the well-being of the family, particularly on improving the nutritional security of the more vulnerable members.

Devdas et al., (1988) found that the contribution of women in agriculture is less significant due to the dual role of farmwomen on the farm and in the home leading to drudgeries resulting out of inappropriate and cumbersome work methods and practices related to household chores of food preparation, fuel collection, water fetching, resource management and child rearing.

The total amount of drudgery undertaken in carrying

out rice and wheat cultivation operation by women is significantly higher than that carried out by men. In addition to food production activities, women have the burden of preparing and processing food while fulfilling their fundamental role of nurturing and caring for children and tending to elderly members of the household. Moreover, despite so much work, rather than being alleviated, women's share in the division of labour is increasing in many rural areas as men migrate to seek better pay and opportunities (FAO, 1998). The multiple roles of women are illustrated below:

Worldwide, more than 2000 million people depend

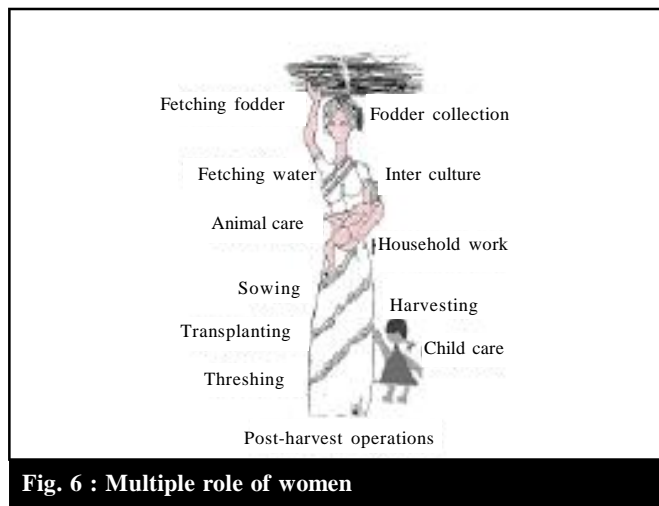


Fig. 6 : Multiple role of women

on wood and charcoal for cooking and gathering firewood is the responsibility of women and girls. Where forests are depleted, gathering wood involves walking several kilometres each day and returning with heavy loads (FAO, 1998). Studies show that in transporting fuel, water and farm product women carry more than 80 tonnes for a distance of one km over the course of year whereas men carry about 10 tonnes for 1km (FAO, 1998).

Attributes leading to empowerment of women:

According to Devadas (1999), the following attributes are likely to lead to empowerment of women.

- Self-confidence.
- Desire for a better quality of life.
- Desire for a better status in the family.
- Communication skills.
- Health competition.
- Helping tendency.
- Willing to share responsibility.
- Self-reliance.
- Self-expression.
- Desire for a better status in the community.

Supportive services for women empowerment:

Support to Training and Employment programmes for Women (STEP):

The programme was launched in 1987 to upgrade the skill of poor and asset less women and provide employment to them on sustainable basis in the traditional sectors of agriculture, small animal husbandry, dairying, fisheries, handlooms, handicrafts, khadi and village industries, sericulture, social forestry and wasteland development (Department of Women and Child Development, 1996).

Rashtriya Mahila Kosh (RMK):

A national credit fund for women called Rashtriya Mahila Kosh was set up in 1992-93 with the major objective of meeting the credit needs of the poor women, particularly in the informal sector. The *Kosh* provides credit to non-government organization in various parts of the country (Publication Division, 1995 and Department of Women and Child Development, 1996).

Indira Mahila yojana (IMY):

The scheme was launched in 1995 and had three basic constituents: convergence of inter-sectoral services, income generation activities, and a sustained process of awareness generation/education (Department of Women and Child Development, 1996).

Mahila Samridhhi Yojana (MSY):

The programme was launched in October, 1993 through a network of rural post offices in the country. It aims at promoting self-reliance and a measure of economic independence among rural women by encouraging among them the habit of thrift (Publication Division, 1995).

Self- Help Groups (SHG):

According to Devadas (1999), self-help has been the philosophy of the projects of voluntary organization since the beginning. The projects proceed with the assumption that any neighborhood, no matter how poor, can do something to improve itself by its own efforts and that any approach for outside help should be resorted to only after it has exhausted its own resources fully.

Self-Help Group (SHG) is a homogeneous group of 10 to 20 women each. These women select their own leader and also fix the tenure for such leadership. SHGs are extremely helpful in allowing the NGOs to know a large number of individuals intimately and to relate to them in a variety of ways, including facilitating credit availability.

The nationalized banks, credit and financial institutions

lay great stress on the SHGs which embark upon thrift and credit and societies. The credit institutions provide the SHGs financial assistance as short-term and long-term loans without security because the group cohesion itself stands testimony to their development.

REFERENCES

Benmeke Tajudeem Oyekunle Amoo and OLOWU Teery Adekunle. "Economic empowerment of women Farmers through Participation in social Groups: A south Western Nigeria Experience. *J. Extension System*, **22** : 56-68.

Extension Communication and Management by G.L.Ray

Goyal, G., Randhawa, V., Pannu, K., Kaur, V. and Kaur, R. (2003). Empowerment of women in agriculture. *Raj. J. Ext.Edu.*, **11**.

http://www.Un-instraw.org/en/research/gender_and_ict/virtual_seminars.html

Mijumbi, Rita (2002). The use of Information and Communication Technology as a Tool to Bridge the Gender Digital Gap. Background paper prepared for the INSTRAW virtual seminar series on Gender and ICTs.

Shashilala, S. et al. (1989). Activities performed and time spent by farm women of rainfed and irrigated area. *Indian J. of Ext. Edu.*, **26**: 59-63

Shilaja, S. and Jayararniah, K.M. (1992). Training needs of farm women in Kerala. *Indian J. of Ext.Edu.*, **53** : 45-48

Srivastava, J.C. (1985). Harnessing technology for improving the quality of life in rural women. In women and technology, Jain S.C. (ed.) Rawat publications, Jaipur pp.38-74

Sudharani, P. and Raju, V.T. (1991). Participation of women in agricultural operations. *Indian J. Ext.Edu.*, **27** : 55-59.

Terry, A. Olowu and Mohammed, K. Yahaya (). Determination of agricultural information needs of women farmers. *J. Extension System*, **14** : 39-53

Verma, O.S. (). Gender Sensitization-women in agricultural Development. *J. Extension System*, **17** : 83-93.

