

Chapter 8

Summary and Conclusion

The final chapter i.e. summary and conclusion discussed the findings of the present study and use them as a basis for the formulation of number of conclusions and recommendations. It begins with a brief summary of the context, objectives and methodologies used in the study work followed by the process of data collection and measurement models of the research constructs. The major findings in relation to the stated research objectives also summarised and concluded. A number of theoretical, methodological and practical implications for implementation of the Watershed Development Programmes are also discussed in this chapter. Like most research studies, the present investigation has its limitations which are also discussed. Several recommendations are also outlined for further research towards effective implementation of the Watershed Development Programme.

7.1: Summary

7.1.1: Background

The Ministry of Rural Development, Government of India has launched a new initiative in 1994-95 incorporating the essential elements of all the Watershed Development Programme implemented in the past. The Planning Commission prepared a 25 years' perspective plan in 1997 highlighting the resource base and development potential of rainfed areas in different agro-climatic zones of the country. The basic approach was to accelerate the pace of progress by involving the watershed people as Government cannot finance the entire requirement for treatment of the

total watershed areas. Alleviation of poverty was the main objective of the Watershed Development Programme. Accordingly the State Level Nodal Agency constituted by the State Government prepared a perspective and strategic plan of watershed for the State.

Watershed management is necessary to protect, conserve and improve the land resource for efficient and sustain production, to protect and enhance water resource, moderate floods and reduce silting of tanks, conserve rain water as well as increase irrigation to crops. The programme aims to mitigate draught as well as utilise the natural resources at optimum level for improving agriculture and allied occupations to improve the socio-economic conditions of the local residents. It goes beyond doubt that significant attempts have been made in watershed activities in terms of research and technology transfer since independence with enormous improvements and great achievements. But, the progress is not yet independent of problems or hazards in the path of watershed development and management which is of complex and dimensional. Participatory Watershed Development Programme in Odisha began after the introduction of revised watershed guideline of 2001 developed by the Ministry of Rural Development and “Janasahabhagita” guideline of Ministry of Agriculture, Government of India.

7.1.2: Research Problem

The Watershed Development Programme is purely based on the concept of bottom-up planning with single window, integrated, participatory and sustainable area development programme. The people of the watershed area develop their own programme and utilise funds in implementation of the approved programme. Moreover, tribal people have large experience on watershed activities due to their geographical locations and implementation of soil and water conservation activities through earlier watershed programmes. It is therefore apprehended that Watershed Development Programme will definitely bring an impact on the socio-economic development of the tribal people. With this hypothesis in view, a research study entitled “Impact of Watershed Development Programme on socio-economic upliftment of tribal people in Western Undulating Zone, Odisha” was carried out.

7.1.3: Research objective

The aim of the study was to develop a strategy for effective implementation of the Watershed Development Programme resulting socio-economic upliftment of the tribal people. The specific research objectives framed for the study are as follows.

- i) To study the personal, social and economic characteristics of the respondents living in the watershed area
- ii) To assess the knowledge and perception level of the tribal people about functioning of Watershed Development Programme
- iii) To analyse the extent of involvement of tribal people in the process of the Watershed Development Programme
- iv) To study the role of stakeholders associated with Watershed Development Programme extending support towards upliftment of tribal people
- v) To study the change in terms of material possession, technological adoption, cropping pattern, income and above all socio-economic status due to implementation of the programme
- vi) To analyse the constraints impeding successful implementation of the programme and the remedial measures suggested to combat them
- vii) To suggest some ameliorative measures based on the findings for effective implementation of the programme and development of the tribal people

7.1.4: Research methodology

The study was conducted using survey research design incorporating correlational and causal analysis of the factors. Western Undulating Agro-climatic Zone in Odisha was selected purposively for the study as the zone comprises all the two tribal dominated districts. The tribal farmers involved in the implementation of Watershed Development Programme were chosen as the respondents for the study. The data was collected personally through an interview schedule specifically designed as per the objectives of the study.

