

## Impact of Watershed Development Programme in Madhya Pradesh

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### ABSTRACT

*The benefits from the Gauli Palasia Micro Watershed were assessed in terms of efficiency, employment and sustainability. It was noted that the Gauli Palasia Micro Watershed has contributed in raising income, generating employment and conserving soil and water resources. The farmers were grouped under three size-group, viz., small (less than 2.0 ha), medium (2.01-4.0 ha) and large (4.01 ha and above) farms. The data were collected by survey method during the agricultural year 2004-2005. The net income on crop production on average were calculated at Rs. 20318.69/ha, respectively in impact survey year 2004-05 as compared to Rs. 8039.80, in bench mark survey year (2000-01). The average input-output ratio of soybean, potato, wheat and gram were calculated as 1:1.93, 1:1.68, 1:2.59 and 1:2.22, respectively in impact survey year 2004-05 as compared to 1:1.54, 1:1.56, 1:1.40 and 1:1.53 in bench mark survey year (2000-01) farms. The returns on per rupee of investment of these crops were higher in impact survey year 2004-05 compared bench mark survey year (2000-01). Input-output ratio at respective levels had given the right indications that the impact of Gauli Palasia Micro Watershed was significantly higher on small, medium and large farms by growing soybean, potato, wheat and gram crops. Gauli Palasia Micro Watershed was helpful in increasing yield, income and gainful employment. The lack of effective coordination among project officials, agriculture extension department, agriculture research station and farmers near the study area is a constraint in the adoption of watershed technique.*

**Key words :** Watershed development; Economic impact of watershed

The Gauli Palasia Micro Watershed is situated in Indore district at Mhow-Kelod road, about 30 km from Indore. This area has semi-arid sub-tropical climate having a temperature range of 23° to 41°C in summer and 7° to 29°C in winter. Most of the rainfall is received during mid June to early October, with occasional showers in winter. The average annual rainfall is 980 mm. Shallow, moderately deep and deep black soils are the common soil types of the area, which are derived from basic igneous basaltic rocks.

Soil, water, vegetation, nutrients and energy are the basic natural resources needed for agricultural production. Due to ever-increasing population pressure, these natural resources are shrinking very fast. Since agricultural development is not possible on deteriorating natural base, thus, there is a need to lay emphasis on conservation and judicious utilization of these resources through adoption of sustainable management practices.

It is an established fact that conservation of natural resources and their management holds key to sustainable agriculture. In India, the conservation of soil and rainwater, the two basic resources to mankind, have been practiced since ancient times. However, there has been renewed emphasis in the recent past on

conservation of these basic resources and their efficient utilization.

The impact of this micro-watershed on different aspect of structural, operational, agricultural production, income, employment and extent of technological adoption needs to be examined. This information would lead to sound formulation of policy for upliftment of the rural communities as well as development of the villages.

### METHODOLOGY

The Gauli Palasia Micro Watershed of district Indore was selected purposively for this study. All the farmers, who were selected as respondents for the benchmark survey of this project in year 2000-01, were used for this study. The selected farmers were categorized under three groups on the basis of land holdings viz., small size group (up to 2.01 ha.) medium (2.01 to 4.01 ha.), and large (4.01 ha. and above) size of land holding. For the study the interview schedules were used for obtaining data and were compared with the data collected for the benchmark survey and from Patwari records. The secondary data for year 2000-01 were collected from the project records of benchmark survey and from Patwari records, Govt. offices.

## RESULTS AND DISCUSSION

Gauli Palasia Micro Watershed Management approach had a distinct change in the attitude of the farmers, not only in the project area but also outside the watershed. Many farmers had adopted this improved technology. It was expected that with increase in production level the socio-economic condition of the farmers would also improve considerably.

The analysis of farm structure showed that the mentioned numbers of household in different category were same as in the bench mark survey year (2000-01). In the year 2004-05 a change occurred in every size of holding in different categories of selected households. In small category of households the average size of holding decreased from 1.575 ha to 1.205 ha, where as in medium and large category households the distinct increase in land holding was noticed. It was 3.224 ha to 3.282 ha in medium category and 5.810 ha to 6.819 ha in large category households. It is because of the uneconomic size of holding possessed was sold by small farmers.

