Constraints analysis of watershed development programme perceived by respondents

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ABSTRACT : Constraints analysis is very important to make success the watershed development programme. The present study was conducted in Panchkula district of Haryana to find out the constraints analysis of watershed development programme perceived by respondents**.** There are number of constraints associated with the implementation of watershed development programme. An attempt has been made to document constraints of different nature *viz.*, social constraints, economic constraints, supervision and guidance, constraints related to supply and constraints of field worker. A total of two hundred forty farmers of 8 villages were interviewed personally and a group discussion was also conducted in the present study. A questionnaire was prepared for collection of needful information. Social constraints have been conceptualized as the constraints related with the social systems and social domains. It has been found that caste structure of the village discourage the execution of the some activities were perceived as the constraints number one, as it obtained highest percentage (89.58%) with first rank.The findings reveal that, biased attitude of the officers involved in the project and official staff cannot solve non-technical problems of farmers were the priority constraints of the watershed beneficiaries which was expressed by all the respondents (100 %). The findings also indicate a need for closer co-operation and regular contact among beneficiates and officials.

Key Words : Constraints analysis, Recommended practices, Watershed management

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Man and his environment are interdependent. The changes in the environment directly affect the lives of the people depending on it. A degraded environment means a degraded quality of life of the people. Watershed management in the broader sense is informed by an undertaking to maintain the equilibrium between elements of the natural eco-system or vegetation, land or water on the one hand and human activities on the other hand. Water and land are the most vital natural resources of the nation and these are under tremendous stress due to ever increasing biotic pressure. India out of the total geographical area 329 million ha, 143 million ha is under cultivation and 108 million ha area is rainfed (75%). Rainfed agriculture contributes about 44 per cent of the total food grain production in the country and supports 40 per cent of the population. Bulk of pulses, oil seeds, millets, coarse grains and commercial crops like cotton and ground nut etc. are rainfed crops. Thus, dry land holds great prospect of contributing substantially to country's food production and unless the production from these areas increases, the real breakthrough in agriculture may not be possible. Impact is essential not only for sustainable development but for human survival.

M.S. Swami Nathan Research Foundation (MSSRF) Chennai, pointed out that. "The Punjab which is India's granary today will become food insecure in 20-50 years in future, if the present unsustainable land and water use practices continues". The international food policy research institute, Washington, opined, 'with the rising demand for food in the coming decades that India will depend on the rain fed area to help increase supply." Thus, rain fed areas need to be attended with the watershed development programme (WDP) is a step in this direction. The common characteristics of rainfed areas are low and erratic rainfall, inadequate concentration of moisture, soil erosion and degradation of soil fertility, deforestation and ecosystem imbalance in addition to low income and low purchasing capacity of the farmers. Natural resources *viz.,* soil and water need to be conserved, developed and utilized efficiently due to ever depleting ground water

which is the only feasible solution for conserving fresh water. The water tables are not getting recharged due to more run off (approximately 46 per cent of the annual precipitation) during the monsoon season which lasts only for three months from (July-September). Since more than 80 per cent of the annual rainfall is received in a shorter span of three months, it becomes rather impossible to check this runoff water. Thus, there is need to manage this running water so as to use it for irrigation and other productive purpose. There is a vast potential to prevent rain water from moving down into the streams and rivers and ultimately into the sea. Efforts are continuously being made in this direction to conserve rain water. The water harvested during the rainy season can be used for one or two supplementary irrigations for the *Rabi* crops. This practice is important, both for recharging the ground water and for irrigation purposes. Even fisheries can be promoted in this harvested rainwater. Runoff collection and recycling, inter terrace land management, farm ponds, percolation tanks, check dams and agro-forestry have been found efficacious in increasing production and productivity of these lands. This could further be made attractive to dry land farmers by integrating animal husbandry with crop production and providing subsidiary income generating activities. To integrate all these activities there is a greater need to develop dry land areas on watershed basis. Conceptually watershed is defined as "a geographical area that drains to a common point". Watershed management is a holistic approach, which aims at optimizing the use of land, water and vegetation in an area, to alleviate drought, moderate floods, prevent soil erosion, improve water availability and increase fuel, fodder and agricultural production on sustained basis.

Watershed development is aimed at conservation of natural resources and maintaining the ecology of the area by using the simple soil and water conservation techniques. In other words, watershed management is overall development of particular region including water conservation, maintaining soil fertility, pasture land, agriculture, horticulture, forestry and allied aspects.

The concept of efficient management of soil and water on watershed basis was adopted for the drought prone areas programme, which was started in 1974-75 by the government of India in 74 districts of the country. Later in 1994-95, focuses on participatory and decentralized process of planning and implementation of watershed project, the Government of India made guidelines for watershed management. Villagers were empowered to implement watershed project. Forming watershed association and committees at the village level. Voluntary agencies, government departments and research institutes were involved in participatory watershed projects in groups of villages. The role of these organizations, project implementation agencies were to motivate and provide technical guidance and management inputs to villagers for participatory watershed.

