

# **POVERTY ERADICATION THROUGH SUSTAINABLE MANAGEMENT OF WATERSHEDS IN LAKHISARAI DISTRICT OF BIHAR: AN ANALYSIS**

Sanjay Kumar Jha<sup>1</sup>

**Abstract:** *The study was initiated during 2015 with the objective to find out effective extension methods for dissemination of technologies for watershed development for poverty eradication. Frequency use and effectiveness indices alongwith structured schedules were developed to assess and evaluate different extension methods. The study revealed that majority of farmers were using radio and television more frequently for information on different agricultural and related technologies. It was also found that the most effective extension methods as perceived by farmers for dissemination of technologies were farm and home visit in individual contact, discussion meeting and result demonstration in group contact and film show in mass contact. Whereas, according to officers of watershed development team and extension scientists the highly effective extension methods were farm and home visit in individual contact methods, result demonstration, study tour, lecture and discussion meeting in group contact methods and they considered none of extension method highly effective in mass contact methods. The study concludes that most effective extension methods as perceived by both, the farmers and officers were, farm and home visit in individual contact, result demonstration in group contact and bulletin as well as documentary film show in mass contact methods, for effective dissemination of soil and water conservation technologies for watershed development.*

**Keywords:** *Poverty Eradication, Extension methods, Soil and Water Conservation (SWC) technologies, Watershed Development.*

## **INTRODUCTION**

Watershed is not technology but a concept which integrates conservation, management and budgeting of rainwater through simple but discrete hydrological units. Simultaneously, a watershed supports a holistic framework which means a combined application of technologies on soil and water conservation with improved crop varieties, farming systems and agronomic management, taking into account both arable

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<sup>1</sup> Associate Professor, Dept. of Economics, T.N.B. College, Bhagalpur. Pin - 812007

and non-farm land. Soil and water conservation (SWC) technologies developed for sustainable development of watershed catchment area were considered as watershed technologies in this study.

Extension methods play a vital role in transfer of innovations from research farm to farmer's fields. Selection of extension method should be according to farmer's knowledge, understanding and their conditions. Extension methods help farmers to understand, accept and adopt the technologies easily. Soil and water conservation technologies should be provided to the farmers in simpler and easy form with the help of different extension methods or combination of methods so that farmers can understand and adopt SWC technologies easily. This study would help to identify the effective extension methods for dissemination of soil and water conservation technologies. With this aim, the main objective was framed to investigate the effectiveness of individual group and mass contact methods for dissemination of soil and water conservation technologies for watershed development.

### **STUDY AREA**

The study has been conducted in Lakhisarai District of Bihar. The district lies between 24°58<sup>1</sup> to 25°20<sup>1</sup> north latitudes and 85°53<sup>1</sup> to 86°26<sup>1</sup> east longitudes. The district covers a total area of 1229 sq. km. The climate of this district is on the whole dry, hot in summer and cold in winter. The temperature in the district starts increasing from the beginning of March till May, which is generally the hottest month. After October, both day and night temperature decreases rapidly. January is usually the coldest month.

Lakhisarai district contains Kiul, Harohar, Garkhi river and so many canals. Kiul river flows from north to south through the district where Harohar River flows from west to east.

### **Methodology**

The study was conducted during Jan, 2015-Dec, 2015 in the watersheds of Lakhisarai district of Bihar. The farmer respondents were selected randomly from the watersheds of Lakhisarai district and the staff respondents from the watershed development departments. A schedule was developed and pre-testing of schedule was done. The responses of the respondents were recorded in the schedule with the help of personal interview method. Total respondents were 110 comprising 80 farmers, 20 officials and 10 extension scientists. Data collection was done by personal interview method through structured schedule.

### **RESULTS AND DISCUSSION**

It was observed that none of extension methods was found for high level of intensity of index value. The moderate level frequency use intensity index values 3.41 and 3.34

were observed for radio and television, respectively. The low level intensity index value were computed for documentary film show, exhibition, study tour, result demonstration and method demonstration.

**Table 1**  
**Frequency of use of different extension methods as perceived by Farmers**

Extension Methods	Frequency of Use of Extension Methods (%)					
	Sometime in a year	Monthly once in a week	Weekly	More than	Daily	Effective Intensity Index
<i>Individual Contact Methods</i>						
1. Farm and home visit	3125	65.0	3.75	0	0	1.72
<i>Group Contact Methods</i>						
2. Result demonstration	63.75	3.75	0	0	0	0.71
3. Methods demonstration	46.25	0	4.8	0	0	0.73
4. Lecture	40.0	10.0	6.25	7.50	0	0.82
5. Discussion	53.75	35.0	0	5.0	0	1.67
6. Study tour	83.75	10.0	0	0	0	0.53
<i>Mass Contact Methods</i>						
7. Bulletin	40.0	20.0	15.0	0	0	1.25
8. Leaflet	20.0	22.22	16.25	3.75	0	0.128
9. Newspaper	23.75	36.25	21.25	5.0	7.5	2.17
10. Radio	2.5	11.25	35.0	26.25	21.25	3.41
11. Television	0	7.5	35.5	21.25	27.50	3.34
12. Exhibition	36.25	5.0	0	0	0	0.46
13. Documentary film show	40.0	0	0	0	0	0.40

