

WOMEN'S PARTICIPTION IN AGRICULTURAL RESOURCE USE: A CASE STUDY OF JHABUA DISTRICT M.P.

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ABSTRACT

The women's participation in the sustainable development of agricultural resources are tightly webbed with socio-economic factors with high variance among different social systems. Hence, it is necessary to have a methodological framework to quantify the level of women's participation so as to optimize its role in development process. It is also adequately realized that complete community participation is possible only when 'gender equity' and women's participation is ensured in the stake-holder ship of the development. This paper attempts to suggest the indicators of gender participation in agricultural resource use and its management. Precisely, it identifies what kinds of information are needed to quantify the indicators related to women's participation and suggests how the developed set of indicators would be helpful to develop a frame work for an easy and accurate analysis and interpretation. This paper investigates the level of women's participation in the agricultural resources extent of women's participation and their approach in the study area and future sustainability of agricultural resource-use and management. The indicators related to gender participation in the agricultural resource-use and management, depends upon many exogenous and endogenous variables which affects the ways of utilizing available resource.

Introduction

The women's participation is the catch word in sustainable resource management through people's participation. (Singh & Khare 1993). The mainstreaming of gender in development planning is critical in determining the extent to which men and women could participate in, and obtain benefit from developmental interventions.(Wasteland development News, 1996 & 1997).

The gender participation in rural resource management (Singh and Kumar 2000, Singh, 2004, Kumar and Singh 2004, Kumar, Singh and Gautam, 2005) could be assessed through developing a methodological framework.

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Some of the studies related to gender participation in rural resource management with reference to forest and agricultural resource management have been dealt by Agrawal (2000; Kameshwari, 2000; and Mishra, 2000).

Some of the experiences gathered by Kumar and Singh (2005) deal with the Indicators of gender participation in the tribal region of Jhabua district specifically related with agricultural resource use, livestock resource management and developing of frame work.

Objectives of Study

- To find out indicators of gender participation in various activities related to agriculture and relating it with the population.
- To find out male and female contribution in optimum utilization of agricultural resources.
- To suggest an integrated extension strategy to reduce the gap in gender participation with specific reference to sustainable resource management.

In the light of above objectives, suggestions are made to judge how gender participation could be assessed by developing indicators and how it varies from village to village within range to range, and in division.

Methodology

Two types of the data have been gathered for the study viz. Primary and secondary.

(i) Primary Source of Data

The present study is based on an intensive survey of 12 villages, selected from all forest ranges of Jhabua district. The categorization of the villages is based on the size of population, and sampling of the villages and house holds was done by adopting random sampling method. From each selected villages, 10 households were selected randomly and interviewed for intensive study through structured schedules. The primary source of data has been obtained through structured schedule. The survey was conducted in the study area of Jhabua district of Madhya Pradesh during 2002 and 2003. (starting from August 2002 to March 2003).

The total number of respondents around 120 depending upon the size of population of the selected villages has been interviewed. The information collected during the fieldwork was classified into the qualitative and quantitative data. The qualitative information was first quantified based on

coding and transferred to the data entry sheets for computer tabulation and statistical analysis.

Selection of Forest Ranges and Villages

Firstly with the help of Government records and discussion with DFO Jhabua, from four selected Ranges, three villages have been randomly selected for intensive study. These were:

1. Kotnai, Chauvaria and Amargarh from Thandla Range
2. Pipliya, Jher and Dev Jhiri from Jhabua range
3. Golamba, Bhuri amba and Mordha from Katthiwada range
4. Bahedwah, Darja and Aambi from Alirajpur Range

(ii) Secondary Source of Data

Secondary source of information and data has been gathered from the Directorate of Agricultural Statistics, Commissioner of land records Department of metrology, Forest Department, Published sources, Population census, Survey of India, Forest survey of India, District H.Q. etc.

The methodology of time use statistics as developed by Bhatia (2002) has been employed to measure gender disparity and refined in context of gender participation in the study area of Jhabua district. Some comprehensive approach to Social impact assessment methodology proposed to use a set of social indicators to measure predicted social impacts of gender participation in rural resource management. This is the Battelle model (Olsen *et al.*, 1981) which relates direct demographic and economic impact through indirect impacts (community structural changes and public service changes) to changes in social well being resulting in predicted social impacts.

