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# Farmer's participation in natural resource management activities: A socio-economic perspective

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**ABSTRACT**

Natural resource management has been accorded high priority in India's development plan to reverse the trend of fast degradation of natural resources of the country. West Bengal, one of the most severely affected states with soil erosion is also trying to manage its natural resources through various project interventions. In its one of the most droughts affected, erosion prone district named Bankura Integrated Wastelands Development Programme was initiated in 2004 to counter the natural resource depletion challenges by encouraging active participation of farmers, which is taken as the basic assumption of success as well as failure of any development programme. It was found that participation of people was high in planning and implementation stage and partial in nature (partially participated by 84.11 and 94.13 per cent) whereas in monitoring evaluation stage full participation was very less with a high degree of non participation (60.75 per cent). Monitoring and evaluation related activities were regarded as less important by farmers in terms of participation (weighted mean score 28.14) and farmers socio economic status has a strong and positive correlation with participation in various stages of project management.

**Key words:** IWDP, Natural Resource Management, Participation. Socio-economic status.

## INTRODUCTION

Natural resources (land, water, biodiversity and genetic resources, biomass resources, forests, livestock and fisheries) – the very foundation of human survival, progress and prosperity, have been degrading fast, and the unprecedented pace of their erosion is one of the root causes of the agrarian crisis that the country is facing( Planning Commission,2007). On other hand India has about 18 per cent of the world's population and 15 per cent of livestock population to be supported from only two per cent of the world's geographical area and 1.5 per cent of forest and pasture land. Taking into consideration this declining trend of natural resources; especially after green revolution and for development of degraded land, Government took up amelioration measures .The Integrated Wasteland Development Programme (IWDP) launched in 1989 under the aegis of the National Wasteland Development Board aimed at development of wastelands, brought under the guidelines for Watershed Development with Drought Prone Area Programme and Desert Development Programme (DDP) with effect from 1995. The integrated management of natural resources on watershed bases has emerged as a logical and the most effective holistic approach for sustainable production and overall development.

Experience had shown that sustainability and success of watershed management projects is closely linked to effective participation of the communities who derive their living from natural resources. Since the rural societies in the poor and developing countries are plural and stratified, divisions are based on gender, caste and religious groups and socioeconomic status including land tenure, ensuring participation of all sections call for a flexible approach and responsiveness to diverse, often unexpected situations.In West Bengal from 2003 IWDP project has been implemented following the guidelines of Hariyali by department of Panchayat and Rural Development. At present, IWDP is implemented in four districts of namely; Burdwan, Birbhum, Bankura and Paschim Medinapur. A total twenty eight projects were scheduled to be finished in 2009-10.

Watershed Development Programme were initiated in India over 35 years ago and some of those early projects showed visible and astonishing success with increased livelihood and incomes along with reduction of drudgery. Therefore such programmes gained popularity and soon become livelihood programme actively encouraged by government. The Ninth Plan Mid Term Appraisal (MTA) by the Planning Commission brought out in October 2000,

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however, indicated beneficial effect of this type of programme like reversing trend of declining natural resources, employment generation *etc.* but also revealed the astonishing picture of failure of the programmes in many areas of country and ascertained failure of Government agencies to involve the people as the main reason. To encounter with those problems which negatively affect the sustainability and livelihood issues, the central and state governments had revised the guidelines and structure of the programme several times. In West Bengal where the guidelines were revised last time in 2003(issued on 1.04.2003) there was a need to examine the extent to which revised guidelines had been able to simplify the procedure and involve Panchyati Raj Institutions and local people in the planning, implementation and management of Natural Resource Management activities for economic development of rural areas and thus study was undertaken with following objectives:

1. To study the socio-economic status of the participating farmers in IWDP and the relationship between socio-economic status of the farmers and extent of participation. .
2. To find out the extent of participation by farmers in Natural Resource Management activities under IWDP in the study area.

## MATERIALS AND METHODS

The study was conducted in Bankura district of west Bengal which was purposively selected as it is the second most drought affected district of west Bengal where agriculture is the main occupation with fairly good production and productivity facing decreasing trend and also severly affected by soil erosion and water scarcity during summer season (Mishra, 2012). Taldangra block was randomly selected from four IWDP project implementing block in which Project VI of IWDP (watershed TSJ/7) was under implementation. A total of 107 respondents were sleeted from project VI of IWDP on random basis who were the beneficiaries of the project. A schedule for measuring the extent of participation was used formed based on experts opinion. Correlation between socio economic status of farmers and extent of participation has been derived by calculating 'Pearson's correlation coefficient' and significance of score has been confirmed by using "student t' test. Weighted Mean Score has been calculated to indicate the importance of various project activities as perceived by participating farmers.

