CHAPTER VII
CHAPTER VII

SUMMARY OF FINDINGS, SUGGESTIONS AND CONCLUSION

This chapter is an assessment of all the work done in this study. It emphasizes the impact of watershed development programmes in Andhra Pradesh. This chapter tries to sum up the issues involved in carrying the work in the study area. It points out the variable differences and detentions that influenced the implementation of the watershed development programmes. The research has found some of the factors that had a great impact on the functioning and continuity of WDPs throughout the state. It tries to list out some of the findings of the study and give required suggestions and remarks for the institutions and organizations that are involved in the WDPs. It tries to locate some of the notable points that had to be considered for further studies and work to be done in this regard.

The findings are listed in respect to the response of the farmers and beneficiaries of WDPs, of the study villages based upon the questionnaire that has been used to collect the adequate inputs. Before going into the impact of the programme, the researcher collected much needed socio-economic condition of the farmers and thus came to an understanding on certain issues for how the programme is required in these areas and how they are improved thereafter.
7.1. Demographic Profile:

- **Age:** The total respondents divided into three categories first below 25 years, second 26-45 years, and 45 years and above the researcher found that the first age group is 17.8 per cent and the third group 25.6 per cent rest of the 56.6 per cent comes under second category of age group 26-45 years, thus it can be understood middle age farmers actively participate and got benefited from Watershed Development Programmes. The regional variation also shows the similar indicators regarding the question of the age. In another way agriculture sector is usually done by the middle age farmers and aged farmers.

- **Sex:** This question very important to understand gender variations in the agricultural activities out of the total respondents 95.4 per cent are Men and 4.6 per cent are Women. This reviews that women’s participation in the Watershed Development Programmes is minimum and it indicators of the regions also indicate the similar picture.

- **Religion:** Total respondents are classified into their religious background Hindus accounted for 91 per cent, Muslims for 3.8 per cent and Christian’s 5.2 per cent. This observation indicates that the participation of Christians and Muslims in the agricultural activities as increased.

- **Caste:** The respondents of the state have been classified according to social strata’s such as upper or Forward Caste, Backward Caste, and Scheduled Caste/ Schedule Tribes. Out of these Forward Caste accounted for 20%, Backward Caste
49.2 per cent, Scheduled Caste 13.4 per cent, and Schedule Tribes 9.4 per cent. These indicators give a picture of people’s interest in cultivation practices usually Backward Caste are more dependent on agriculture sector with 49.2% it means more fragmentation of land is taking place. Generally majority of the land in rural areas is secured by upper caste however their interest has decline towards the cultivation practice has agriculture turns to be their second choice thus absentee landlordism as increased. However an increase of 13.4 per cent of Scheduled Caste gives a rousing picture incidentally 13.4 per cent participation of Scheduled Caste is compared to the national figure is observed to be low. However participation of Scheduled Tribes is higher than the national mark.

- **Education**

Education is the parameter of division of any society that is to be counted for the indexes of development. Education is an important indicator, for the development of the village. Increased literacy indicates the changing standards of living in the village.

Development of any state or region is indicated mainly with observation of certain parameters. Literacy is one of them in the study of the Watershed Development Programmes respondents are divided into four categories depending upon their education status. Out of which 30.8 per cent are illiterates, 26.6 per cent had reached primary education, 30 per cent reached secondary education and 12.6 per cent reached graduation. This shows number of education farmers is very low.
Therefore a conclusion can be drawn that agriculture is taken up by people who could not afford education or dropout from various levels of curriculum before completion of schooling.

- **Family Size**

This particular question is important to assess demographic profiles of the study areas it is so, because a family size indicates the sustainability of farmers given with the dependents he has to support. Mainly the family size were divided into three categories Small (2+2), Medium (2+4), and Large (2+5 and above). Out of total respondents small families account for 49.8 per cent, Medium families 39.2 per cent and large families 11 per cent. This indicates that the family sizes overall continually decreasing due to unsustainable reason. This was completely reverse before twenty years where jointly families were more than individual families.