Profile of the Study Area

Demographic Profile

As per Census 2001, the population of Madhya Pradesh was 60,385,118 which consists of males 31,45,6873 and females 28,928,246 while decadal growth rate 91-2001 was 24.34% which is greater than National growth rate. It is evident from the table 1 that India's 5.87% of Population is living in Madhya Pradesh. The male female ratio in Madhya Pradesh as compared to India is less by 13 persons per thousand. While density of population per sq. km is 196 which is less by 128 persons per sq. km than the density of our country. It is also clear from the table that 0.13% of population of Madhya Pradesh Lives in Jhabua District.

District Profile

Jhabua district lies between 21.55' to 23.15' North latitudes and 74.2' to 75.12' east longitudes. The District is located on the South-Western border of Madhya Pradesh and forms the core of western tribal belt of India.

The total geographical area of the district is 6,782 Sq. Km; which constitute 1.5 per cent of total area of the State.

At present the district is constituted of 2 tribal sub-plan areas, 8 tehsils, 12 tribal development blocks, 242 patwari halkas 1323 inhabited villages, and 8 towns. Twelve blocks have been grouped into 8 Tehsils.

Agricultural Characteristics

As per Census report nearly 97% of the tribal population depends on agriculture. However, due to low productivity, agriculture alone is not able to provide base sustenance to 55% of the population. Some of the salient characteristics may be summarized as follows.

- (i) The average size of land holding in the district is 3.09 hectares, as compared to 2.91 for the province as a whole.
- (ii) Kharif is the main cropping season of Jhabua and these crops together occupy nearly 88% of the gross cropped area.
- (iii) Maize and black gram are the two main crops of the district. Covering nearly 37% of the gross cropped area. Jowar, rice, kulthi (Horse gram), gram, cotton and groundnut are other important crops.

Table 1
Details of Selected Forest Ranges

<i>Sl. No.</i>	<i>Forest Ranges</i>	<i>No. of Villages</i>	<i>Area in Ha</i>	<i>Population</i>
1.	Thandla	84	26396.190	25693
2.	Alirajpur	34	18452.283	7562
3.	Katthiwada	29	8297.671	4608
4.	Jhabua	80	17828.510	19743

Source: Forest Range Office; Jhabua District.

Village Profile of Jhabua District

Table 1, shows the description of selected forest ranges from Jhabua district. Four forest ranges were selected for in-depth study. The highest forest area and population was recorded in Thandla forest range followed by Alirajpur, Jhabua and Katthiwada range.

On the basis of criteria adopted for the selection of VFCs from the Jhabua district. The following villages were selected from different forest ranges as shown in table 2.

Table 2
List of Selected Villages

<i>Sl. No.</i>	<i>Name of Villages</i>	<i>Number of House holds</i>	<i>Group discussions organized</i>	<i>Number of Households surveyed</i>
1.	Chauvariya	60	1	10
2.	Kotnai	82	1	10
3.	Amargarh	224	1	10
4.	Golmba	85	1	10
5.	Bhuriamba	165	1	10
6.	Mordha	65	1	10
7.	Pipliya	250	1	10
8.	Jher	24	1	10
9.	Dev Jheri	212	1	10
10.	Bahedwah	400	1	10
11.	Darja	85	1	10
12.	Aambi	130	1	10
Total			12	120
Average			1	10

Source: Survey in the villages of Jhabua District.

Analysis of Women's Participation in Agricultural Resource use

For the analysis of women's participation in the agricultural resources depends upon the human resource which has a tendency to affect the gender participation in natural resources and associated activities in management.

Table 3, shows the gender distribution among the ethnic groups of society in the study area of Jhabua district. 94.2% of the respondents were from ST Group followed by 5.0% in other category while less than one per cent belonged to general category.

The women's participation depends upon the types of groups existing in the village. The number of households (maximum) in a specific-dominant group of the village will affect it. These dominant groups, apart from maximum number of households in the village, have a tendency to affect through its size of land holdings, literacy level, occupational structure, economic stability and political support.