7.1.4.1: Development of interview schedule

A large pool of representative questionnaire items were collected through discussion with Watershed Development Project officials, tribal farmers, field extension functionaries and also referring past studies. Various factors/variables associated with implementation of Watershed Development Programmes were identified and grouped into three categories namely personal, organisational and external factors. Personal factors includes age, education, type of family and size, social participation, cosmopolitaness, communication materials used, extension contact, house type, holding size, source of irrigation, possession of agricultural implements and livestock, occupation, annual income, social, economic and scientific aptitudes.

The organisational factors include community organisation, institutional arrangements, programme formulation and implementation, funding pattern, monitoring and evaluation, functioning of watershed association, use and maintenance of assets. External factors studied were watershed programme initiation, involvement of the project personnel, guideline, objectives, sources of information, decision making process and linkage with related stakeholders along with constraints faced and remedial measures to combat them. Selected items were edited precisely for easy understanding of the respondents. The schedule was pretested with 50 identical tribal farmers and modifications were made based on their suggestions. The schedule was further tested as pilot testing with 50 non-sample respondents of the study area to assess its reliability and validity. The data was collected from 192 tribal farmers i.e. 96 each from Kalahandi and Nuapada district. The collected data were analysed through descriptive statistics such as percentage, mean score, rank order, gap percentage, correlation coefficient, multiple regression, stepwise regression, rank order correlation and path analysis.

7.1.5: Key research findings

7.1.5.1: Socio-economic profile of the respondents

- Majority of 58.85% of the respondents were in the age group of 36 to 55 years with varied level of education.

- Majority of 67.19% of the respondents had nuclear family and 62.50% had family members more than five.
- Very poor membership and participation in social organisations of the respondents were observed along with limited cosmopolite behaviour. Similarly, the respondents of both the district had not participated in the seminars, workshop, exhibitions etc. Very poor use of farm literatures and personal contact with extension functionaries were also observed.
- Significant gap of 46.67% with field level extension functionaries indicate that the respondents had poor contact with extension agents.
- Majority of the respondents in both the districts were residing in thatched to semi-pucca houses. At the same time, majority of the respondents were marginal to small farmers with holding size within 2.0 ha.
- Limited percentage of the respondents had irrigation facilities particularly open well, dug well, natural stream and reservoir. Farm mechanisation status of the respondents were not satisfactory and limited only with spade, country plough, iron plough, sprayer.
- Majority of the respondents in both the districts had draught animals, poultry and goatery. However of 57.29% respondents in Kalahandi district had milch animals.
- Farming was the major occupation although some of the respondents had poultry, goatery and milch animals. Majority of 78.13% of the respondents had average annual family income within Rs.50, 000.00 out of which 36.46% within to Rs 25,000.00 per annum.
- Although poor social aptitude observed, the respondents had better aptitude of maintaining social relations and adhering to social norms. The respondents had poor perception towards economic and scientific aptitudes.

- Regarding categorisation of socio-economic status, majority of the respondents in both Nuaapada and Kalahandi districts were relatively medium socio-economic status followed by around 17.00% both of low and high status.
- The covariance analysis revealed the variability in the socio-economic attributes of the respondents. However, education, cosmopolitaness, use of communication materials, extension contact, type of house, possession of farm implements, holding size and annual income had significant associations among themselves which may be taken in to consideration for effective implementation of the Watershed Development Programme.