### 7.2. Socio-Economic Status:

- **Agricultural Lands**

Main aim of the Watershed Development Programmes (WDPs) is to improve agriculture in India. State of Andhra Pradesh is not an exception as the agriculture is the back bone of the state it is necessary to observed of how many acres of land cultivate under the programme and the trend of land holdings. To observe this indicator the study divided the respondents in three categories one farmer holding land below 5 Acres of land below 10 acres of land on the basis of land holdings, and 10 and above acres. It is observed that farmers with land holding below 5
Acres are 55 per cent, farmers below 10 acres of land 34.2 per cent, and 10 acres and above are 10.8 per cent. These numbers show a drastic fall in the farmers land holdings of various reasons. Fragmentation of land holding found to be regularity even in the Watershed Development areas. Growing individual families might with reason.

**Livestock**

A main source of alternative employment is animal husbandry. Domestication of animals is an age old practice ancient man found his perfect companion in some of the animals. However domesticated animals such as Cow, Goat, Sheep, Pig, etc… provided men with other benefits with their products and products made out of them. Out of total livestock Cows are 12.1 per cent, Buffalos 23.6 per cent, Goats are 9.8 per cent, Bullock 28 per cent, Poultry Birds 20.1 per cent, and other accounts for 6.4 per cent.

These indicators show how domesticated animals and cattle provide the basic needs of agriculture. It is not surprised that bullocks occupy the first position with 29.3 per cent, which play crucial role in ploughing and till age of land. Buffalos and Cows occupy similar place with 35.7 per cent together. They provide food nutrition’s and other forms of edibles, Cows and Buffalos mainly raised for milk.

• Though water conservation is the main motive of the WDPs, it has been a backward step regarding the respondents of the study aria, having fishery ponds.
Majority of the respondents (97.4%) said that they do not own a fishery pond, only 2.6 per cent have fishery pond in the select watershed in the present study.

- Forest is the most naturally resourced landscapes of India. It is strange that, 83.4 per cent responded that they do not use forest land for any purpose. Rest of the 16.6 per cent use forest for many kinds. Collection of timber, NTFP collection, spices, herbs and medicines etc.

7.3. Peoples participation in planning stage of WDPs:

- More than 96.8 per cent respondents strongly agreed that they participate in selecting the region for establishing the watersheds. It indicates that the consent of people is taken for the establishing any programme that is aimed at serving the rural areas. The rest of them also with an acceptance towards WDPs. However minute sections 3.2 per cent of people are always there to negate anything that happens against their will.

- Selecting a core group is an essential activity before starting programmes such as WDPs. More than 96.4 per cent agree that they get involve in selecting the members of the core group. Relative negation from 3.6 per cent of the respondents is a bit concern as it aims at the betterment of their own lives.

- More than 70.6 per cent agreed that they involve in selecting the beneficiary group. It is apparent that the cooperation of rural people and the farmers is the key for the continuity of WDPs, with their active involvement.
• Implementation of WDPs brings many direct benefits the farmers and the villagers of the study area. It brings abundance of water usages from drinking to irrigation. More than 97.6 per cent agree that they engage in deciding activities for implementation. Some of the let offs of 2.4 per cent is those who had little knowledge and couldn’t engage themselves in these schemes.

7.4. Peoples participation in the implementation phase of WDPs:

• More than 84.6 per cent agreed that the resource material is available at local place. Most of the material for the construction of WDPs is available locally and it clears the ambiguity regarding the use of resources for the maintenance of the programme. Respondents are made active participants in this programme from planning and implementations stages as well. However there is a chunk of negative opinion as 5.6 per cent disagree and 9.4 per cent opting for not applicable.

• Around 5.6 agreed that they contribute in the manual labor involved in the programme. One more benefit of this programme is that the villagers are directly benefitted from the scheme before it starts working. Much labour force is required for the construction of tanks, channels, check dams etc.

• Around 96.6 per cent agree that they contribute financially to the activities, this also is a welcome sign from the villagers, that the programme installation and
implementation is carried out by the farmers with their own financial support. However it is completely not with the farmer’s finance.

- Around 99.2 per cent agree that the programme provide indigenous knowledge for the farmers to run the irrigation and other water related matters. 0.8 per cent of resistance is overwhelmed by the majority of opinion.

- About 99.2 per cent agree that they initiate activities for the programmes success. 0.8 per cent disagreed indicates more people whole heartedly accepted and approved the success of WDP.