The study showed that the average intensity of cropping came to 176.84 per cent in Gauli Palasia Micro Watershed area as compared to 124.99 per cent in bench mark survey (year 2000-01) area. The average cropping intensity in Gauli Palasia Micro Watershed area was higher by 51.85 per cent than in bench mark survey year (2000-01). In the impact survey year 2004-05 the average cost of production per quintal of soybean, potato, wheat and gram were worked out at Rs.777.20, Rs.297.41, Rs.279.56 and Rs.629.68, respectively in Gauli Palasia Micro Watershed area as compared to Rs.649.65, Rs.255.53, Rs.500.00 and Rs.847.82 in bench mark survey year (2000-01) area. The average cost of production per quintal of soybean, potato, wheat and gram

worked out to be lower in impact survey year 2004-05 than in bench mark survey year (2000-01). The average net income per ha of soybean, potato, wheat and gram were worked out at Rs.13313.25, Rs.29157.48, Rs.20910.36 and Rs.17893.69, respectively in impact survey year 2004-05 as compared to Rs.6250.30, Rs.19645.19, Rs.2940.00 and Rs.3323.73 in bench mark survey year (2000-01) farms. The net income per ha of these crops were higher in impact survey year 2004-05 as compared to bench mark survey year (2000-01) farms. The average input-output ratio of soybean, potato, wheat and gram were calculated as 1:1.93, 1:1.68, 1:2.59 and 1:2.22, respectively in impact survey year 2004-05 as compared to 1:1.54, 1:1.56, 1:1.40 and 1:1.53 in bench mark survey year (2000-01) farms. The returns on per rupee of investment of these crops were higher in impact survey year 2004-05 compared bench mark survey year (2000-01) farms.

The average net income were calculated at Rs. 20318.69 ha, respectively in impact survey year 2004-05 as compared to Rs. 8039.80, in bench mark survey year (2000-01). The net income on crop production was higher in impact survey year 2004-05 as compared to bench mark survey year (2000-01). The returns on per rupee of investment on crop production were high in impact survey year 2004-05 as compared to bench mark survey year (2000-01). Input-output ratio at respective levels had given the right indications that the impact of Gauli Palasia Micro Watershed was significantly higher on small, medium and large farms. Inputs use for crop production in impact survey year 2004-05 was also higher than bench mark survey year (2000-01). These factors coupled with higher cropping intensity and better management resulted in higher gross income and net income on Gauli Palasia Micro Watershed area.

Table 1. Economics of different crops per ha on the respondent farmers of Gauli Palasia Micro Watershed (Year 2000-01 and 2004-05)

S. No.	Year	Crop	Average yield in quintal		Output (Rs.)	Input (Rs.)	Net Income (Rs.)	Cost of production per quintal (Rs.)	Cost Benefit Ratio
			Main	By-product					
1.	2000-01	Soybean	17.00	8.34	17840.63	11590.33	6250.30	649.65	1:1.54
		Potato	135.67	0.0	54313.19	34668.00	19645.19	255.53	1:1.56
		Wheat	12.73	13.58	10290.00	7350.00	2940.00	500.00	1:1.40
		Gram	6.83	6.50	9555.73	6232.00	3323.73	847.82	1:1.53
2.	2004-05	Soybean	17.44	25.81	27628.58	14315.33	13313.25	777.20	1:1.93
		Potato	144.17	0.0	72036.14	42878.66	29157.48	297.41	1:1.68
		Wheat	40.43	75.68	34034.02	13123.66	20910.36	279.56	1:2.59
		Gram	21.65	35.52	32520.69	14627.00	17893.69	629.68	1:2.22

There had been positive impact due to adoption of the Gauli Palasia Micro Watershed Programme in raising the level of income, employment and productivity of various crops in watershed area under small, medium and large farms. Gauli Palasia Micro Watershed

would have been more beneficial when all the development works (engineering structures) of the watershed were, completed. Therefore, the Gauli Palasia Micro Watershed approach may be replicated in other dryland areas for the sustained development of

agriculture and conserving the precious natural resources of the area.

## CONCLUSION

The results of the study suggested that appropriate steps needed to be taken by the farmers for rational use of cultivated land, wasteland, forests and other common property resources. Using modern inputs like high yielding varieties, chemical fertilizers, irrigation and plant protection measures, etc., increased the productivity of crops. The

co-ordination of farmers and government functionaries, land development activities were some of the measures for improving the Gauli Palasia Micro Watershed. Better co-ordination between development agencies and voluntary organizations is also essential for effective implementation of watershed programme. The lack of effective co ordination among project officials, agriculture extension department, agriculture research station and farmers near the study area is a constraint in the adoption of watershed technique.

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