Table 3
Gender Distribution in the Ethnic Groups

<i>Ethnic Group</i>	<i>Thandla</i>			<i>Kattiwada</i>			<i>Jhabua</i>			<i>Alirajpur</i>			<i>Total</i>		
	<i>M</i>	<i>F</i>	<i>T</i>	<i>M</i>	<i>F</i>	<i>T</i>	<i>M</i>	<i>F</i>	<i>T</i>	<i>M</i>	<i>F</i>	<i>T</i>	<i>M</i>	<i>F</i>	<i>T</i>
(a) SC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(b) ST	12	11	23	15	15	30	15	15	30	15	15	30	56	56	113
(c) General	1	-	1	-	-	-	-	-	-	-	-	-	1	-	10.8
(d) others	2	4	6	-	-	-	-	-	-	-	-	-	2	4	65.0
Total	15	15	30	15	15	30	15	15	30	15	15	30	60	60	120

Source: Survey 2002 and 2003, *Italic* indicates per cent.

Land Holding

In rural areas the land resource is important which also determines social status and power distribution. The size of land holding by various social groups has a tendency to affect the gender participation. Various gender studies show that the higher the size of holding of a social group or family, the lower will be the gender equity in terms of participation in its management.

Table 4
Household Participation in Agricultural Land Resource-use and Management

<i>Agriculture land resource management</i>	<i>Thandla</i>	<i>Katthiwada</i>	<i>Jhabua</i>	<i>Alirajpur</i>	<i>Total</i>
Land holding (in acres)	170	79	90	114	453
Average size of holding per family (in acres)	5.6	2.6	3.0	3.8	3.77
Per capita holding (in acres)	1.04	0.38	0.49	0.64	0.62
Irrigated Land (in acres)	111	28.5	13	15	167.5
Percentage of irrigated land	65.2	36.5	14.4	13.7	36.9

It is evident from table 4 the average size of land holding varies in the selected forest ranges of Jhabua district. The highest land holding was recorded 5.6 acres in Thandla forest range followed by 3.8 acres in Alirajpur Forest range. Due the average size of land holding the per capita land availability also varies from (1.04 to 0.38 acres) forest range to different forest range and affects the gender equity in access and utilization of natural resources in agriculture. The percentage of irrigated land was recorded 65.2 highest in Thandla forest range as compared to other selected forest ranges.

Women's Participation in Agricultural Activities

The women's participation in activities related to agriculture is mentioned in table 5. It is clear from the table that gender participation was recorded 30.2% in pre-agriculture activity which was highest as compared to intercultural operation with 29.9% and Post harvest operation with 28.8% and processing & marketing with 10.1%. The women participation was also recorded highest with more than 51% in activities like pre-agriculture activity, intercultural operation with 52% and Post harvest operation with 51.9%. While male participation was recorded 56.3% in processing and marketing.

Table 5
Women's Participation in Activities Related to Agriculture Management

<i>Activities related to agriculture</i>	<i>Thandla</i>			<i>Kattiwada</i>			<i>Jhabua</i>			<i>Alirajpur</i>			<i>Total</i>		
	<i>M</i>	<i>F</i>	<i>T</i>	<i>M</i>	<i>F</i>	<i>T</i>	<i>M</i>	<i>F</i>	<i>T</i>	<i>M</i>	<i>F</i>	<i>T</i>	<i>M</i>	<i>F</i>	<i>T</i>
a) Pre-agriculture	44	51	95	46	59	105	46	45	91	50	46	96	186	201	387
															30.2
b) Intercultural operation	43	49	92	46	59	105	46	45	91	50	47	97	185	200	385
															29.9
c) Post harvest operation	42	49	91	46	58	104	46	45	91	50	47	97	184	199	383
															29.8
d) Processing & marketing	35	27	62	-	-	-	19	13	32	19	16	35	73	56	129
															10.1
Total	164	176	340	138	176	314	157	148	305	169	156	325	628	656	1284

Source: Survey, Italics indicate per cent.

Table 6 shows the details of women's participation in bifurcated activities as categorizes under the pre-agriculture activities. It could be concluded from the table that gender participation was recorded highest in Ploughing activity followed by weed eradication, looking after field, putting fertilizers in field, preparation of field bunds, seedling and irrigation of field respectively. The women participation in Pre-agriculture activities was recorded highest as compared to male participation in seedling 79%, and more than 52% in activities like putting fertilizers in field, weed eradication, and looking after field. While the male participation was recorded highest in activities like ploughing 96.8% followed by activities like preparation of field bunds, irrigation of field more than 51%. The average gender participation in context of male participation is higher by 36 number as compared to overall female participation in pre-agriculture activities.

