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Gender Gaps Under Integrated Watershed Management Project in Uttarakhand

Shikha Singh[1]* and Neelam Bhardwaj[2]

ABSTRACT

Women share major responsibility in conservation of natural resources through their participation in watershed management activities, but quantifying their role and participation in Integrated Watershed Management Project activities remains a challenge at all levels. Therefore, the present study was carried out to reveal the gaps in gender sensitive policies under Integrated Watershed Management Project in purposively selected Uttarkashi and Bageshwar districts of Uttarakhand. Majority of the watershed management activities were performed by women except construction of stone barrier, mulching and tree planting. The total time spent by men was 6.58 hours per day whereas women spent 10 hours per day on watershed management activities. In the activities like terracing, broad beds, slopping land and nursery raising, majority of the decisions were jointly taken. There was total control of men over land, credit, agricultural produce, inputs, agricultural tools, marketing of farm produce and livestock. On the other hand, women had very little control over marketing of farm produce and livestock. The findings revealed highest gender gap (74.08%) in the field of ownership and minimum gap (18.92%) with respect to participation in watershed management activities.

Keywords: Decision making, Gender gap, Natural resources, Participation, Watershed

INTRODUCTION

The Himalayan Watersheds are under constant threat of erosion caused by depletion of forest cover, unscientific agronomic practices, hydrologic imbalances and natural calamities. The ever increasing population, the need to provide a better quality of life to the people and the pressure on natural resources is further intensifying the problem. To reserve the order of deterioration of natural resources and support livelihood activities for the inhabitants, watershed management has been taken up as the functional and planning tool for conservation of natural resources and sustainable development by the Government of India through its Common Guidelines for Watershed Development Projects 2008. In Uttarakhand mountain areas, the trend of men migrating to cities for job or their shifting to local salaried employment has created such space for women. Innovative projects or programmes like mahilasa-makhaya, women van panchayats and informal women's forest committees, have come up into existence. Women have substantial legal rights in Van Panchayat but most of them have very little information about the funds or budgets for work undertaken in the village. Participation of women is important for the effective implementation of watershed programs, to become effective vehicles for integrated development of communities and sustainable impacts. Therefore, women's participation in community works as a triple role along with the productive and reproductive roles.

[1]Research Scholar, [2]Professor, Department of Agricultural Communication, G.B. Pant University of Agriculture and Technology, Pantnagar-263145, Uttarakhand
*Corresponding author email id: shikha.singh001@gmail.com

Puri (1971) reported that women were found to play an important role in marriage of children, payment of dowry, and education of children but for other areas like farm related tests, taking and giving loans they were always consulted by their men folk. Women participation in the watershed management was usually on a voluntary basis and it was unpaid work undertaken in their free time

Moser (1989) in the last two decades, the policy makers have realized the importance of women in management of natural resources. The perspective of forest and water management has changed with the inclusion of women oriented policies. These policies provided them with their right and control over the resources. Addressing gender and watershed management together acknowledges the ecological imbalance and seeks to ensure that the contributions of both men and women are recognized to manage natural resources effectively and sustainably. Keeping in this view, present study was conducted in Uttarakashi and Bageshwar districts to assess the gender gaps in the implementation of different activities of IWMP

METHODOLOGY

The present study was conducted in the state of Uttarakhand. Out of 13 districts of the state, *Uttarkashi* and *Bageshwar* districts were selected purposively for study. Among all blocks, *Naugaon* from *Uttarkashi* district and *Garud* from *Bageshwar* district were selected through Simple Random Sampling Method. Total six villages were selected for the study. Out of these villages, *Krishna, Bhatiya* and *Muradi* villages in *Naugaon* block and *Tallihat, Matena* and *Kausani* villages in *Garud* block were selected randomly using simple random sampling without replacement. Beneficiaries were selected from each village by using probability proportionate to size method viz. 40 from *Krishna*, 96 from *Bhatia*, 41 from *Muradi*, 34 from *Tallihat*, 48 from *Matena* and 41 from *Kausani* village. The sample size was comprised of 300 beneficiaries with equal number of women (150) and men (150) beneficiaries selected purposively. Gender gap in integrated watershed management project was defined in terms of difference between men and women participation in project activities, decision making power and their ownership, control and accessibility over resources. The activities related integrated watershed management was developed with the help of experts and the literature. The responses of respondents were measured on the activities performed by men, women and jointly were scored as 3, 2 and 1, respectively. After assigning the scores to categories of indicator selected, the total scores were calculated for each member. On the basis of maximum and minimum scores obtained by the respondents they were categorized into the following three categories: low, medium and high the gender gap on each indicator was calculated by using the following formula:

$$\text{Gender gap} = \frac{\text{Mean score of men - Means core of women}}{\text{Mean score of men}} \times 100$$

RESULT AND DISCUSSION

The data were collected under five major dimensions of gender gaps viz. participation, time spent, decision making, ownership, access to and control over resources.