- About 96.4 per cent agree that they give evaluations during the meetings, agreed against 3.2 per cent disagree and 0.8 per cent indifference. It indicates that mostly the evaluation meeting provided ample instances of proper awareness pertaining to WDPs.

- About 98.2 per cent agree that they involve in giving suggestions to improve the program, however 1.8 per cent disagreement shows that there is a section of people grunting and grumbling regarding the suggestions for the improvement of the programme.

- More than 98.2 per cent agree that WDPs disseminate knowledge to the people, a 1.8 per cent disagreement, out of conviction is a general positive response towards WDPs. This question has drew a maximum positive response. At implementation stage people’s participation was on a satisfactory note and a partial disagreement.
Therefore it can be understood that the implementation stage of WDPs was received positively and reacted by people well for the development of the region.

7.5. Statements with Respect to WDPs:

- About 95.2 per cent respondents agree that those WDPs have greatly enriched the knowledge of the people. Nevertheless there is a 4.6 per cent of the participants disagreed to the point.

- About 92.6 per cent respondents that the people have become more interested towards WDPs. with 4.4 per cent disagreed and 3 per cent not applicable indicates that the respondents are eager to participate in the watershed development programme.

- About 98.4 per cent agreed that WDPs has changed the trend of water-use pattern, However there is a minute percent of 0.8, disagreed and another 0.8 per cent opted for not applicable.

7.6. Different visible outcomes:

- 99.2 per cent respondents have agreed that due to the WDPs availability of water has increased. However, 0.8 per cent disagreements indicate a negligible portion of respondent’s opined unavailability of water.

- 97.8 per cent respondents agree that the crop pattern has changed in the villages, 1.4 per cent disagreed and 0.8 per cent opted for not applicable. One of the
elementary changes after the installation of WDPs is the change of crop patterns. Most of the areas considered for the scheme are more or less water drought or low rainfall areas, which are usually, had problematic crop patterning or dependent on the conventional source of water resources for crops. WDPs provided such areas with a proven healthy water resource propelling a significant crop patterning change or diversion.

- 97.2 per cent respondents agreed that the yield from agriculture has increased, 1.2 per cent disagreed and 1.6 per cent not applicable

- The watershed development providing water availability for the increase of yield in agriculture and making drinking water facility are the first and foremost goals of watershed development. However water brings life to the area in which its presence is felt. Therefore growth of forest and bushes can be seen in the watershed areas. Thus it made easy access to fuel and fodder possible. 91.6 per cent respondents agree that the locally availability of fuel and fodder are increased. Whereas 3.6 per cent disagreed and 4.8 per cent not applicable gives a thought of bother.

- 92.6 per cent respondents agree that there has been a decreased in the collection of Fuel and Fodder, 3.4 per cent disagreed and 4.2 per cent not applicable. Usually in the rural areas collection of fuel wood and fodder is tradition of keeping up process though availability of scientific methods of cooking, rural folk opts for the conventional fuel wood. Rural areas hugely depend upon many domesticated
animals for various purposes. Therefore fodder is a question in the drought prone areas. Hence installation of watershed gave the local people to collect requirements of fuel and fodder within their localities.

- Grazing fields are the basic needs of the rural folk. Therefore addressing the needs of grass cultivation for cattle is also a salient feature of watershed development programmes. 96.2 per cent respondents agree that there has been an increase in the area under cultivation of greenery and grass. 3.4 per cent disagreed and 0.4% not applicable shows there was no real contention.

- Respondent of all the regions gave 100 per cent acceptance. Since the watershed development programmes main aim is to provide improved irrigation facilities, therefore the implementation of WDPs increased the growth of variety of crops supplementing irrigation sources to the conventional sources. 46.8 per cent of respondents at the state level strongly agree and the rest of 53.2 per cent press the button of agreement.

- 86.2 per cent respondents agree that there has been better facility for rearing domestic animals (IGPs), as it is mentioned earlier that domestication of animals is a reciprocal human activity in the rural areas on the issue of interdependency of cattle over humans and humans over cattle. 7 per cent disagreed 1per cent strongly disagree and 5.8 per cent not applicable. Therefore making a relative dip of 13 per cent of negative impact, causing a bit disturbance in the composition of acceptance of Watershed programmes.
• 100 per cent respondents agree that the soil conservation practices have improved soil and reforestation is the key objectives of the watershed development programmes. At the state level indexes show

• If the soil erosion is controlled automatically fertility of the soil also improves. Indications of the state showed 100 per cent respondents agree that the fertility of the soil has improved.