Table 7 shows the time taken in days by the gender in pre-agricultural activities. The maximum number of days were used by the people in Jhabua forest range in all activity related to intercultural operation with 742 days as

Table 6
Women's Participation In pre-agricultural Activities

Pre-agriculture	Thandla			Kattiwada			Jhabua			Alirajpur			Total		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
a) Weed Eradication	38	46	84	46	58	104	46	45	91	50	46	96	180	195	375
b) ploughing	41	6	47	46	4	50	46	2	48	48	-	48	378	12	390
c) Preparation of field bunds	43	38	81	46	59	105	30	31	61	30	19	49	149	147	296
d) Seedling	23	41	64	19	46	65	-	45	45	5	44	49	47	176	223
e) Putting fertilizers in field	42	46	88	46	57	103	46	45	91	46	41	87	180	189	369
f) Irrigation of field	39	31	70	31	37	68	16	14	30	16	12	28	102	94	196
g) Looking after field	42	41	83	46	58	104	46	45	91	48	45	93	182	189	371
Total	268	249	517	280	319	599	230	227	457	243	209	452	1218	1002	2220
Average gender participation in pre agricultural activities	44.6	41.5	86.1	46.4	53.1	99.2	38.3	37.8	76.1	40.5	34.8	75.3	203	167	370

Source: Survey.

Table 7
Gender Participation & Time Taken in Days: In pre-agricultural Activities

Activity pre-agriculture	Thandla			Kattiwada			Jhabua			Alirajpur			Total		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Weed Eradication	66	74	140	94	96	190	127	127	254	77	77	154	364	366	738
Ploughing	66	13	79	92	5	97	108	8	116	67	-	67	333	26	359
Preparation of field Buds	117	110	227	111	113	224	75	75	150	29	21	50	332	319	651
Seedling	42	56	98	25	53	78	21	69	90	5	49	54	93	227	320
Putting fertilizers in the field	42	41	83	31	33	64	50	50	100	42	42	84	165	250	415
Irrigation of field	53	45	98	30	25	55	16	16	32	16	15	31	115	101	216
Total	386	339	725	383	325	708	397	345	742	236	204	440	1402	1213	2615

Source: Survey.

aggregate of male and females. The second rank was recorded in Thandla forest range with 725 days, followed by Katthiwada and Alirajpur forest range respectively. It is evident from the table that maximum number of days

put by males and females were recorded highest in the Weed eradication activity with 738 days. The lowest numbers of days were recorded in irrigation of field activity. It could be concluded from the table that in Jhabua district 2615 days were recorded in all pre-agricultural activities.

Table 8
Women's Participation in Harvesting of Crops

Harvesting of Crops	Thandla			Kattiwada			Jhabua			Alirajpur			Total		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Wheat	19	23	42	5	6	11	11	11	22	5	6	11	40	46	86
Gram	19	23	42	-	-	-	11	12	23	8	9	17	38	44	82
Paddy	24	29	53	30	33	63	25	25	50	-	-	-	79	87	166
Maize	35	40	75	40	42	82	42	41	83	47	41	88	164	164	328
Urad	12	17	29	34	37	71	35	34	69	48	42	90	129	130	259
Mung	1	1	2	-	-	-	-	-	-	3	4	7	4	55	9
Soyabean	28	33	61	-	-	-	1	1	2	3	4	7	32	38	70
Cotton	34	38	72	-	-	-	13	11	24	-	-	-	47	49	96
Tuar	2	1	3	19	20	39	36	37	73	21	19	40	78	77	155
Jwar	-	-	-	10	9	19	4	4	8	34	28	62	58	31	89
Groundnut	-	-	-	-	-	-	4	2	6	7	7	14	11	9	20
Bazara	-	-	-	-	-	-	-	-	-	19	20	39	19	20	39
Kulthia	-	-	-	-	-	-	-	-	-	8	9	17	8	9	17
Total	174	205	379	138	147	285	182	178	360	203	189	392	697	719	1416

Source: Survey.

Table 8 shows the gender participation in harvesting of crops. It is clear from the table that women participation was recorded more than 50% which was higher than the males participation in harvesting of all crops. The highest gender participation was recorded in harvest of Maize crop with 328 people, followed by Urad crop with 259. The lowest gender participation was seen in the harvesting of moong Pulse. The highest gender participation was recorded in Alirajpur forest range, followed by Thandla, Jhabua and Kattiwada respectively.

