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Empowerment Status of Rural Women Participated in Training on Integrated Crop Management

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Abstract

This study aims to determine the status of empowerment of the rural women who participated in a season long training on Integrated Crop Management (ICM) as provided by the Department of Agricultural Extension (DAE) under the Ministry of Agriculture, Bangladesh. The study also aims to explore the relationship between selected socio-economic characteristics of the rural women with their empowerment status; and to identify the problems of the women to participate in ICM training. Data were collected during October 2012 to March 2013 from randomly selected 80 women of Dumki upazila under Patuakhali district. Personal interview and focus group discussion were used as the tools for data collection. Findings revealed that the selected women having ICM training had moderate level of empowerment status. Women's higher educational status, longer training received on ICM, more daily time use and greater participation in IGAs (income generating activities) had significant contribution in improving their empowerment status. Less awareness of ICM training programme, low educational status, lack of cooperation from family members, lack of female extension worker, communication gap between extension worker and women, incompatible training programme, overloaded household activities and social and religious hindrances were the major problems faced by the women to participate in ICM training.

Keywords: *Women empowerment, ICM training, farmer field school(FFS)*

Introduction

Empowerment implies a process in which individuals get economic, social and political freedom at the individual and collective level (Narayan-Parker, 2002). Women in rural areas are more affected by poverty and they have less power in the society than men. It is globally recognized that except for the matriarchal systems, no society provides women equal status with men (Giriappa, 1998). In an empowered condition, they can decide over their economic activities and ensure equity; they will have dignity at their social status; and they can influence the policy. Traditionally, women in Bangladeshi village have few rights, little choice about the courses of their lives and less opportunities to change their social and economic situation (Lovell, 1991). By social custom, Bangladeshi women are dominated by men in almost all spheres of their lives.

There are many non-government organizations (NGOs) in Bangladesh, which have been working towards the improvement of the situation with regards to women empowerment since 1980s. In addition, Bangladesh Government is also trying to empower the women to incorporate them in the mainstream of national development.

Department of Agricultural Extension (DAE) under the Ministry of Agriculture is

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the mainstream public agricultural extension agency of the country. DAE started Integrated Pest Management (IPM) activities in 1981 with the introduction of the first phase of FAO's inter-country programme (ICP) on IPM in rice crop. However, it was in 1987 that IPM activities began to expand and became a popular topic among the people. From 1989 to 1995, the ICP played a strong catalytic role in promoting the IPM concept and approach among the government officials and donor community. This programme provided IPM training to the field level workers of DAE to build their training capacity and introduced Farmer Field School (FFS) approach for training of farmers including women (FAO, 2000). Later the FFS were converted to more integrated approach of Integrated Crop Management (ICM) and the club is renamed as ICM Club. Under the current provision, participants of an ICM club are being selected by the DAE to include one man and one woman from the same household. Among the 20 sessions of this ICM training, some are especially for the men, with a focus on rice crop, while other sessions train the women on ICM homestead vegetable gardening, growing fruit trees, use of farmyard manure, human nutrition and making an energy saving stove. It is learned that Bangladeshi women have been benefited substantially from the participation in FFS-based ICM training. It is expected that the participants of ICM training would have more empowered in home and society because of their more active participation in extension and organizational activities. The present study is a small piece of research that aim at looking into the status of empowerment of the women household members of the farming families as they received ICM training. The specific objectives of this research were: (i) to determine the extent of women empowerment of rural women who participated in the ICM training; (ii) to explore the effect of socio-economic characteristics of the women on their empowerment status; and (iii) to identify the problems faced by the women to participate in ICM training.

Methodology

Locale, population and sample of the study: The study was conducted in four villages of two unions (two villages from each union) under Dumki upazila of Patuakhali district of Bangladesh. The women of Dumki upazila who received ICM training comprised the population. There were twelve FFSs in Dumki upazila each of which was composed of 25 male and 25 female farmers. Thus, there were 300 women participating in ICM training program. Multi-stage random sampling technique was employed to select the required number of respondent women. Four unions were the primary sampling units from which two unions, namely Angaria and Srirampur were randomly selected. Out of eight villages of Angaria, two (Jalisha and Jhatra) and out of seven villages of Srirampur two (Dumki and Jamla) were randomly selected. From each of the villages, 20 women who received ICM training were randomly selected. Thus, the total sample size became 80.