7.1.5.2: Knowledge and perception about Watershed Development Programme

- The respondents were not sufficiently aware about initiation of the Watershed Development Programme in the district. Majority (25.00%) of the respondents had aware about implementation of the programme since last three years i.e. 2011-12 only. The respondents were getting information mostly from the Watershed Development Team members, Volunteers, Watershed Committee and Association.
- The respondents of both the district had opined favorably for the involvement of Watershed Development Team members, Volunteers, President and Watershed Committee members. Poor opinions were observed for the involvement of District Watershed Advisory Committee members and Project Implementation Agency.
- Poor knowledge was observed on institutional arrangements particularly on priority analysis, volunteers employed with common agreement, beneficiary contribution in each activity, capacity building on community organisation as well as Project Implementation Agency and Watershed Development Team members to guide sufficiently.
- The respondents of both the districts had poor knowledge about regular meeting of the association, approval of accounts, monitor

and review progress as well as contribution to development fund. Significant gaps were also observed on maintenance of accounts by watershed Secretary, development fund to be used in post project activities, Watershed Committee formed with common decisions and mandatory contribution of the member towards Watershed Development Fund.

- The respondents had good knowledge about objectives of the programme particularly on conservation of soil and water, restoration of ecological balance, management of adverse situation and employment generation. But, they had poor knowledge on optimum use of available resources, more attention towards poverty alleviation and empowerment of people as laid in the objectives of the programme which needs further exposure.
- Regarding operational procedure, respondents had poor knowledge on transparency in implementation, adequate programme for the resource poor, well defined role of different institutions, greater role of farm women, programme specificity and flexibility in implementation.
- Considerable gaps were observed on knowledge about programme development i.e. problem diagnosis, programme formulation, participatory decisions in programming on Government land, adequate programme for each family, renovation of water resources, repair, restoration and upgradation of community assets as well as conservation of soil and moisture.
- Though the respondents had some degree of knowledge on programme implementation, further exposure are required for their clear understanding so that each family to implement their own programme, technical expertise by Watershed Development Team members, immediate action on field problems, timely monitoring of the progress, close supervision, timely use of inputs and materials as well as regular review of progress.
- The respondents of both Nuapada and Kalahandi districts were not properly understood the funding pattern of the project. They

require further exposure to enrich their knowledge about aspects like adequate funds for developmental activities, funds for community organisation and capacity building, freedom to people in fund utilisation, compulsory contribution to development fund, revolving fund for SHG activities and well defined procedure in fund utilisation.

- Regarding monitoring and evaluation, comparatively poor knowledge were observed towards documentation of each activities, immediate action on problems and difficulties at field situations, participatory evaluation of progress, close supervision of each activities, timely technical guidance, raising development fund, record maintenance and regular meeting by Watershed Development Team members.
- Comparative analysis revealed that the respondents of both the districts had significant deficiencies on knowledge about institutional arrangements, community organisation, objective, operational procedure, funding pattern, programme development and implementation as well as monitoring and evaluation.
- Comparatively poor knowledge was observed on adequate funds for developmental activities, sufficient training for community organisation, emphasis on indigenous knowledge, transparency in implementation, adequate programme for each family, participatory evaluation of progress, solving problems and difficulties by the association, adequate fund for capacity building, documentation of each activity, association approve accounts, monitor and review progress, optimum use of available resources, more attention towards poverty alleviation, volunteers employed on common agreement, regular meeting of the association, freedom to people in fund utilisation, well defined role of different institutions, timely technical guidance, revolving fund for SHG activities, immediate action on field problems, regular review of progress, greater role of farm women, timely use of inputs and materials.

- Correlation coefficient, multiple regressions, stepwise regression and path analysis revealed that education, extension contact, holding size, occupation and use of communication materials exhibited positive influence in accelerating knowledge level of the respondents towards effective implementation of the Watershed Development Programme.