With the inception of IWMP project in the study area various watershed management activities were carried out. The eight activities namely, terracing, contour bund, broad beds, slopping lands, stone barrier, nursery, organic manure application and mulching and tree planting were selected to know the responses of men and women. According to pooled data of both men and women responses, it was found that most of the watershed activities were carried out by women. In the activity terracing the participation of women was 41.67 per cent, for contour bund it was 37.33 per cent, 39 per cent in broad bed, developing sloppy land was by women alone by 37.67 per cent (Table 1). The activity construction of stone barrier was mostly performed by women (38.33 per cent), whereas participation in nursery raising by women was 42 per cent. Nursery raising and maintenance was new intervention being carried out in the villages under project. Women beneficiaries were willing to participate in nursery raising but were uncertain of where to market their product. The participation of women in application of organic manure

Table 1: Distribution of respondents according to participation in Integrated Watershed Management Project activities

Activities	Men f (%)	Women f (%)	Both f (%)
Doing terracing	54(18.00)	125(41.67)	121(40.33)
Making contour bund	30(10.00)	112(37.33)	158(52.67)
Building broad bed	31(10.33)	117(39.00)	152(50.67)
Developing slopy land	58(19.33)	113(37.67)	129(43.00)
Construction of stone barrier	109(36.33)	115(38.33)	76(25.33)
Nursery raising	29(9.67)	126(42.00)	145(48.33)
Application of organic manure	83(27.67)	124(41.33)	93(31.00)
Mulching & tree planting activity	103(34.33)	119(39.67)	78(26)

*Figure in parenthesis indicate the percentages in a respective frequency

was 41.33 per cent. It was observed that farm women had knowledge of FYM, compost, vermin-compost and green manure as organic inputs. It was further revealed from the data that participation of women in mulching and tree planting activity was 39.67 per cent. Sharma and Singh (1970) identified nine operations in which women actively participated i.e., seed storage, winnowing, care of animals, harvesting, weeding, manuring, sowing, application of manure in the field and using of hand implements. Sangwan *et al*. (1990) reported that storage of farm produce was the major activity performed by almost all the farm women whereas Nain and Kumar (2010) revealed that extent of women involvement was maximum in operations like transplanting, weeding, harvesting and storing. Slathia *et al.* (2015) observed changes in social, economic and psychological activities.

The total time spent by women was 600 minutes per day (10 hours per day) and for men it was 395 minutes per day (6.58 hours per day) on watershed management activities (Table 2). In the activity stone barrier, the average time spent by women was 120 minutes/day and 90 minutes/day in different activities such as sloping land, mulching and tree planting. In the activities terracing, contour bund, broad beds, nursery and organic manure average time spent by women was 60 minutes per day. The data further revealed that the time spent by men in all above activities on an average was 30 minutes to 90 minutes/day. Sudharani and Raju (1991) observed that on an average female labourer utilized 12.68 days. Hence, women invariably spend on an average more time than their male counterparts in watershed management activities. Men and women beneficiaries agreed that women had a heavier workload than men did. In hills, women devoted more time in watershed activities and compensating the work that was supposed to be done by the male member.

The activity terracing mostly dominated by the decision of both men and women (63.67%). The decisions about contour bund activity were male dominated (58.33%) (Table 3). In the activities making of broad beds and developing slopping land about 49.33 per cent and 55 per cent of the decisions were taken by both men and women. The decisions about the construction of stone barriers were also male dominated

Table 2: Distribution of respondents according to average time spent on Integrated Watershed Management Project activities (minute/day)

Activities/Tasks	Men (n1=150)	Women (n2=150)
Terracing	50	60
Counter bund	40	60
Broad bed	40	60
Slopping land	30	90
Stone barrier	90	120
Nursery	45	60
Organic manure	50	60
Mulching & tree planting	50	90
Time minute per day	395	600
Total hours per day	6.58	10