In eighties, several International Agencies (e.g. World Bank, Indo-British programme, later DANIDA and Indo-German Programme), several voluntary agencies (e.g. AghaKhan, MYRADA, BAIF) enterprising individuals (e.g. Salunke and Anna Hazare) and some governmental institutions (NARS) started integrating crop, soil and water components for working on an area or community basis. The area approach was primarily on the watershed basis, as suggested earlier by Swami Nathan. A watershed is a hydrological unit where from surplus run-off water was collected through a common point. It has no geographical limits. Based on the experiences gained during the early eighties, the Ministry of Agriculture, Govt. of India, launched a programme in the year 1986 known as National Watershed Development Programme for rainfed areas (NWDPRA), in 99 blocks of 16 states, covering 3000-5000 ha in each block. Under this scheme, identified micro watershed is taken up for intensive development through group of respondents. Looking to the need of the farmers for watershed resources, a study was conducted to assess the constraints analysis of respondents.

RESEARCH PROCEDURE

The present study was conducted in Raipurani block of Panchkula district of Haryana state, because of the fact that maximum area of the district was covered under watershed development programme. Total 8 villages were purposively selected for the present study. A list of beneficiaries was obtained village wise from district head office and 10 per cent from each village were selected randomly. Proportionate random sampling procedure was followed for the selection of respondents. Thus, a total of 240 farmers (beneficiaries) constituted the sample of the study. Keeping in view objective of the study, data were collected using structured interview schedule prepared for the purpose. Statistical tool such as frequently, percentage and correlation were employed to analyze the data.

RESEARCH ANALYSIS AND REASONING

There are number of constraints associated with the implementation of watershed development programme. An attempt has been made to document constraints of different nature *viz.*, social constraints, economic constraints, supervision and guidance, constraints related to supply and constraints of field worker.

Constraints associated with the social status:

Social constraints have been conceptualized as the constraints related with the social systems and social domains. It has been found that caste structure of the village discourage the execution of the some activities were perceived as the

Table 1 : Distribution of respondents based on constraints faced by				
Sr. No.	Constraints	Frequency	Percentage	Rank order
Social constraints				
1.	Illiteracy	39	16.25	V
2.	Caste feeling in village	22	9.16	VI
3.	Lack of awareness	185	77.00	IV
4.	Caste structure of the village discouraged the execution some activities.	215	89.58	I
5.	Outlook of village leadership restricted the social growth	192	80.00	II
6.	Present generation not interested in agriculture work.	191	79.58	III
Economic constraint				
1.	Due to financial problem not participated in any programme.	216	90.00	I
2.	Unavailability of efficient man power	96	40.00	IV
3.	Corruption in loan sanction	180	75.00	III
4.	Budgetary provision for various watershed activities was not discussed before beneficiaries.	205	85.41	II
Supervision and guidance				
1.	Lack of technical supervision in the operation of occupation	217	90.41	III
2.	Lack of guidance due to non availability of staff at the time of farmers need	215	89.52	IV
3.	Lack of co-ordination by supporting staff.	143	59.52	VI
4.	Indifferent behavior of the administration.	189	78.75	V
5.	Training place and meeting place not convenient.	110	45.83	VIII
6.	Message is not proper communicate officer and field staff.	138	57.5	VII
7.	Lack of poor evaluation of the work done by various extension agencies	217	90.47	II
8.	Out dated knowledge of the team specialists	143	59.52	VI
9.	Biased attitude of the officers involved in the project	240	100.00	I
10.	Official staff cannot solve non technical problems.	240	100.00	I
Constraints related to supply and services				
1.	Inadequate and untimely supply of inputs	240	100.00	I
2.	Lack of irrigation facility	192	80.00	III
3.	Plant protection measures	215	89.52	II
4.	Unavailability of timely labour	191	79.52	IV
5.	Higher costs of farm inputs and less prices of farm products	240	100.00	I
6.	Marketing problems	166	69.04	V
	Unavailability of new farm machineries	142	59.04	VI
Constraints of field worker				
1.	Political interference	209	87.08	II
2.	Behavior of respondent with field functionaries was not satisfactory.	177	73.75	VI
3.	Many problem faced by field staff due to anti group of village.	207	86.25	III
4.	Lack of communication between officer and field staff.	193	80.41	IV
5.	Not allow incentive facilities to the worker.	235	97.91	I
6.	Lack of authoritative control over subordinate staff.	182	75.83	V

constraints number one, as it obtained highest percentage (89.58 %) with first rank. This was followed by outlook of village leadership restricted the social growth rate ranked second with 80 per cent. Present generation not interested in agricultural work ranked third with 79.58 per cent etc. among other constraints *viz.,* lack of awareness, illiteracy, caste feeling etc. were also observed during the study.

Economic constraints:

Economic constraints conceptualized as the constraints related with economic system. It was found that due to financial problems they could not participated in any programme which was recorded as the constraints number one, with first rank. This was followed by budgetary provision for various water shed activities which ranked second with 85.41 per cent. Corruption for loan sanction ranked third with 75 per cent unavailability of efficient man power was also observed.