## RESULT AND DISCUSSION

**Socio economic status:** Socio-economic status of the farmers had a bearing on his level of participation in the programmes like IWDP. Socio-economic status which was measured by assessing following thirteen area (type of house, family possessions/material possessions, possession of agriculture land for cultivation, farm implementation, livestock/animal, possession vehicle or conveyance facility, education of head of the family, occupation of head of the family, monthly farm income from all sources, drinking water facility, sanitation facility, social participation of family members, type of newspaper/ magazine they purchase) following a scale which was developed by Singh and Vinay (2012). A majority of the farmers (69.15 %) belonged to the lower socio economic status where as rest 30.84 per cent belonged to middle class family with no one in the upper class. If we give a look at IWDP guidelines the reasons behind this result will be confirmed. This is because of the priority is given to target disadvantaged farmers under IWDP that's why most of the participant farmers were from lower socio economic status.

**Extent of participation by the farmers in natural resource management activities under IWDP:** It was operationalized as the intensity of voluntary involvement of the farmers at different stages related to Natural Resource Management activity under IWDP namely; at planning, implementation, monitoring and evaluation and post project management using a three point scale. As presented at Table 1 majority of the farmers (69.15 %) showed medium level of participation in Natural Resource Management activities under IWDP followed by high (19.63 %) and low (11.21 %) level of participation.

From the above data, we can conclude that the project though was not fully successful in evoking full participation among farmers but it was a quite satisfactory condition where low level of participation was only 11.21 per cent as compared to many government development programmes including various projects of IWDP which were also taken into consideration and have failed only due to low level of people's participation. A detailed analysis of farmer's participation has been presented below and summarized in figure 1.

**Participation in planning stage activities:** A bird's eye view into extent of people's participation in planning stage from Table 2 reveals that in planning stage, a vast majority of the farmers (84.11 %) only participated partially where as 14.01 per cent participated fully and 1.86 per cent never

**TABLE 1:** Distribution of respondents on the basis of extent of participation (n=107)

| Category | Frequency | Percentage |
|---|---|---|
| Low | 12 | 11.21 |
| Medium | 74 | 69.15 |
| High | 21 | 19.63 |

participated. Non participation was high in mobilizing contribution in which more than half of the farmers (56.07 %) never participated followed by participating in deciding treatment in private land in which almost half of farmers (50.46 %) never participated. A vast majority of farmers used to participate in *gramsabha* on occasional (72.89 %) or regular (23.36 %) basis. From the weighted mean score (WMS) it is evident that participation at gramsabha was of highest priority to the farmers for proper planning of project.

**Participation in Implementation stage activities:** In implementation stage also a vast majority of farmers (98.13%) exhibited partial participation and comparatively lesser people (.93 %) exhibited full participation as presented in Table 3. It also reveals that in most of the activities in the implementation stage almost 40 to 60 per cent farmers only participated partially. In case of supervision of activity in private land, full participation of farmers were slightly more (24.29 %) than in case of supervision of activities in common land (16.82 %). Only 9.34 per cent of farmers participated regularly in all *shramdan* activities. From WMS it can be concluded farmers given highest priority to the supervision of project activities in their own land rather than on community owned land and rest of the activities of implementation stage taken as overall of same importance by farmers.

**Participation in post implementation stage activities:** In post implementation stage, a majority of farmers (60.75 %) partially participated followed by 30.84 per cent farmers in non participation category and 8.41 per cent in full participation category as presented in Table 4. It also reveals that very small portion of farmers participated fully in activities like contribution to take up maintenance work