7.1.5.3: Involvement in implementation of the programme

- The respondents of both Nuapada and Kalahandi districts were better involved in agro-ecological survey, problem identification and to some extent in programme formulation as well as implementation. Poor involvement was observed on fund utilisation and evaluation of the progress.
- Poor opinions were observed from the respondents on implementation of the watershed programme particularly on purchase of inputs, fund utilisation, programme development and implementation as well as giving suggestions. The respondents were however involved in use of created assets.
- The respondents had poor opinion towards their involvement in decision making process particularly on selection of farmer's representatives, selection of farmers for training, fund utilisation, constraint analysis and programme implementation.
- The respondents were not much involved in assessing interventions, programming in Government land, preparing consolidated watershed plan, problem prioritisation and problem diagnosis under programme formulation. Better responses were observed on their involvement in assessing needs and developing own programme.
- Regarding programme implementation, poor involvements were observed on arranging inputs, reviewing the progress time to time, evaluation of the programme, record maintenance and discussion on post project activities.

- The respondents of both the districts had poor opinion about their involvement in fund utilisation. Significant gaps were observed on placing demand for fund release, purchasing required inputs and materials, utilisation of development fund, mode of repayment of loan and availing credit, sending expenditure statements and maintaining accounts as well as utilising the money properly. However, better involvements were observed on contribution to development fund.
- The respondents had also poor involvement on various aspects of monitoring and evaluation covered under study. Significant percentage of gaps were observed on evaluating progress of work (60.50%), record maintenance (60.00%), arrangement of additional inputs (68.50%), introduction of new technologies (54.50%), giving suggestions (52.50%) and consultation with Watershed Development Team members (47.50%).
- Comparative analysis of the involvement revealed that the respondents were not adequately involved in watershed activities, decision making process, programme formulation and implementation, fund utilisation, monitoring and evaluation.
- Comparatively poor involvement was observed on refinement and modification of programmes, utilisation of development fund, purchasing required inputs and materials, arrangements of additional inputs, placing demand for fund release, timely reporting the progress of work, discussion on post project activities, evaluating progress of work, record maintenance, conflict management, mode of repayment of loan, sending expenditure statement, introduction of new technologies, assessing interventions, availing credit, programming in Government land, giving suggestions, planning for crop diversification, arranging required inputs and maintaining accounts.
- The best fitted regression equation could explain 68.0 % of the total variance of the socio-economic variables influencing involvement of the people in the programme. Among the twelve variables,

extension contact, use of communication materials, holding size and occupation exhibited positive influence on involvement of the respondents in implementation of the Watershed Development Programme.

7.1.5.4: Support Extended by Official Stakeholders

- The respondents of both Nuapada and Kalahandi districts had very poor opinion towards the role of project personnel on negotiation and mediation in conflicts, establishing good harmony, developing interest, developing leadership, establishing good co-operation and co-ordination among people. However, the respondents had better opinion on rapport establishment with villagers and decisions taken on common agreement.
- The respondents of both the districts were not getting adequate support on credit and finance. Poor supports were observed on insurance coverage, flexibility in repayment of loan, fixing installments as per capability, timely disbursement of loan, assisting in processing of documents, liasoning with credit institutions and facilitating for required credit.
- Under technical guidance, the respondents had stated poor support on exposure visit for confidence, immediate action on field problems, close monitoring and supervision, regular diagnostic visit and adequate training for capacity building.
- The respondents of both the districts had stated poor input support particularly on liasoning for input supply on credit, ensuring reasonable price and timely supply of quality inputs.
- Regarding infrastructure support, the respondents had poor opinions towards custom hiring service on farm implements, liasoning for subsidy facility, ensuring power supply, protection for crop damage and developing own infrastructure.
- The respondents had also poor opinion towards support on policy consideration. Deficiencies were observed on exploring

external resources, emphasis on solving problems, fully utilisation of available resources, due consideration for the constraints and regular meeting with stakeholders.