Constraints associated with the supervision and guidance:

The findings reveal that, biased attitude of the officers involved in the project and official staff cannot solve non-technical problems of farmers were the priority constraints of the watershed beneficiaries which was expressed by all the respondents (100 %).

Lack of technical supervision and lack of poor evaluation of the work done by various extension agencies (90.41%) ranked second, lack of guidance due to non availability of staff at the time of farmers need ranked third with 89.58 per cent. Lack of coordination by supporting staff with 80.00 per cent ranked forth, and out dated knowledge of the specialists (59.58 %) ranked fifth. The finding further reveals that various constraints which were associated with the supervision and guidance necessary action is required to be taken so as to facilitate timely supervision and regular guidance to the watershed beneficiaries. The findings also indicate a need for closer co-operation and regular contact among beneficiates and officials.

Constraints associated with the supply and services:

The beneficiaries of watershed perceived inadequate and untimely supply of inputs and higher cost of farm inputs and less process of form products as the top most constraints expressed by 100 per cent beneficiaries. The lack of plant protection measures ranked second with 89.58 per cent unavailability of timely labour ranked third with 80.41 per cent in lack of irrigation facility with 80.00 per cent ranked fourth, financial problem with 79.58 per cent ranked fifth, Marketing problems ranked sixth with 69.16 per cent, unavailability of new farm machineries ranked seventh with 59.16 per cent.

Though, these constraints do not seem to directly affect the watershed development programme, but in the constraints

cause real difficulty hampering project implementation.

Constraints of field worker:

The findings reveal that proper incentive facility to the worker was the priority constraints of the watershed which was expressed by 97.91 per cent beneficiaries.

Political interference, most of the beneficiaries (87.08%) expressed great constraints; many problems were faced by field staff due to anti group of villagers (86.25%) which ranked third. (80.41%) stated that lack of communication between officer and field staff, lack of authorities control on also hinders in the success of the programme. Subordinate staff with 75.83 per cent ranked fifth and behaviour of respondent with field functionaries was not satisfactory which was expressed by 73.75 per cent ranked sixth. The finding reveals various constraints which were associated with the constraints of field worker.

Table 2: Relationship between independent variables with constraints faced by respondents in watershed development programme		
Sr. No.	Independent variables	'r' values
1.	Age	0.163 (*)
2.	Caste	-0.261 (**)
3.	Education status	-0.261 (**)
4.	Source of Irrigation	-0.359 (**)
5.	Land holding	-0.056
6.	Family type	0.567 (**)
7.	Family size	0.141 (*)
8.	Housing pattern	0.128
9.	Material possession	-0.039
10.	Social participation	-0.005
11.	Mass media exposure	-0.015
12.	Annual income	-0.203 (**)
13.	Risk orientation	-0.031
14.	Economic motivation	0.698 (**)
15.	Value orientation	0.154 (*)
16.	Scientific orientation	-0.108

* and ** indicate significance of values at P=0.05 and 0.01, respectively

Thus, it can be inferred that out of 16 independent variables 9 variables *i.e.*, age, education status, source of irrigation, land holding, caste, family size, annual income, economic motivation and value orientation exert their influence significantly on constraints faced by them in watershed development programme.

The data presented in Table 3 indicates that these independent variables would account for a highly significant amount of variation in the constraints faced by respondents in the watershed practices from the above observation 't' test of significance indicate that the regression (β-values) are value

Table 3: Multiple regressions with selected independent variables related to constraint faced by respondents in watershed development programme

Sr. No.	Variables	Std. error	ß values	't' values
1.	Age	0.13	0.211	5.966**
2.	Education	0.40	-0.093	-3.912
3.	Source of Irrigation	0.53	-0.221	-11.031
4.	Land holding	0.209	0.061	1.420**
5.	Material possession	0.076	-0.967	35.231**
6.	Mass media exposure	0.027	-1.843	-28.109
7.	Social participation	0.022	0.003	0.271
8.	Annual income	0.052	-0.001	-0.054
9.	Economic motivation	0.142	1.337	58.459**
10.	Value orientation	0.137	-0.345	-11.618
11.	Scientific orientation	0.054	0.883	33.806**

$R^2 = 0.974$, F value = 611.533, *and** indicate significance of values at P=0.05 and 0.01, respectively

were found to be significant for age, land holding, material possession, economic motivation and scientific orientation those explained that the utilization of these parameters with full certainty in making sound strategies of watershed development plan be highly effective. It can therefore be concluded that these variables have definite role to play in affecting level of awareness about watershed development programme. The remaining variables under this study were not affecting the constraints faced by respondents in the watershed development programme.

Conclusion:

The findings of study has been found that caste structure of the village discourage the execution of the some activities were perceived as the constraints number one, as it obtained highest percentage (89.58%) with first rank. Hence, independent variables were positively and significantly related with the constraints faced by them in watershed development programme. The result of the study revealed that, the WDP has made significant effectiveness due to enhance favourable attitude of the officers involved in the project and official staff solve non-technical problems of farmers were the priority constraints of the watershed beneficiaries. The findings also indicate a need for closer co-operation and regular contact among beneficiates and technical staff. Hence, the implementation of WDP needs to be continued and extended in other needy areas.

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