Variables and their measurement: Status of women empowerment was the major focus (dependent variable) of the study while their selected socio-economic and personal characteristics along with their participation in ICM training were constituted as the independent variables. The characteristics included age, education,

family size, farm size, family income, credit received, training received on ICM, daily time use, fatalistic attitude and participation in IGAs.

Women empowerment was measured with diversified indicators by many researchers. In this research, following the works of Parveen and Leonhäuser (2004) and Fakir (2008), status of women empowerment has been determined by using six indicators, namely contribution to household economy, access to family resources, participation in decision making, level of networking and friendship, access to information, and access to service providers. Each of the indicators contained five items. For receiving information on each item, the respondents were asked to indicate their status against a 3-point rated scale. The items were rated by the 3-point scale as '0' for none/nil/never, '1' for low/occasionally and '2' for high/regularly. Thus, total score for all the indicators could range from 0 to 60. The independent variables were measured by following traditional procedures of scores and scale scores as indicated in Table 3.

Data collection method and analysis: A structured questionnaire was used for data collection through face to face interview with the selected women during October 2012 to March 2013. A focus group discussion (FGD) was conducted to explore the problems faced by the women to participate in ICM training programmes as offered by the DAE. Both descriptive (mean, standard deviation, range, percentage distribution) and inferential statistics (multiple regression and path analysis) were used. The research was conducted with the financial support of the University Grants Commission of Bangladesh.

Findings and Discussion

Women Empowerment Status: The main focus of this research was to determine the status of empowerment of women who were participating in ICM training. As it was discussed, DAE implemented the ICM activities with the rural farmers, while the women were provided with training on ICM in homestead vegetable gardening, human nutrition, growing fruit trees, use of farmyard manure and making energy saving stove. It was assumed that the women participants were able to contribute to income of their families and their status of empowerment was uplifted.

Findings show that empowerment status score of the women varied from 16 to 45 against a possible range of 0 to 60. Their average empowerment status was 30.13 with a standard deviation of 6.40 (Table 1).

Table 1 Categories of women according to their empowerment status

Categories women (score range)	Percent	Mean	SD
Low empowerment (0-20)	7.5		
Medium empowerment (21-40)	83.8	30.13	6.40
High empowerment (41-60)	8.7		

Among the selected women, majority (83.8%) had medium level of empowerment status, whereas only 8.7% and 7.5% of them had high and low level of empowerment status, respectively. Fakir (2008) also found that most (89.7%) of the women had moderate level of empowerment. However, empowerment status was determined based on six indicators (Table 2), out of which 'contribution to household economy' had the highest score i.e. 7.45 against a possible range of 0 to 10.

Table 2 Mean scores of the indicators of women empowerment

Indicators of women empowerment	Mean
1. Contribution to household economy	7.45
2. Access to family resources	3.78
3. Participation in decision making	6.16
4. Level of networking and friendship	5.24
5. Access to information	3.65
6. Access to service providers	3.85

Contribution to household economy, participation in decision making and level of networking and friendship were above the mid-point of the scale. On the other hand, the rest of the indicators, namely access to service providers, access to family resources and access to information had the average scores lower than the mid-point value. Fakir (2008) found that participation in decision making followed by contribution to household economy had the highest score while access to service providers followed by access to information had the lowest score. Thus, the trend of indicators in both of these researches was similar.

Findings revealed that the women remarkably contribute to the household economy, participate in decision making and enjoy networking and friendship as a result of ICM training. But at the same time they still need more access to family resources, information and service providers.

Characteristics of the Rural Women: The salient features of the respondent women have been explored regarding their personal and socio-economic characteristics and presented in Table 3.

Table 3 Summary of the characteristics

Characteristics (Measurement unit)	Mean	SD
Age (years)	36.74	10.24
Education (years of schooling)	5.43	3.65
Family size (number)	5.79	1.79
Farm size (hectare)	0.28	0.27
Family income (thousand BDT)	88.66	57.47
Credit received (thousand BDT)	8.17	16.61
ICM Training received (duration in days)	29.21	18.45
Daily time use (score)	14.08	3.30
Fatalistic attitude (score)	11.16	2.00
Participation in IGAs (score)	6.48	2.54

The respondent women were mostly young and middle-aged; only 7.5% were older than 50 years. This is a promising scenario because the young are energetic and enthusiastic. They can take risk to initiate challenging activities to uplift their empowerment status. The women had relative low level of education and 17.5% of them were illiterate. A great proportion (82.5%) of the respondents had family size with more than four members. Their average farm size is small. Among the households of the women, 42.5% had annual income up to BDT 60 thousand. There was a great variation among the respondent women regarding credit received. Most (61.3%) of them did not receive any credit from formal or informal sources of credit. The selected women had

on an average about one month of training experience.