- Comparative analysis revealed that significant gaps were observed from all the stakeholders on their supports towards effective implementation of the Watershed Development Programme. It indicates that the respondents were not getting adequate support from all the related stakeholders covered under study.
- The respondents of both Nuapada and Kalahandi districts had favorable attitudes towards their good behaviour, cooperative, cordiality and to some extent sincerity and interpersonal relationships of the project personnel. They had poor attitude on their professional development attitude, assuming responsibility for success and accountability.
- Better linkages were developed with soil conservation, horticulture and agriculture departments in order. Poor linkages were observed towards linkages with animal resource, agricultural engineering and electricity departments, traders and input dealers, research institutions, cooperative and revenue departments as well as credit institutions.
- Multiple regression analysis revealed that education, family size, extension contact, holding size and occupational background of the respondents exhibited positive influence on the stakeholders extending support in effective implementation of the Watershed Development Programme and explained 60.8 % of the total variance.

7.1.5.5: Change in Socio-economic status

- The respondents of both Nuapada and Kalahandi districts were agreed for the better use of resources, increase in production and productivity under technological change. Poor opinions were observed on increase in occupational competency,

sustainability and stability in production as well as adoption of recommended practices.

- Under economic change, poor opinions of the respondents were observed on productive time management, easy marketing of the produce, avenues for self-employment, improvement in living condition, access to credit facilities and employment generation.
- Though the respondents of both the districts had stated for good linkages established with officials under social change but, poor opinions were observed on consciousness for eco-friendly technology, more consciousness of people, more attention of the developmental departments, better coordination and team work, increase in decision making capacity and optimum use of family resources.
- The respondents had favourably opined for better understanding among people, collective decisions for community development, people more cooperative, unity among people, respect to each other and conflict management under cultural change. But, poor opinion was observed on helping others in crisis.
- There was better infrastructural change and particularly on increase in water resources and soil fertility, community approach, repair, restoration and upgradation of community resources, resource generation for post project activities and resource mobilisation. But, poor opinions were observed on permanency in information flow as well as better access to inputs and materials.
- Better responses were observed on conservation of natural resources, plantations in degraded land, maintenance of soil health, restoration of ecological balance, economical use of water and consciousness to protect environment under environmental change. But, the respondents of both the districts reacted for pasture development in wasteland.

- Not much of changes were observed on material possession. Though the respondents of both Nuapada and Kalahandi districts had agreed for the use of improved quality seeds, fertilisers and chemicals, self sufficient in food but, poor changes noticed on better housing, purchase of household articles, use of implements, better education of children and overall improvement in living conditions.
- Regarding farm activities, the respondents were agreed for increase in cropping pattern and cropping intensity, expansion of cultivated area as well as optimum use of resources. At the same time, the respondents were not agreed for the satisfactory change on growing crops round the year, skill competency in use of inputs and materials, diversion to better enterprise and adopting remunerative enterprise.
- The respondents of both Nuapada and Kalahandi districts were agreed towards use and maintenance of assets particularly for emphasis on community use, proportionate contribution to development fund, commitment to safeguard the assets, proper care and maintenance of the assets, effective utilisation of the assets as well as development fund use with common agreement.
- Increase in income and farm activities, fully utilisation of family labour, optimum utilisation of resources and enable to meet the family need were the changes observed under income level. But, the respondents were not agreed for the changes on better education to children and increase in savings.
- Comparative analyses revealed that significant percentage of gaps were observed on various aspects of changes covered under study. Comparatively less changes were observed on social, economical, farm activities, material possession, technological, annual income and cultural aspects than environmental, infrastructural and asset maintenance.

- Though some changes had been made through the implementation of Watershed Development Programme, significant changes had not been observed on productive time management, easy marketing of the produce, avenues for self employment, growing crops round the year, consciousness for eco-friendly technology, more consciousness of people, permanency in information flow, better access to inputs and materials, purchase of household articles, increase in savings, occupational competency as well as inputs and materials, use of implements, diversion to better enterprise, more attention of the developmental departments, better housing, adoption of remunerative enterprise, sustainability and stability in production, pasture development in waste land, better coordination and team work, better education to children, increase in decision making capacity, optimum use of family resources as well as help others in crisis.
- Multiple regression, stepwise regression and path analysis indicated that education, extension contact and house type had exhibited positive influence in accelerating various aspects of developments of the respondents in implementation of Watershed Development Programme.