Table 9, shows the gender participation In grain extraction of different crops. It is clear from the table that gender participation in the extraction of grains from *Maize* was recorded highest with 319 person, followed by 256 person in grains extraction of *Urad*. The lowest gender participation was seen in the extraction of *Moong* crop. It could be concluded from the table that the average women's participation was recorded 54.7 which is highest as compared to Males participation in the extraction of grains. The gender

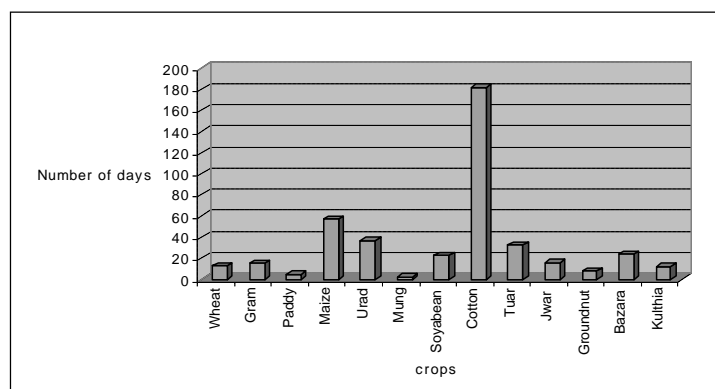
participation was recorded highest in Alirajpur forest range followed by Thandla forest range.

Table 9
Women's Participation in Grains Extraction

Crops	Thandla			Kattiwada			Jhabua			Alirajpur			Total		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Wheat	19	23	42	5	6	11	11	11	22	4	4	8	39	44	83
Gram	17	21	38	-	-	-	11	12	23	7	8	15	35	41	76
Paddy	26	31	57	30	34	64	25	25	50				81	90	171
Maize	34	39	73	40	43	83	38	39	77	46	40	86	158	161	319
Urad	13	18	31	34	38	72	31	32	63	48	42	90	126	130	256
Mung	-	1	1	-	-	-	-	-	-	3	4	7	3	5	8
Soyabean	28	33	61	-	-	-	1	1	2	3	4	7	32	38	70
Cotton	33	37	70	-	-	-	13	12	25				46	49	95
Tuar	2	1	3	19	21	40	36	37	73	21	19	40	78	78	156
Jwar	-	-	-	10	9	19	4	4	8	34	28	62	48	41	89
Groundnut	-	-	-	-	-	-	-	-	-	7	7	14	7	7	14
Bazara	-	-	-	-	-	-	-	-	-	18	19	37	18	19	37
Kulthia	-	-	-	-	-	-	-	-	-	8	9	17	8	9	17
Total	172	204	376	138	151	289	170	173	343	199	184	383	679	712	1391
Average participation	21.5	25.5	47.0	25.1	29.3	48.1	24.2	21.9	38.1	18.1	16.7	34.6	52.2	54.7	107

Source: Survey.

Figure 1
Gender Participation and time taken in the Grains Extraction



Following figure 1 shows the time taken by the Males and females in the grains extraction of different crops in the study area of Jhabua district. The

highest time was taken in the extraction of cotton buds with less than 180 days. The lowest time was recorded in the extraction of Pulse of Moong crop.

Table 10, shows the gender participation in the separation of grains of different crops in the study area. It is clear from the table that the highest gender participation of 266 people was recorded in Maize crop followed by Urad with 222 people.. The lowest participation of 10 people was recorded in the separation of Moong Pulse. It could be concluded from the table that the average women's participation was recorded highest as compared to males participation by 9.5.