Daily time use was scored with a subjective time spent (0 for nil, 1 for partial and 2 for sufficient as needed) in 10 different household activities (Figure 1).

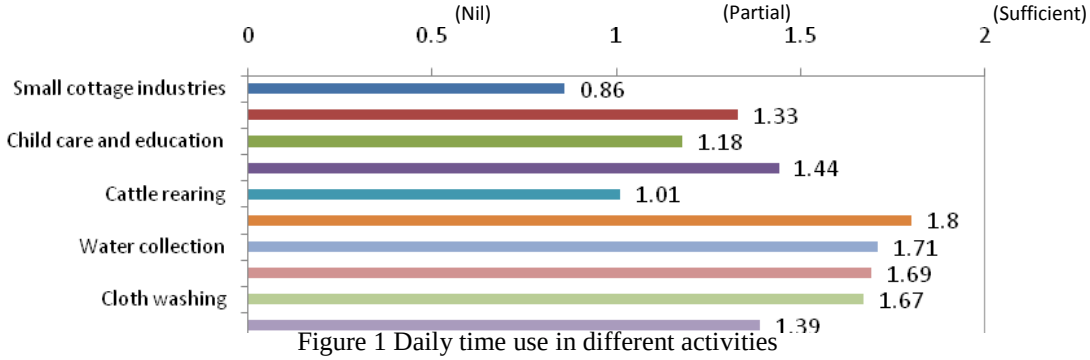

Figure 1 Daily time use in different activities

Mean score of daily time use in household economic activities was 14.08 against a possible score of 0 to 20. The highest time spent was in cooking followed by water collection, cleaning of homestead and cloth washing. The lowest participation was in small cottage industries.

The fatalistic attitude of the women was explored to determine their psychological reliance on their luck as an indicator of their belief in probable livelihood change through individual effort. It was measured using 8 statements scored as three-point Likert scale. Almost all (97.5%) of the women were found to have non-fatalistic attitude. This is an optimistic situation of rural women. Once upon a time, they were likely to be dependent on luck without providing effort to improve their livelihoods. But, nowadays, they know that without hard work fortune never comes.

Women not only participate in home management tasks but also in various IGAs. Their average score of participation in IGAs was 6.48 (Table 3) against a possible range of 0 to 20. Their average participation in IGAs was low. However, running grocery or tea shop, fish net making, making handicraft, tailoring, fish culture and pigeon rearing were not popular among the respondent women. However, participation in poultry rearing followed by crop and vegetable production, making puffed/ flattened rice and cattle rearing was better.

Determinants of Women Empowerment through ICM training: Ten important socio-economic characteristics of the women were selected because those were hypothesized to influence their empowerment status. These characteristics have been stated in the previous section. Stepwise regression (both forward and backward direction) was done to select the variables in the regression model. In this way, the selected variables for multiple regression were the women's education, training received on ICM, daily time use, and participation in IGAs. These variables had significant positive relationship with the empowerment status (Table 4). This indicates that empowerment status of the respondent women increased with the increase of their education, training received on ICM, daily time use and

participation in IGAs. Parveen and Leonhäuser (2004) and Asaduzzaman (2003) also found that education and training received had significant positive relationship with the women empowerment status. Fakir (2008) mentioned that empowerment status of women significantly increased with the increase in daily time use, while Chen and Mahmud (1995) stated that participation in IGAs improves the women empowerment status.