7.5.6: Constraints impeding in successful implementation

- Exhaustive proforma in reporting was found as the only pertinent constraint in planning for Watershed Development Programme.
- The pertinent constraints in programme development stated by the respondents were 'no adequate programme for farm women', 'priorities not towards poverty alleviation', 'insufficient attempt for self employment' and 'no sustainable programming'.
- Regarding programme implementation, the respondents had stated the constraints of 'implementation not done with full

knowledge of everybody', 'no permanent approach to each programme' and 'insufficient demonstrations'.

- Inadequate funds to cover all activities, 'no revolving fund for SHG activities', 'insufficient funds for training and other educational activities' were the major constraints expressed by the respondents in funding pattern of the project.
- The constraints stated by the respondents on monitoring and evaluation were 'no regular review meeting', 'approach to complete the targets only', 'problems and difficulties not taken care' as well as 'not encouraging harmony among people'.
- The respondents had stated the constraints of no skill competency in operation and maintenance as well as inadequate leadership for maintaining the created assets.
- Regarding institutional arrangements, pertinent constraints expressed by the respondents were 'G.P/Village not consulted adequately prior to implementation', 'committee members not selected with common agreement', 'volunteers and secretary not selected properly', 'no compulsion towards contribution to development fund as well as 'users and Self Help Groups not formed properly'.
- 'Meeting not held regularly', 'transparency not maintained', 'problems and difficulties not discussed in the meeting', 'monopoly of the committee members' and 'not liasoning properly with related organisations' were the constraints expressed by the respondents in functioning of the Watershed Association.
- Comparative analysis revealed that the respondents had faced constraints in all the aspects of the implementation of the Watershed Development Programme covered under study. However; the respondents had stated more of constraints in functioning of Watershed Association, institutional arrangements, monitoring and evaluation in comparison to

planning, programme development, programme implementation, funding pattern and maintenance of assets.

7.1.5.6: Suggestions for effective programme implementation

- Detail discussion with G.P./Village prior to implementation, clear understanding of the people about objectives, selecting committee members with common agreement, proper selection of secretary and volunteers were the important suggestions under institutional arrangements.
- Suggestions made under community organisation were developing leadership among people, establishing good coordination, cooperation and harmony among people, negotiation and mediation in conflicts as well as developing interest among people.
- Registration of the association before implementation, association approve accounts, monitor and review progress, conducting regular meeting, discussions on problems and difficulties, maintaining transparency as well as close liason with related developmental departments were the major suggestions under functioning of the Watershed Association.
- Major suggestions under programme designing were adequate programmes to each family, optimum utilisation of resources, sufficient attempt for self employment, priorities towards poverty alleviation and adequate programme for farm women.
- Programme implemented should be with the knowledge of the people, permanent approach to each programme, sufficient demonstrations, close supervision, regular review of the progress, timely use of inputs and materials.
- Suggestions towards funding pattern were adequate funds to cover all activities, sufficient revolving fund for SHG activities, adequate funds for training and other educational activities, skill competency of people in accounting and reporting.

- Participatory evaluation of the progress, immediate action on field problems, timely technical guidance, close supervision and monitoring, documentation of each activity and regular meeting by WDT were the major suggestions under monitoring and evaluation.
- Regarding maintenance of assets, major suggestions of the respondents were developing leaders to guide for the maintenance of assets, capacity building for service providers in repairing and maintenance of assets, sufficient mobilisation to raise development fund, optimum use of assets, cooperation and coordination of people in use of the assets.
- Regular training for updating knowledge and skills, continuous flow of information, active involvement of the project personnel, more involvement of the District Watershed Advisory Committee, exposure visit for confidence development and immediate action on field problems were the major suggestions on technological backstopping.
- Facilitating for required credit, timely disbursement of loan, fixing installments as per the capability and insurance coverage were the suggestions under credit and finance.
- The suggestions towards infrastructure support were ensuring power supply, custom hiring service on farm implements, motivating to develop own infrastructure and liasoning for subsidy facilities.
- Good linkage with related stakeholders, regular meeting for exploring external resources and emphasis on solving problems were the major suggestions under policy considerations.