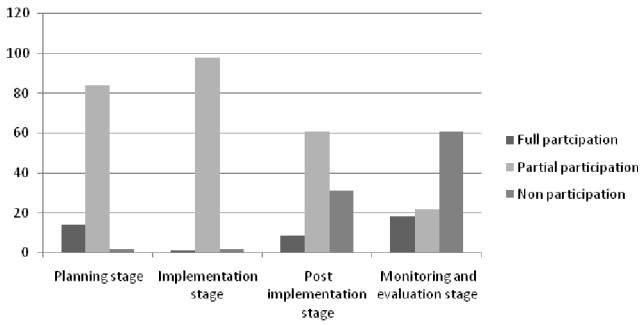


**FIG 1:** Extent of Participation in four stages of project management

**TABLE 2:** Distribution of farmers according to their extent of participation at planning stage of project management (n=107)

| Activities | Extent of participation | | | | | | WMS |
|---|---|---|---|---|---|---|---|
| | Full participation | | Partial participation | | Non participation | | |
| | F | % | F | % | F | % | |
| Participation in providing benchmark information | 25 | 23.36 | 39 | 36.45 | 43 | 40.18 | 32.68 |
| Participation in deciding treatment in private land | 29 | 27.10 | 39 | 36.45 | 39 | 36.45 | 34 |
| Participation in deciding treatment in common land | 20 | 18.69 | 33 | 30.84 | 54 | 50.46 | 30.07 |
| Participation in *gramsabha* | 25 | 23.36 | 78 | 72.89 | 4 | 3.74 | 38.92 |
| Participation in mobilizing contributions | 16 | 14.95 | 31 | 28.97 | 60 | 56.07 | 28.43 |
| Overall participation in planning stage | 15 | 14.01 | 90 | 84.11 | 2 | 1.86 | 37.54 |

**TABLE 3:** Distribution of farmers according to their extent of participation at implementation stage of project management (n=107)

| Activities | Extent of participation | | | | | | WMS |
|---|---|---|---|---|---|---|---|
| | Full participation | | Partial participation | | Non participation | | |
| | F | % | F | % | F | % | |
| Supervision of the activity in private land | 26 | 24.29 | 64 | 59.81 | 17 | 15.88 | 37.01 |
| Supervision of the activity in common land and drainage line | 18 | 16.82 | 45 | 42.05 | 44 | 41.12 | 31.33 |
| Suggesting availability of main resources | 18 | 16.82 | 43 | 40.18 | 46 | 42.99 | 31.01 |
| Development of community assets in common land | 12 | 11.21 | 65 | 60.75 | 30 | 28.03 | 32.55 |
| Participation in *shramdan* | 10 | 9.34 | 69 | 64.48 | 28 | 26.16 | 32.53 |
| Overall participation in implementation stage | 1 | 0.93 | 105 | 98.13 | 2 | 1.86 | 35.49 |

(11.21 %), supervision of maintenance work (12.14%) and suggesting about maintenance activities (19.62 %). In case of contribution to take up maintenance work, non participation was high (61.68 %). WMS score denotes that farmers were more interested in suggesting about maintenance of project intervention rather than actual supervision or contribution to maintenance work.

**Participation in monitoring and evaluation stage activities:** In monitoring and evaluation stage, a majority (60.75 %) of farmers never participated followed by 21.49 per cent with medium level of participation and 17.76 per cent with high level of participation as presented in Table 5. It also reveals that in all the activities of this stage non participation was quite high as in case of evaluation of activities 79.44 per cent farmers never participated followed by development of participatory indicators (69.16 %) and monitoring (68.22 %). Farmers were very less interested in participation in all monitoring and evaluation related activities as evident from low WMS than the activities of other project management phases.

As an explanation of the findings that in planning stage, only 14.01 per cent farmers participated fully and 1.86 per cent did not participate and in monitoring and evaluation stage, 17.76 per cent farmers fully participated whereas 60.75 per cent did not participate at all which may be due to the fact that still in the village the traditional structure of community has a strong influence in which such jobs regarding intellectual activities are performed by the people of higher socio economic status. In case of post implementation stage also, 30.84 per cent farmers never participated where as 60.75 per cent participated fully. The weighted mean score also indicate that farmers given more importance to the planning (37.54) and implementation (35.49) of project intervention rather than post project (31.56) and monitoring and evaluation (28.14) related activities. But Rao and Raeddy (2010) in their study on systematic evaluation of Integrated Wastelands Development Programme and Drought Prone Area Programme in Andhra Pradesh concluded that the involvement of people in planning the works was not to the desired extent in general in most of the watersheds. The micro plans prepared were of stereotype in nature in most of the watersheds pointing to the absence of involvement of people. Whereas study carried out by Ramanna (1999) reported high participation in activities like collection of facts, identifying the problem, deciding the objectives, developing plan of work and less participation in activities like determining the progress and evaluation of the