It should be noted that there was no multicollinearity problem with these four significant characteristics, because all of the characteristics (independent variables or predictors) had tolerance more than 0.25 and VIF (Variance Inflation Factor) less than 4 (Kline, 1998). The regression model with these predictors have a coefficient of determination (R^2) of 0.6235 [F (4, 75) = 31.056, p < 0.001). Therefore, 62.35%variation in women empowerment could be explained with these four predictors, namely education, training received on ICM, daily time use and participation in IGAs. Unexplained variations might be due to other unknown factors (extraneous variables) which have not been included in this study. According to the information furnished in Table 4, model of empowerment status has been formulated as follows, where 'e' stands for education, 't' for training received on ICM, 'd' for daily time use and 'p' for participation in IGAs.

Empowerment status = 14.873 + 0.731e + 0.088t + 0.407d + 0.462p

Table 4 Multiple regression analysis for significant characteristics on empowerment status

Characteristics	Regression coefficient	Path coefficient	Correlations	Collinearity statistics	
				Tolerance	VIF
Education	0.731***	0.4168	0.667***	0.706	1.416
ICM Training	0.088**	0.2535	0.556***	0.746	1.340
Daily time use	0.407*	0.2094	0.604***	0.621	1.610
Participation in IGAs	0.462*	0.1834	0.425***	0.870	1.150

****, **, and * indicate significant at 0.001, 0.01 and 0.05 level, respectively*
Constant = 14.873, R^2 = 0.6235, F (4, 75) = 31.056 at P<0.01
Dependent variable: Empowerment status

This model reveals that women's initial empowerment status was 14.873, which reached the average value of 30.13 (cf. Table 1) due to the positive effect of education, training received on ICM, daily time use and participation in IGAs.

Empowerment status of the women respondent significantly increased with the increase of their educational level, because education extends horizon of outlook and makes the women aware of their right and responsibility. Thus, they can easily make necessary decisions and contribute to their livelihood improvement. That is why their empowerment status was improved with the improvement of their educational attainment.

Training improves skill and knowledge and changes attitudes to perform a job properly. The women having training on ICM practices could successfully participate in diversified household activities. Skilled person can complete the assigned tasks with greater effectiveness. Thus, the trained person becomes important to a family as well as to a society. In this way, IMP trained women become more empowered.

Daily time use in different household and other activities is an indicator of active or lazy person. Active person spends more time, while lazy person spends less time in various activities. The women who spent more time in the family contributed more to the family. Generally, empowerment rises up linearly with this contribution. So, enhanced empowerment is deserved by the industrious and active women who spend more time in fruitful activities.

Participation in IGAs is another important factor determining the empowerment of the women. Operating IGAs by the women obviously improves their economic status. As they take part in the development of family livelihood, they are regarded as important to the family and society. Eventually, their empowerment status goes up with the increase in participation in IGAs.

Direct and Indirect Effects of the Predictors on Empowerment Status: Socio-economic and socio-personal characteristics which were considered as the predictors are intermingled with one another. Therefore, in order to assess the direct (non-mediated) and indirect (mediated through other variables) effects of the predictors, path analysis was performed with the significant characteristics mentioned in the regression model as suggested by Kerlinger and Pedhazur (1973). According to Li (1954), path coefficient (p) or standardized regression coefficient is superior to correlation coefficient (r). Path coefficient is determined by the following formula (Lynch and Walsh, 1998):

$$p_x = b_x\sqrt{\left(\frac{\sigma_x^2}{\sigma_y^2}\right)}$$

Where, p_x = path coefficient of X

b_x = regression of Y on X

σ_x^2= variance of X

σ_y^2 = variance of Y

The contribution (R^2) of any of the independent variables (X) to the dependent variable (Y) has been calculated using the following formula suggested by Wuensch (2012):

Contribution, $R^2_{y.i} = \sum p_i r_{y.i}$, Where, p_i = Path coefficient or direct effect of X_i on Y; and$r_{y.i}$ = Correlation coefficient of X_i and Y

The primary rule of path analysis states that the correlation between an independent and a dependent variable is the sum of the direct effect and all the indirect effects (Carey, 1998). Each correlation coefficient between an independent (predictor) variable and the dependent (response) variable is partitioned into its component parts: the direct effect (path coefficient) of the predictor variable and indirect effects. Indirect effect involves the product of a correlation coefficient between two predictor variables with the appropriate path coefficient in the path diagram (Dewey and Lu, 1959). Thus, the generalised normal equation of specific r_j for i number of X's is as follows:

$$r_j = \sum_{i=1}^{i}\sum_{j=1}^{j} p_i r_{j,i}$$

The correlation matrix with path coefficients of four significant predictors of empowerment status is given in Table 5. In fact, path coefficient, p is an inherent correlation that is the direct effect of specific characteristic on the dependent variable. The indirect effects of each of predictors through other predictors were obtained by multiplying the column values of Table 7 by the path coefficients of same column and the results are presented in Table 6.