7.2: Summary of hypothesis tested

Hypothesis	Tested components	Result
Ha1	Watershed people gained adequate knowledge about functioning of watershed project	Accepted

Ha2	Watershed people actively involved in the process of designing feasible programmes	Rejected
Ha3	Programme implementation exclusively done by the people	Rejected
Ha4	Watershed Association utilises the fund released to the watershed	Accepted
Ha5	Significant increase in production and productivity	Accepted
Ha6	Feasible support extended by the related stakeholders	Rejected
Ha7	Water facilities adequately available for protective irrigation and drinking water	Accepted
Ha8	Watershed beneficiaries adopt better technologies	Accepted
Ha9	Generation of income to all categories of people	Accepted
Ha10	Resource poor families ensured with food and nutritional security	Rejected
Ha11	Good coordination, cooperation and harmony established among watershed people.	Rejected
Ha12	Women participate actively and improve decision making abilities	Rejected
Ha13	Watershed development fund used exclusively for repair, maintenance and use of the created assets during post project period.	Accepted

7.3: Conclusion

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. Therefore, there is a need for conservation and judicious utilisation of these natural resources through adoption of sustainable management practices.

Participatory Watershed Development Programme initiated in Odisha after introduction of the revised watershed guideline of 2001 developed by the Ministry of Rural Development and “Janasahabhagita” guideline of the Ministry of Agriculture, Government of India. Watersheds are now viewed as a suitable medium to improve the quality of life of the rural poor by means of creating sustainable opportunities for livelihood promotion in watershed area. With the inclusion of a holistic and integrated approach, the expected beneficial results will be of a higher order leading to improvement in the quality of life for poor people in the state.

Watershed development primarily helps to conserve soil and water, increase income of the watershed people through enhancement of agricultural productivity while generating rural employment and encouraging crop diversification in rainfed areas. The 25 year’s perspective idea and strategic plan developed by the Government of Odisha has provided a strategic direction for development and management of rainfed areas for improvements in livelihoods of the watershed community. The research study entitled “Impact of Watershed Development Programme on socio-economic upliftment of tribal people in western undulating zone, Odisha” has revealed that much of the improvements have not been made to the tribal people.

Based on the findings, the following conclusions are drawn

1. Detail discussion with G.P./Village prior to programme implementation should be done
2. Clear understanding of the people about objectives and operational procedure should be brought
3. Transparency in selection of members and activities of the association should be maintained
4. Regular meeting of the association and discussion on problems, difficulties etc. should be conducted
5. Close liason of the association with the related developmental departments should be developed
6. Developing leaders to guide the people

7. Establishing good cooperation, co-ordination and harmony among people
8. Priorities towards self employment, poverty alleviation and optimum use of resources should be emphasised
9. Adequate programme for each family including women should be developed
10. Sustainable programming and permanent approach to each programme should be developed
11. Sufficient demonstration to develop knowledge and skill competency should be conducted
12. Close monitoring, supervision and regular review of the progress should be conducted
13. Adequate funds to cover all activities should be provided
14. Liaisoning with credit institution for credit to the people should be developed
15. Sufficient revolving funds for SHG activities should be provided
16. Participatory evaluation of the progress should be emphasised
17. Documentation of each activity should be properly done
18. Capacity building for repair and maintenance of the created assets should be made
19. Co-operation and co-ordination among people for optimum use of the assets should be assured
20. Regular training to update knowledge and skills should be imparted
21. Active involvement of the project personnel should be ensured
22. Exposure visit for confidence development should be regularly conducted
23. More involvement of the District Watershed Advisory Committee should be ensured