Table 10
Women's Participation in Separation of Grains

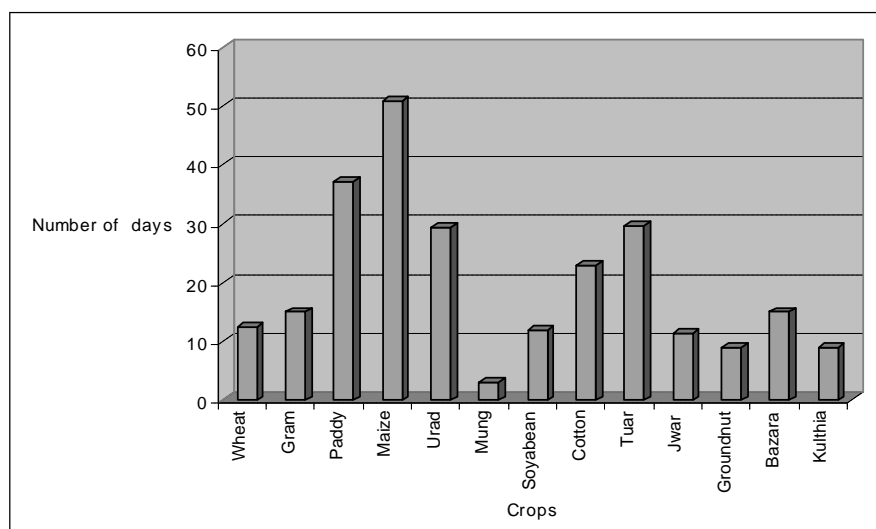
Crops	Thandla			Kattiwada			Jhabua			Alirajpur			Total		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Wheat	9	24	33	1	6	7	1	11	12	5	6	11	16	47	63
Gram	9	22	31	-	-	-	1	12	13	8	9	17	18	43	61
Paddy	19	31	50	15	33	48	8	25	33				42	89	131
Maize	21	29	50	25	42	67	21	40	61	47	41	88	114	152	266
Urad	7	18	25	19	37	56	16	35	51	48	42	90	90	132	222
Mung	1	2	3	-	-	-	-	-	-	3	4	7	4	6	10
Soyabean	15	35	50	-	-	-	1	1	2	3	4	7	19	40	59
Cotton	18	36	54	-	-	-	8	9	17				26	45	71
Tuar	1	1	2	9	21	30	17	37	54	21	19	40	48	78	126
Jwar	-	-	-	9	9	18	1	4	5	34	28	62	44	41	85
Groundnut	-	-	-	-	-	-	-	-	-	7	7	14	7	7	14
Bajara	-	-	-	-	-	-	-	-	-	19	20	39	19	20	39
Kulthia	-	-	-	-	-	-	-	-	-	8	9	17	8	9	17
Total	100	198	298	78	148	226	74	174	248	203	189	392	455	709	1164
Average Participation	11.1	19.0	27.1	15.1	24.6	37.6	8.2	19.3	27.5	18.4	17.1	35.6	35	54.5	89.5

Source: Survey.

Figure 2 shows the time taken by the peoples' in the separation of grains of different crops. The maximum time in days was recorded in the separation of grains in Maize crop followed by Urad crop and lowest number of days as time taken by the people was recorded in the separation of Moong crops.

The following table 11, shows the women's participation in transportation of extracted grains up to the storage place. The highest gender participation was recorded in the transportation of Maize grains with 320 peoples followed by the transportation of Urad pulse with 252 peoples. It is also evident from the table that lowest gender participation was seen in the transportation of Moong pulse. It could be concluded from the table that

Figure 2
Gender Participation and time taken (in hrs) in Separation of Grains



males participation was recorded highest as compared to women's participation in the transportation of extracted grains to the storage place.

Table 11
Women's Participation in Transportation of Extracted Grains to the Storage place

Crops	Thandla			Kattiwada			Jhabua			Alirajpur			Total		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Wheat	22	17	39	5	6	11	11	11	22	4	5	9	42	39	81
Gram	20	15	35	-	-	-	11	12	23	7	8	15	38	25	73
Paddy	27	25	52	30	33	63	25	25	50				82	83	165
Maize	37	33	70	40	42	82	41	41	82	46	40	86	164	156	320
Urad	14	10	24	34	37	71	35	34	69	47	41	88	130	122	252
Mung	3	-	3	-	-	-	-	-	-	3	4	7	6	4	10
Soyabean	30	25	55	-	-	-	1	1	2	3	4	7	34	30	64
Cotton	35	30	65	-	-	-	14	12	26				49	42	91
Tuar	2	1	3	20	21	41	36	37	73	21	19	40	79	78	157
Jwar	-	-	-	10	9	19	3	3	6	31	24	55	44	36	80
Groundnut	-	-	-	-	-	-	4	2	6	7	7	14	11	9	20
Bazara	-	-	-	-	-	-	-	-	-	18	19	37	18	19	37
Kulthia	-	-	-	-	-	-	-	-	-	8	9	17	8	9	17
Total	190	156	346	139	148	287	181	178	359	195	180	375	705	662	1367

Source: Survey.

Table 12, shows the gender participation in the storage of grains. It is clear from the table that Highest participation in the storage of gains was recorded in case of Maize with 318 followed by Urad pulse with 252 person. The lowest participation was seen in case of Moong pulse. It could be concluded from the table that the male participation was recorded highest as compared to women's participation in the storage of all grains of different crops in the study area.