Table 5 Correlation matrix of the significant characteristics for path analysis

Predictors	Education	Training exposure	Daily time use	Participation in IGAs	Empowerment status
Education	1.0000	0.3750	0.5155	0.2563	0.6669
ICM Training	0.3750	1.0000	0.4703	0.2595	0.5559
Daily time use	0.5155	0.4703	1.0000	0.3314	0.6044
Participation in IGAs	0.2563	0.2595	0.3314	1.0000	0.4254
Path coefficient	0.4168	0.2535	0.2094	0.1834	-

Table 6 Direct and indirect effects of significant characteristics on empowerment status

Characteristics	Direct and indirect effects				Total indirect effect	Direct effect	Correlations (direct + indirect effect)
	Education	ICM Training	Daily time use	Participation in IGAs			
Education	**0.4168**	0.0953	0.1077	0.0469	0.2499	0.4168	0.6669
ICM Training	0.1564	**0.2535**	0.0983	0.0475	0.3022	0.2535	0.5559
Daily time use	0.2150	0.1195	**0.2094**	0.0606	0.3951	0.2094	0.6044
Participation in IGAs	0.1069	0.0659	0.0693	**0.1834**	0.2420	0.1834	0.4254

The main diagonal elements (bold faced) are direct effects and the off-diagonal elements are path-wise indirect effects and the row-wise sum of direct and indirect effects must be equal to the correlation coefficient 'r' on the empowerment status of the women. Thus, the direct effect (0.4168) of education rose to 0.6669 through interaction with the training received on ICM, daily time use and participation in IGAs through adding 0.2499 as total indirect effect to the correlation (r) on the women empowerment status. Similarly, direct and indirect effects of other predictors on the women empowerment status could be explained.

The indirect effects of significant characteristics relating to the women empowerment status were channeled with direct effects and the flow-path, which has been presented in Figure 2 to show the effects in a comprehensive way. The figure has been drawn following the directions prescribed by Meuller et al. (1977). In the Figure 2, straight arrow indicates the direct path from independent to dependent variable and curved connector indicates correlation between the connected variables.

Thus, indirect effect of an independent (first) variable through another independent (second) variable to the dependent variable can be obtained by multiplying the correlation coefficient of those two (first and second) independent variables with the path coefficient of the second independent variable to the dependent variable. In this way, direct effect of education on the empowerment status is 0.417 and indirect effect of education through training received on ICM becomes (0.375×0.254 =) 0.0953.

The indirect effect matrix given in Table 8 indicates a little information about the contribution of the characteristics on the women empowerment status. The direct,

indirect and multiple contributions of each of the predictors are obtained through multiplication of row elements by the main diagonal value of same row of Table 6 and the results are produced in Table 7. The main diagonal values (bold faced) are the direct contributions and the off-diagonal values are the path-wise indirect contributions of the respective predictors to the status of women empowerment.