24. Custom hiring service on use of farm equipments and machineries should be effectively arranged
25. Regular meeting with the stakeholders for resource mobilization should be conducted

Though, there were some changes in the socio-economic status of the respondents through implementation of the Watershed Development Programme, but significant impact towards upliftment of the tribal people in the watershed areas have not been observed. The findings of the study therefore suggested that the project authorities particularly State Level Nodal Agency i.e. Watershed Mission at the state level and District Watershed Advisory Committee at the district level should analyse all these suggestions mentioned above and take appropriate steps for effective implementation of the programme resulting all round development of the watershed in general and upliftment of tribal people in particular.

Implications of the study

The present study aimed at analysing the impact of Watershed Development Programme for the upliftment of tribal people in Western Undulating zone, Odisha has been able to locate the deficiencies and provide valuable suggestions to strengthen the operational procedure towards effective implementation of the Watershed Development Programme for the upliftment of watershed people in tribal areas. Therefore, the study is of its own worthiness with the following implications.

- i. It can serve as secondary data for the related research
- ii. The Watershed Mission and District Watershed Advisory Committee can refer the recommendations and refine the operational procedure in effective implementation of the Watershed Development Programme
- iii. It can also serve as the reference materials in academic affairs

- iv. Ministry of Agriculture, Government of India and Watershed Mission, Government of Odisha may refer while reviewing the action plan and progress of achievements
- v. The District Watershed Review Committee and District Rural Development Agency can refer the suggestions while approving the action plan and performance of the programme
- vi. The findings of the study can serve as a guideline for the project officials while developing watershed action plan and implementation of various activities.

Scope for future research

- i. The present study has been conducted only in two tribal districts restricting only one agro-climatic zone in Odisha. The findings may not be fully applicable to other tribal districts of the State. The researcher therefore sincerely hopes for conducting similar studies in other tribal districts for developing suitable operational procedure towards effective implementation of the Watershed Development programme in tribal areas
- ii. Similar studies may be conducted in non-tribal watershed areas to develop strategic guideline from the perspectives of the watershed people
- iii. The gender issues and impact consequent of implementation of Watershed Development Programme may be researched
- iv. In-depth analysis may be made exclusively on knowledge, understanding and reactions of the people towards guideline to refine the guideline for better implementation of the programme
- v. Constraint analysis of the project personnel may be undertaken which has not been touched by the researcher to locate the genuine constraints with remedial measures for effective implementation of the programme

Recommendation

The whole episode of empirical research work on “Impact of Watershed Development Programme for the upliftment of tribal people in Western Undulating Zone, Odisha” could able to generate the following recommendations for effective implementation of the programme.

- i. Selection of president, secretary, volunteers and committee members with common agreement of the watershed people
- ii. Regular meeting of the Watershed Association and discussions on problems, difficulties etc. should be conducted
- iii. Clear understanding of the tribal people about objectives of the programme should be made
- iv. Establishing good co-operation, co-ordination and harmony among people
- v. Setting priorities towards self employment, poverty alleviation and optimum use of resources
- vi. Adequate programmes for each family including women to be developed
- vii. Developing sustainable programming and permanent approach to each programme
- viii. Sufficient training and demonstration to enrich knowledge and skills of the beneficiaries be imparted
- ix. Adequate revolving fund for Self Help Group activities be made available
- x. Developing leaders to guide people for maintenance and optimum use of the created assets
- xi. Conducting exposure visit to ideal locations for confidence development of the people
- xii. Facilitate custom hiring service on use of farm implements and machineries

- xiii. More involvement of the District Watershed Advisory Committee be assured
- xiv. Regular meeting with the stakeholders for resource mobilization be conducted
- xv. Ensuring participatory evaluation and documentation of each activity