Table 12
Gender Participation in Storage of Grains

Grains	Thandla			Kattiwada			Jhabua			Alirajpur			Total		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Wheat	19	18	37	5	6	11	11	11	22	4	5	9	39	40	79
Gram	17	16	33	-	-	-	11	12	23	6	7	13	34	35	64
Paddy	24	25	49	30	33	63	25	25	50	-	-	-	79	83	162
Maize	35	34	69	40	42	82	42	41	83	45	39	84	162	156	318
Urad	14	12	26	34	37	71	35	34	69	46	40	86	129	123	252
Mung	3	2	5	-	-	-	-	-	-	3	4	7	6	6	12
Soyabean	28	24	52	-	-	-	1	1	2	3	4	7	32	29	61
Cotton	33	32	65	-	-	-	12	11	23	-	-	-	45	43	88
Tuar	2	1	3	20	21	41	36	37	73	20	18	38	78	77	155
Jwar	-	-	-	10	9	19	4	4	8	32	26	58	46	39	85
Groundnut	-	-	-	-	-	-	-	-	-	7	7	14	7	7	14
Bazara	-	-	-	-	-	-	-	-	-	18	19	37	18	19	37
Kulthia	-	-	-	-	-	-	-	-	-	8	9	17	8	9	17
Total	175	164	339	139	148	287	181	178	359	192	178	370	687	668	1335

Source: Survey.

Figure 3
Time taken in Storage of Grains

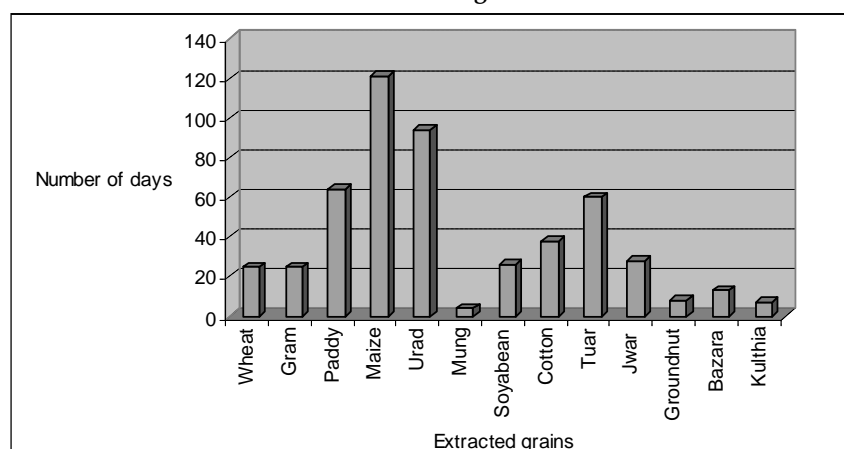


Figure 3 shows the time taken in days for the storage of different extracted grains in the study area. The highest number of days was recorded in maize followed by Urad. It is also evident from the figure that lowest number of days was recorded in Moong pulse.

Table 13 shows gender participation in marketing of grains of different crops. It could be concluded from the table that the highest participation was recorded in Cotton buds followed by Soyabean and urad pulse respectively.

Table 13
Women's Participation in Marketing of Grains

Marketing	Thandla			Kattiwada			Jhabua			Alirajpur			Total		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Wheat	-	-	-	-	-	-	-	-	-	2	2	4	2	2	4
Gram	1	2	3	-	-	-	-	-	-	2	2	4	3	4	7
Maize	2	-	2	-	-	-	-	-	-	1	1	2	3	1	4
Urad	-	-	-	-	-	-	1	1	2	14	14	28	15	15	30
Groundnut	-	-	-	-	-	-	-	-	-	7	7	14	7	7	14
Soyabean	16	14	30	-	-	-	1	1	2	1	1	2	18	16	34
Cotton	19	12	31	-	-	-	13	10	23				32	22	54
Tuar	-	-	-	-	-	-	3	3	6	1	1	2	4	4	8
Jwar	-	-	-	-	-	-	-	-	-	1	1	2	1	1	2
Bazara							1	1	2	1	1	2	2	2	4
Total	38	28	66	-	-	-	19	16	35	31	31	62	88	75	163

Source: Survey.

