CONSTRAINTS AND SUGGESTIONS IN ADOPTION OF WATERSHED TECHNOLOGY IN TRIBAL AREA OF MADHYA PRADESH

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Watershed management implies the rational utilization of land and water resources for optimum production with minimum hazard to natural resources. The concept of watershed management is essentially adoption of soil and water conservation practices in the watershed. The aims of these conservation practices are proper land use protecting land against all forms of degradation, building and maintaining soil fertility, conserving water for sustainable farm use and increasing overall productivity from all land uses. It is important that watershed management must include the social economic and institutional factors working within and outside the watershed area. All watersheds contain various types of natural resources. The key is to use these resources as efficiently as possible with minimum watershed degradation.

Water management is an ongoing, continuous process starting from the highest and ending at the lowest point of the topography. It should also be emphasized that the proposition of watershed management must not aim exclusively at benefiting the people but the biosphere in too. Moreover the watershed approach is to set an agreable and sustainable relationship between man and nature and it is always a continuous and flexible approach.

Objective of the study–To identify constraints and suggest measures for further improvement under the programme.

METHODOLOGY :

For the present study 2 villages, viz., Kalapipal and Doompada of the watershed area were selected purposely as the treatment area. The other 2 villages, viz., Mashuria and Fulgawdi of non-watershed area were selected randomly from the Jhabua tehsil to act as control non-treatment area. In respect of agro climatic conditions, these villages are more or less similar with each other.

The 45 sample cultivators included 25 small (upto 2.0 ha), 16 medium (2.1 to 4.0 ha) and 05 large (4.1 ha and above) selected randomly from the list of total cultivators in the 2 villages of watershed area, and similarly 45 cultivators including 25 small (upto 2.0 ha), 15 medium (2.1 to 4.0 ha) and 05 large (4.12 ha and above) from the list of total cultivators in the 2 villages of non-watershed area. The data was collected for the year 2001-2002.

Reasons for non-adoption of watershed technology–The watershed technology and improved farms practices have been evolved to increase the production efficiency of the area.

The watershed technology relates to soil moisture, soil testing, fertilizer doses, availability of capital, supply of labour and the availability of crop production technology etc.

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Through the investigation, the problems and constraints being faced by farmers in adopting the new farm practices, have been identified in watershed and non-watershed areas.

Watershed area–The reasons for non-adoption have been identified for the three categories of farms, by soliciting their views on adoption of specific farm practices.

Small farms indicated lack of soil moisture, lack of irrigation facilities, untimely supply of inputs, shortage of capital and inadequate rainfall as the main reasons for non-adoption of the watershed technology.

Medium farmers expressed lack of soil moisture, lack of irrigation facilities, untimely supply of inputs, non-availability of soil testing facilities, absence of approach roads and unawareness about recommended doses of fertilizer (NPK) as main reasons for non-adoption. Large farmers were more worried about the inadequate rainfall, lack of soil moisture, lack of irrigation facilities and approach road for transportation of their agricultural produce. Overall, 71 per cent sample farmers expressed lack of irrigation facilities, 80 per cent about awareness of NPK doses, 66 per cent untimely supply of inputs, 58 per cent shortage of capital, and 53 per cent about approach roads as the constraints to adoption. Only 13 per cent farms expressed the labour problems as one of the reason for non-adoption. It shows that availability of labour is not a major problem in the watershed area.

Non-watershed area–In the non-watershed area, small farms indicated lack of awareness about new technology, lack of irrigation facilities, untimely supply of inputs, non-availability of hybrid seeds, shortage of capital and unawareness about soil testing as the main reasons of non-adoption of watershed technology. Medium farmers expressed unawareness of NPK doses, untimely supply of inputs and absence of approach road as main reasons for non-adoption. Large farmers were generally concerned about non-availability of hybrid seeds, untimely supply of inputs and absence of approach roads.

Overall, 82 per cent farmers expressed untimely supply of inputs, 84 per cent unawareness about soil testing, 78 per cent unawareness of NPK doses, 66 per cent lack of irrigation facilities, 64 per cent lack of awareness about the technology and 64 per cent farmers expressed costly nature of the technology as main reason of non-adoption. Only 8 per cent farmers expressed availability of labour as a constraint. It can be concluded that the farming community in the non-watershed area was in general, not aware about the new technology and economic cropping patterns. Illiteracy, shortage of capital, and non-awareness about the improved technology were the important reasons for poor farming practices in the non-watershed area.

Recommendation and suggestions–The results and conclusions drawn from the study leads to the following recommendation:

1. Fulfil the needs of sufficient capital to the farmers by easy schemes through the banks.
2. The soil testing facilities should be available on easy way and lowest cost.
3. Approach road should be constructed to improve the financial position of the study area.
4. Should provide the new irrigation technology (drip irrigation) for economical improvement of the area.
5. Watershed technology should be transferred in the farmers fields throughdemonstrations.
6. Extension education should be made compulsory for the progress of farmers.

Table 1. Reasons for non-adoption of watershed technology

Size group	Total No.of farmres	Average holding size (ha)	Costly in nature	Inadequate rainfall	Lack of soil moisture	Non availability of soil testing facilities	Unawareness about soil testing	Lack of awareness of new techno-logy	Shortage of captal	Non-availability of hybrid seeds	Lack of irrigation facility	Labour problem	Awareness of NPK doses	Non-timely supply of inputs	Approach road
WATERSHED AREA															
I	24	0.75	08(33)	12(50)	07(29)	03(12)	12(50)	13(54)	16(66)	10(41)	18(75)	02(08)	21(87)	16(16)	10(41)
II	16	2.25	04(25)	07(44)	12(75)	09(56)	06(37)	09(56)	04(25)	12(75)	13(81)	11(68)			
III	05	4.00	–	01(20)	03(60)	05(100)	–	–	01(20)	01(20)	02(40)	–	03(60)	01(20)	03(60)
Overall	45	–	12(26)	20(44)	22(49)	15(33)	21(46)	19(42)	26(58)	15(33)	32(71)	06(13)	36(80)	30(66)	24(53)
NON-WATERSHED AREA															
I	25	0.56	13(52)	18(72)	13(52)	12(48)	23(92)	20(80)	18(72)	19(76)	21(48)	–	22(88)	22(88)	20(80)
II	15	2.00	07(46)	10(66)	06(40)	08(53)	11(73)	07(46)	06(40)	10(66)	08(53)	03(20)	10(66)	12(80)	10(66)
III	05	3.75	01(20)	03(60)	02(40)	03(60)	04(80)	02(40)	01(20)	01(20)	03(60)	01(20)	03(60)	03(60)	03(60)
Overall	45	–	21(46)	31(68)	11(24)	23(51)	38(48)	29(6)	22(25)	32(71)	30(66)	04(08)	35(78)	37(82)	33(73)

Note : Figures in parentage of total number of farmers.

Denotes : Group I (0.1 to 2 ha) small farmers, group II (2.1 to 4.0 ha) medium farmers, Group III (4.1 ha and above) large farmers.

7. The inputs should be available timely at lower rate.
8. The social welfare work should be done by Government in the villages to get ample opportunities of employment.
9. The new technology should be transferred on the farmers' field through scientists and researchers.
10. Should extend the duration of watershed programme for systematic development.
11. Should create more and more income generating group activities for the sustainability of the programme.
12. A study of water harvesting treatments and developed vegetative cover may be also assigned for further research in the area.

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