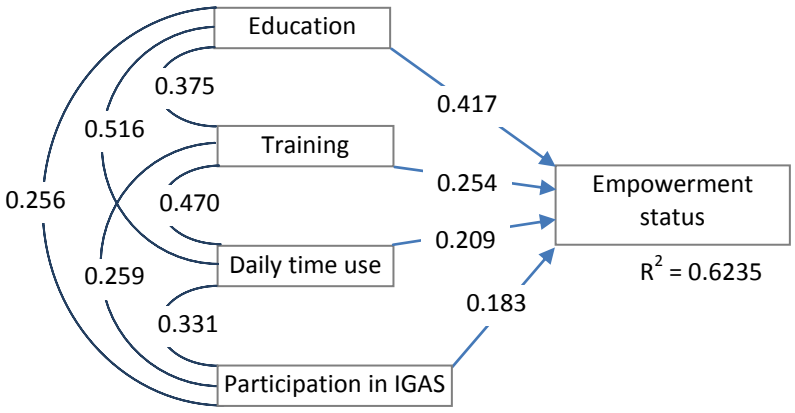

Figure 2 Path model for empowerment status of women

For example, total contribution of education to the status of women empowerment was 0.2779 (27.79%) where its direct contribution was 17.38% and indirect contribution through training received on ICM was 3.97%, through daily time use 4.49% and through participation in IGAs 1.95%. Thus, the education was found to have the highest contribution valuing 27.79% to the women empowerment status. However, 14.09% contribution to the status of women empowerment was made by training received on ICM, 12.66% by daily time use and 7.80% by participation in IGAs by the respondent women. In this way, total contribution of these four significant predictors to the status of women empowerment was 62.35%, which was the coefficient of determination (0.6235) as presented in Table 4 indicating that 62.35% of the variations in homestead vegetable cultivation could be explained by these four significant characteristics.

Table 7 Direct and indirect contributions of significant characteristics to empowerment status

Characteristics	Direct and indirect effects				Contribution (R^2)
	Education	ICM Training	Daily time use	Participation in IGAs	
Education	**0.1738**	0.0397	0.0449	0.0195	0.2779
ICM Training	0.0396	**0.0643**	0.0249	0.0120	0.1409
Daily time use	0.0450	0.0250	**0.0439**	0.0127	0.1266
Participation in IGAs	0.0196	0.0121	0.0127	**0.0336**	0.0780
Total contribution = 0.6235					

Problems Faced by the Women to Participate in ICM Training: Focus group discussion has been carried out in order to explore the problems faced by the women to participate in ICM training. The major problems were as follows:

1. **Less awareness of ICM training programme:** The rural women are not aware of the ICM training programs offered by different agencies. They do not know how to get involved with those training activities. Therefore, they cannot participate in ICM training.
2. **Low educational status:** Women have very little educational attainment. Most of them are illiterate. They cannot understand the instructions of the training program. Thus, they lose the interest of getting training on ICM.
3. **Lack of cooperation from family members:** Family members sometime create obstacles to participate in ICM training. Especially, husbands think they are the family heads; women do not need to be trained. They do not permit their wives to take part in training programs.
4. **Lack of female extension worker:** Women hesitate to receive training from male extension trainers. As overwhelming majority of the sub-assistant agriculture officers are male, the women do not want to participate in ICM training.
5. **Communication gap between extension worker and women:** Extension workers mostly communicate with the male members of the family assuming that they will pass the information to their female family members. Thus, extension workers do not further communicate with the women. This also restricts the women to be trained on ICM activities.
6. **Incompatible training program:** Women think that most of the training programs are formulated targeting the male farmers. Gender sensitive training programs on ICM are lack in the DAE. So, women's participation in such training is below the expectation level.
7. **Overloaded household activities:** Women hardly get extra time to receive training after performing their regular household activities like child caring, cooking, cleaning, rearing domestic animals, processing of agricultural products etc. That is why they cannot participate in ICM training even after having interest to do so.
8. **Social and religious hindrances:** Rural societies in Bangladesh are quite conservative in nature. Generally, women are afraid of bad comments from neighbors when they decide to participate in ICM training. Sometimes, they feel going outside the house for training may be out of religious jurisdiction. These issues lessen the participation of women in ICM training activities.

Conclusion

The DAE has been providing training to the women on ICM, homestead gardening, seed storage, fruit cultivation, compost preparation, health and nutrition etc. Thus, the women are becoming an important part of their families as they are contributing to uplift their livelihoods. At the same time, they are getting aware of their right and responsibilities. This study reveals that most of women having ICM training were in medium empowerment status which is possible to improve through improving educational status, longer training received on ICM, more daily time use in economic activities and greater participation in IGAs. Most of the women were illiterate or educated up to primary level and had short to medium training received on ICM. Daily time use in different household economic activities was satisfactory but nobody was found to have high participation in IGAs. Therefore, there is ample scope to improve these predictors which will eventually enhance their empowerment status. Moreover, these characteristics of the women must be thoroughly considered while working with the development of women empowerment. However, male members of the family have to help females to facilitate them to take part in the ICM training programs. DAE needs to recruit female extension workers, develop gender sensitive training programs and improve communication with the rural women. Besides, mass awareness campaigns are essential to lessen the social drawbacks upon the women towards their increased participation in training programs as well as to make them more empowered.

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