Table 13, shows the time taken during the marketing of grains. The highest number of days was recorded in cotton buds with 27 days followed by soyabean with 15 days. The lowest number of day was recorded in the marketing of Gram. The total number of 67 days were recorded in the marketing of grains.

Women's participation is important for the progress in agriculture. There are many farming activities are specialized by women and certain activities like ploughing and power spraying are exclusively male oriented. Though higher gender participation is expected in activities where the male female number is higher, a holistic view should be taken by considering those specialized farming activities.

Conclusion

1. The most important natural resource in the study area is the human resource which has a tendency to affect the women's participation in natural resources and associated activities in management.

2. The size of Population is one of the important indicators of women's participation in agricultural resource use.
3. Due the average size of land holding the per capita land availability also varied from (1.04 to 0.38 acres) forest range to forest range and affects the gender equity in access and utilization of natural resources in agriculture.
4. The women's participation in pre-agriculture activity which was highest as compared to intercultural operation, post harvest operation and processing & marketing. The women participation was also recorded highest in activities like pre-agriculture activity, intercultural operation and post harvest operation.
5. The gender participation was recorded highest in ploughing activity followed by weed eradication, looking after field, putting fertilizers in field, preparation of field bunds, seedling and irrigation of field respectively. The women participation in pre-agriculture activities was recorded highest as compared to male participation in seedling, activities like putting fertilizers in field, weed eradication, and looking after field. While the male participation was recorded highest in activities like ploughing, followed by activities like preparation of field bunds, and irrigation of field. The average gender participation in context of male participation is higher by 36 number as compared to overall female participation in pre-agriculture activities.
6. The maximum number of days put by males and females was recorded highest in the weed eradication activity with 738 days. The lowest number of days was recorded in irrigation of field activity. It could be concluded from the table that in Jhabua district 2615 days were recorded in all pre-agricultural activities.
7. The women participation was recorded higher than the males participation in harvesting of all crops. The highest gender participation was recorded in harvest of Maize crop with 328 people, followed by Urad crop with 259. The lowest gender participation was seen in the harvesting of moong Pulse. The gender participation and time taken in the harvesting of crops the highest number of days were taken by the people in the harvesting of Cotton crop with 114.0 days The lowest number of days were recorded in the harvesting of Moong pulse.
8. The average women's participation was recorded highest as compared to males participation in the extraction of grains. The maximum time was taken in the extraction of cotton buds with less than 180 days. The minimum time was recorded in the extraction of Pulse of Moong crop.

9. The maximum time in days was recorded in the separation of grains in Maize crop followed by Urad crop and lowest number of days as time taken by the people was recorded in the separation of Moong crops.
10. The males participation was recorded highest as compared to women's participation in the transportation of extracted grains to the storage place.
11. The male participation was recorded highest as compared to women's participation in the storage of all grains of different crops in the study area.
12. The time taken in days for the storage of different grains in the study area. The number of days was recorded highest in maize followed by Urad. Lowest number of days was recorded in Moong pulse.
13. The highest participation was recorded in Cotton buds followed by Soyabean and Urad pulse respectively in marketing.

Recommendations

1. In rural economic activities, the women's participation also includes participation of girls too. Therefore, the women's participation in the rural resource-use & management could be viewed by incorporating the contribution of girls. Hence, this indicator must be incorporated in women's participation.
2. The issue of 'efficiency' in utilizing the water resource also underlines the idea of gender participation in water management, particularly in the rural context. The indicator related to women participation is very important when we think of agricultural, water-use resources in the rural areas.
3. In rural areas the land resource is an important resource which also determines social status and power distribution. The size of land holding by various social groups has a tendency to affect the women's participation.
4. Women's participation is important for the progress in agriculture. There are many farming activities specialized by women and certain activities like ploughing and power spraying are exclusively male oriented. Though higher gender participation is expected in activities where the male female number is higher, a holistic view should be taken by considering those specialized farming activities.
5. The women's participation is the result of integrated development through equi-distribution and allocation of resources among different rural social groups and within the group.

6. Women's participation could be assessed by using the indicators as used in Jhabua district of M.P. may be replicated in other districts, State and regions, at national Level.
7. The main cause in difference or existing gap in the gender participation was the size of family at the micro/level. Thus, the size of family is an important indicator of gender participation so far as the agricultural resource use is concerned.
8. The aggregate values of each family has a tendency to affect gender participation at macro level.
9. The framework as designed to develop indicators of women's participation varies from village to village, range to range and division to division.

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