Table 3: Distribution of respondents according to decision making in Integrated Watershed Management Project activities

Activities	Men f (%)	Women f (%)	Both f (%)
Doing terracing	93 (31)	16(5.33)	191(63.67)
Making contour bund	175(58.33)	20(6.67)	105(35)
Building broad bed	116(38.67)	36(12)	148(49.33)
Developing sloppy land	114(38)	21(7)	165(55)
Construction of stone barrier	193(64.33)	8(2.67)	99(33)
Nursery raising	128(42.67)	43(14.33)	129(43)
Application of organic manure	177(59)	27(9)	96(32)
Mulching & tree planting activity	171(57)	36(12)	93(31)

*Figure in parenthesis indicate the percentages in a respective frequency

(64.33%) whereas for the activity of nursery raising, most decisions were taken by men and women mutually (43%). The decisions about the application of organic manure were taken by men (59%). Singh and Srivastava (2011) reported that most of the decisions about breeding, feeding and management of cattle were take jointly but in case of farm credit, investment of added profit and adoption of innovative technologies the role of male counterparts was dominated & participation of female members was very low or negligible.

Land was the basic requirement for farming, which was prominently controlled (91%) and owned (83.33%) by men. Accessibility to the land resource was found among men (51%) and women (49%) respectively. Only 11.67 per cent of women had ownership and 9 per cent had control over it (Table 4). It was observed that women were consistently less likely to be owners of agricultural land. As a result of customs, men are the owners of land while women gain access to land through their relationship with a male relative. The data further shows that 93.33 per cent men had ownership and 89 per cent had control over credit. However, in case of accessibility, the analysis shows that men (62.67%) access the credit more than women (37.33 per cent). There were only 11 per cent women who had control and 6.67 per cent had ownership over credit

Agricultural produce mostly owned (98.33%) and controlled (95%) by men. On the other hand, its accessibility among men was 66.67 per cent and 33.33 per cent women respectively. The data also revealed that the ownership, control, and accessibility of inputs like (seeds, fertilizers, pesticides, etc.) were reported to be high among men (94%, 83.67% and 86.67%). In case of agricultural tools majority of ownership (97%) and control (89.67%) was in men's hand. Accessibility of agricultural tools among men was found 53 per cent and

Table 4: Distribution of respondents according to ownership, access and control of resources

Resources	Ownership		Control		Accessibility	
	Men f (%)	Women f (%)	Men f (%)	Women f (%)	Men f (%)	Women f (%)
Land	265(88.33)	35(11.67)	273(91.00)	27(9.00)	153(51)	147(49.00)
Credit	280(93.33)	20(6.67)	267(89.00)	33(11.00)	188(62.67)	112(37.33)
Agricultural produce	295(98.33)	5(1.67)	285(95.00)	15(5.00)	200(66.67)	100(33.33)
Inputs	282(94.00)	18(6.00)	251(83.67)	49(16.33)	260(86.67)	40(13.33)
Agricultural tools	291(97.00)	9(3.00)	269(89.67)	31(10.33)	159(53.00)	141(47.00)
Livestock	176(58.67)	124(41.33)	203(67.67)	97(32.33)	155(51.67)	145(48.33)

*Figure in parenthesis indicate the percentages in a respective frequency

47 per cent women respectively. Livestock as an asset played a fundamental role in hill areas and represents an important source of income. Ownership (58.67%), control (67.67%) and access (51.67%) to livestock was reported to be high among men. It was found that generally men were responsible for the keeping and marketing of large animals such as cows, buffalos. Women tend to claim control over smaller animals such as goat, sheep and specially poultry. Men had a greater access to and control over all the resources because they are the decision makers and head of the family. Women find it difficult to acquire decision making roles in the area of watershed management. Singh and Tiwari (2012) studied that nearly 85 per cent men had complete access and control over farm related resources whereas women in hill zone performed majority of the activities alone but had only partial access and control over resources.

Different parameters were calculated to measure gender gap in Integrated Watershed Management Project. High gender gap was reported in the field of ownership (74.08%) followed by control (61.12%), decision making (40%) and accessibility (19.92%). Minimum gap was found between men and women in participation (18.92%) related to Integrated Watershed Management Project activities. It was observed that ownership of property or resources considered the most influential factor in women participation (Table 5). From the overall view, it can be concluded that there was a significant gender gap in Integrated Watershed Management Project. This might be due to deeply rooted inequalities in the socio-political participation of women, male dominance, stereotype mindset because of this, the status of women was very poor in ownership, decision making and control over resources.