**TABLE 4:** Distribution of farmers according to their extent of participation at post implementation stage of project management (n=107)

| Activities | Extent of participation | | | | | | WMS |
|---|---|---|---|---|---|---|---|
| | Full participation | | Partial participation | | Non participation | | |
| | F | % | F | % | F | % | |
| Suggesting about maintenance of activities | 21 | 19.62 | 41 | 38.32 | 45 | 42.05 | 31.68 |
| Supervision of maintenance work | 13 | 12.14 | 37 | 34.58 | 57 | 53.27 | 28.4 |
| Contribution to take up maintenance work | 12 | 11.21 | 29 | 27.10 | 66 | 61.68 | 26.79 |
| Overall participation in Post implementation stage | 9 | 8.41 | 65 | 60.75 | 33 | 30.84 | 31.56 |

**TABLE 5:** Distribution of farmers according to their extent of participation at monitoring and evaluation stage of project management (n=107)

| Stage | Extent of participation | | | | | | WMS |
|---|---|---|---|---|---|---|---|
| | Full participation | | Partial participation | | Non participation | | |
| | F | % | F | % | F | % | |
| Participation in developing participatory indicators | 21 | 19.62 | 12 | 11.21 | 74 | 69.16 | 27.04 |
| Participation in monitoring | 20 | 18.69 | 14 | 13.08 | 73 | 68.22 | 27.03 |
| Participation in evaluation of the activities | 20 | 18.69 | 2 | 1.87 | 85 | 79.44 | 25.11 |
| Overall participation in monitoring and evaluation stage | 19 | 17.76 | 23 | 21.49 | 65 | 60.75 | 28.14 |

*F denotes frequency ** WMS denotes Weighted Mean Score

programme. This lack of participation in monitoring, evaluation and post implementation stage and medium level of participation in all the stages was due to the failure on the part of government or local administration to make the people aware about the benefits of the programme, lack of training, lack of efforts of government extension agency to make the farmers aware and provide related information, or failure on the part of the people to understand the importance of managing natural resources which will generate more economic returns only in future and thus will create a more sustainable livelihood for them as acknowledged in the course of data collection. This is supported by Badal, Kumar and Bisaria (2006) who reported that the frequency of visits of extension workers and institutional effectiveness showed a positive relationship with participation and training rather than education and had significant influence in motivating the farmers in taking action and contributing in the form of labour and/or money. Reddy *et al.* (2004) reported people's participation in watershed activities was poor except in case of wage earneres/subsidy beneficiaries and it is expected based on the provision of direct benefits to farmers.

**Correlation between socio-economic status of farmers and extent of participation:** Pearson's product-moment correlation coefficient was for ascertained the degree of relationship between socio economic status of farmers and their extent of participation has been calculated. In all four stages of project management the extent of participation by the farmers and their socio economic status has a positive and high correlation and these correlation coefficients are significant at both 0.01 and 0.05 per cent level of significance with correlation value 0.574 (planning stage), 0.403 (implementation stage), 0.535(post implementation stage) and 0.563 (monitoring and evaluation stage). Extent of participation in overall project management has a correlation value of 0.560 with socio economic status of farmers.

It can be concluded from the above results that in case of monitoring and evaluation stage, the correlation coefficient was highest (0.563). In implementation stage, the correlation coefficient was somehow lower than other stages. It can be ascertained from the above observations that in case of planning stage and monitoring and evaluation stage the farmers from higher socio economic status participated more as compared to the farmers with low socio economic status.

## CONCLUSION

Natural Resource Management Programmes operated by government are criticised for their inefficiency not only in terms of end result but also for their limited effort and success to generate a satisfactory and sustainable level of people's participation. As presented in the results of the above study, implementing agencies need to pay more attention to get more peoples' involvement in activities of planning as well as post implementation and monitoring evaluation stage by providing better access to resources as well as information and thereby helping the people to better realize the long term benefit of sustainably managing the natural resources for their livelihood. At a time when all Natural Resource Management programmes are gradually being replaced or waited to be replaced by a more optimistic, promising programme of Integrated Watershed Management Programme throughout the nation the findings of this study is meant to throw some light on the pattern of farmers participation and how this is influenced by their socio-economic status and thus hope to provide a useful insight to the policymaker for suitable manipulation in their policy to increase and stabilize the quality and quantity of peoples participation in all type of development programme involved farming population to make these programmes more successful and sustainable.

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