Effectiveness Intensity Index (EII) was computed for different extension methods. As perceived by farmers, high level of effectiveness index value was measured as 2.76 for farm and home visit in individual contact methods. The high level effectiveness intensity indices were also calculated as 2.71, 2.750 and 2.51 for discussion, result demonstration and lectures, respectively in the category of group contact extension methods. In mass contact extension methods, the high level of effectiveness intensity indices were calculated as 2.66, 2.56 and 2.55 towards documentary film show, exhibition and bulletin, respectively.

Table 2 revealed that the high effectiveness intensity index value (2.76) was recorded for 'farm and home visit' method among all the three kinds of extension methods by farmers. The less effective extension methods, as perceived by farmers, were method demonstration, leaflet and newspaper with moderate effectiveness intensity index values as 2.03, 2.06 and 2.13, respectively. The most effective extension methods as perceived by farmers for dissemination of SWC technologies were farm and home visit in individual contact, discussion and result demonstration in group contact and film show in mass contact.

**Table 2**  
**Effectiveness Intensity indices (EII) of different extension methods as perceived by farmers (N = 80)**

Extension Methods	Effectiveness of Extension Methods (%)			Effectiveness Intensity Index
	Less Effective	Effective	More Effective	
<i>Individual Contact Methods</i>				
1. Farm and home visit	7.5	8.75	83.75	2.76
<i>Group Contact Methods</i>				
2. Result demonstration	8.75	12.25	78.75	2.70
3. Methods demonstration	33.75	28.75	37.50	2.03
4. Lecture	13.75	21.25	65.0	2.51
5. Discussion	1.25	26.25	72.50	2.71
6. Study tour	6.25	41.25	52.50	2.46
<i>Mass Contact Methods</i>				
7. Bulletin	10.0	25.0	65.0	2.55
8. Leaflet	33.75	26.25	40.0	2.06
9. Newspaper	28.75	28.75	42.50	2.13
10. Radio	20.0	31.25	48.75	2.28
11. Television	10.0	30.0	60.0	2.50
12. Exhibition	12.50	11.25	73.75	2.56
13. Documentary film show	10.0	13.75	76.25	2.66

Table 3 shows the Effectiveness Intensity Indices (EII) of different extension methods as perceived by officers of watershed development team and extension personnel. The high value of effectiveness intensity indices were recorded for farm and home visit (individual contact method), result demonstration, study tour, lecture and discussion (group contact methods) with EII values as 2.86, 2.70, 2.66, 2.60 and 2.40, respectively. Officers from among all three kinds of extension methods, considered farm and home visit method as the highly effective extension method with highest index value 2.86. None of mass contact methods could score for high effectiveness intensity category. The moderate effective extension methods as perceived by officers was methods demonstration (EII-2.20), in group contact and in mass contact methods were bulletin (EII-2.23), documentary film show (EII-2.13), television (EII-2.10), exhibition (EII-2.06), leaflet (EII-1.90), newspaper (EII-1.86) and radio with low intensity index score of 1.63. It was found out that according to officers the most effective extension methods for dissemination of soil and water conservation technologies were farm and home visit, result demonstration, study tour and lecture.

## CONCLUSION

The study concluded that the most effective extension methods as perceived by farmers as well as officers were farm and home visit in individual contact, result demonstration in group contact and bulletin as well as documentary film show in mass contact

**Table 3**  
**Effectiveness Intensity Indices (EII) of different extension methods as perceived by staff of watershed development organisations and extension scientists (N = 30)**

Extension Methods	Effectiveness of Extension Methods (%)			Effectiveness Intensity Index
	Less Effective	Effective	More Effective	
<i>Individual Contact Methods</i>				
1. Farm and home visit	and	4	26	2.86
<i>Group Contact Methods</i>				
2. Result demonstration	and	9	21	2.70
3. Methods demonstration	3	18	9	2.20
4. Lecture	and	12	18	2.60
5. Discussion	6	6	18	2.40
6. Study tour	2	6	22	2.66
<i>Mass Contact Methods</i>				
7. Bulletin	8	7	15	2.23
8. Leaflet	9	15	6	1.90
9. Newspaper	9	16	5	1.86
10. Radio	14	13	3	1.63
11. Television	7	13	10	2.10
12. Exhibition	5	18	7	2.06
13. Documentary film show	9	8	13	2.13

methods. Moreover, the farm and home visit extension method was considered most effective extension method among all the three kinds of extension methods for dissemination of SWC technologies. It might be due to the reason that the farms and home visit method involves face to face contact of individual farmer with extension officer in the field or watershed situation.

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