Table 5: Overall gender gap on different parameters in Integrated Watershed Management Project

Parameters	Men (%)	Women (%)	Gender Gap (%)
Participation	20.71	39.63	18.92
Decision making	48.63	8.63	40.00
Ownership	87.04	12.96	74.08
Control	80.56	19.44	61.12
Accessibility	59.96	40.04	19.92

Table 6: Perceived socio-cultural factors affect women participation in watershed management practices

Socio-cultural factors	Percentage
Reproductive role	89.00
Lack of property right	82.33
Migration of men	75.66
Attitude of society	59.00
Men supremacy	70.00

Reproductive role of women limited their participation in Integrated Watershed Management activities of conversing water and soil resources within their catchment reported by 89 per cent respondents. Most of the time, women spend in household activities and it remains same in the entire year (Table 6). Moser (1989) identifies women's participation in community work as triple role along with the productive and reproductive roles. Women participation in the watershed management is usually on voluntary basis and it is unpaid work undertaken in their free time. Data revealed that 82.33 per cent respondents reported that lack of property right was considered most influential factor in women participation. Land was the most crucial property as far as watershed management was concerned. It was noted that ownership to land is the driving force for women's participation other than ownership. Majority of the respondents reported that though women were not the rightful land owners and accessibility to land was guaranteed especially for the married women. The study found out that migration of men was another important factor affecting women participation in watershed management activities. It was reported by 75.66 per cent respondents that migration of men in other parts of the state or nearby states in search of better job opportunities (Table 7). This factor has led to the active participation of women due to the needs of the family but also leaves the burden of agricultural production on women. Results have revealed that, 59 per cent of respondents perceived poor attitude and support from society as an important factor which affects women participation in watershed management. It was observed that men have the power to make decisions on behalf of the entire community without any input from women. They are mostly discouraged to

Table 7: Distribution of respondents according to Gender sensitive policies under IWMP

Policies	Number of respondents	Percentage
Reservation policy	209	69.66
Nominated to local decision bodies	50	16.66
Women facilitators	22	7.33
Women staff	19	6.33

challenge the men's decisions in public forum. If they are doing so, they considered to have unfeminine behavior. It was reported by 70 per cent respondents that male supremacy was key factor which affects women participation. Women have to take permission from the males for the domestic and agricultural pursuits. Lack of support from husbands physically and financially, both limits women's participation. Therefore, this confirms that both moral and financial support from husband and society are very important for motivating women and accelerating their growth or performance. Chayal *et al*. (2012) evaluated that women were actively involved in agricultural operations but their involvement in decision making was very poor. It was because the majority of farm women was illiterate, has little knowledge about the latest technologies of farming, dominance of men and restricted mobility due to several cultural taboos.

There are some defined gender sensitive policies under IWMP. According to the data 69.66 per cent respondents reported reservation policy was the most effective measure to increase women participation in decision making followed by nomination to local decision bodies (16.66 per cent) was the second important measure to increase women participation in decision making in IWMP. There were only 7.33 per cent and 6.33 per cent women mentioned that women facilitators and increased number of women staff were the policies which affected women participation in IWMP. Yadav *et al*. (1989) concluded that women's willingness to participate in income generating activities has to be matched with adequate financial resources to make women actively participate. It can be concluded that these policies to some extent played an important role to reduce the gender gap in Integrated Watershed Management Project. But far-reaching changes are still required to improve the representation of women in decision making and policy structure.

CONCLUSION

From the present study, it can be concluded that majority of the participation in labour allocation activities were done by women but still they performed supportive role in farm operations and all the decisions regarding farm related activities were dominant by men due to this, involvement of women in decision making was very limited. There was significant gender gap in Integrated Watershed Management Project. This might be due to deeply rooted inequalities in socio-political participation of women, male dominancy, stereotype mindset because of this, status of women was very poor in ownership, decision making and control over resources. There were various initiatives or efforts taken up by government, NGOs but these efforts were not able to change the fact that gender discrimination was still in existence in rural areas of Uttarakhand, where women perform all home and farm activities but their participation in decision making and ownership over productive resources was very limited. There is needed to take more emphasized and modified steps by project planners and implementers to reduce gender gap in the society.

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