• The inputs at the state level causes a concern as 6.6 per cent disagreement and 7.4 per cent not applicable compared to the positive side of 86 per cent respondents agree that the aforesatation measures have increased.

7.7. Institutions Participation:

• Government intervention in the public welfare schemes and programs is vital in the democratic countries like India... In countries like India which are established on socialistic goals government is the key player in the social welfare activities and any activity that aims at the holistic development. Water Shed Program is also part of the government programs to improve various issues that are depending on the supply of water and its conservation such as drinking water facility, irrigation facility, aforesatation, improvement of alternative employment or improving living standards by providing employment or benefit schemes that are other than agriculture. 94 per cent of the respondents opted for the active government role in the functioning of WDPs. 6 per cent of them said that the role of government is
less active. It shows that the role of government and its organizations is very much needed.

- The NGOs act as an inevitable bridge between the people and the government. They play a vital role in providing much needed awareness on the schemes and their drawbacks. They help people in realization in the utilization of resources and optimizing the control of bureaucracy and political intervention over people in the implementation of any development activity. About 98 per cent NGOs plays an active role in the WDPs; there are 2 per cent of respondents taking the option of less active role of the NGOs.

- Self help groups also play crucial roles in rural areas. After the 10th five year plan self help groups were established all over Andhra Pradesh to appropriate savings that to be invested for their own purpose. The main aim of these groups is to make people’s partnership in funding activity and other socio-economic partnerships though this was thought to be a forum of rural women folk, it has a great impact on the family structures as these are run by the villagers themselves they also play a role in any sort of development program in the villages. About 80.9 per cent SHGs plays an active role in the WDPs and 19.1 per cent less active.
Additional findings

- Focus group discussion in the watershed area indicated mixed success in sharing benefits with landless people. However they got more employment. The project had a positive impact on the physical and socio-economic conditions in the selection watersheds.

- The implementation of the watershed development programmes should start from the ridge line of the watershed to the valley not on piecemeal basis in isolated patches. Development of both arable and non-arable lands should be done together in a complimentary manner. Pasture, cultivable land, and wastelands should be treated as interlinked units of hydrological entity.

- Farmers have acquired and employed many indigenous technologies based on generations of experiences and practical knowledge. Hence, there is tremendous scope to refine these technologies based on modem scientific principles. Merits of traditional system should keep in view while planning the watershed development programmes, particularly at micro-level.

- Land utilization pattern in the watershed areas has drastically improved: earlier it was marked by high proportion of degraded wastelands, devoid of any grass or soil cover. Wastelands have been transformed in to lush green fields covered with tree plantations and grasslands. Apart from overall increase in livestock, farmers have started rearing cross-bred cows, and the milk available for marketing to other areas has increased considerably. The growth of primary sector of the local
economy of these two watersheds areas, has led to growth in service sector units (transport of agriculture products, processing of agricultural produce etc.

- Threshers, tractors and automobiles were purchased by the people in watershed, and maintained by them. Grocery shops, hotels, tea-stalls, carpentry workshop, tailoring shops, flour mills and ayurveda shops were started in the watershed area with the help of the watershed development programmes.

- The respondents were able to provide better education to their children.

- No respondent had a thatched house after watershed program and the housing condition of the respondents also improved when compared to earlier situation.

- The respondents were able to provide better health care to their family members after the inception of watershed program.

- Average milk yields rose by around 20%.

- Ground water was available for longer periods.

- Household income up by about 40% for small and marginal farmers more than 50% for landless, and close to 80% for larger farmers (more than 2ha), compared to control groups.

- Overall, the project improved the lives of 230,000 direct beneficiaries, contributing to a reduction of out-migration by about 70 percent.
SUGGESTIONS

- The government shall declare incentives to farmers for conversion of fallow lands into cultivable lands and special provision should be made in Watershed Development Programme for this purpose.

- There should be proper planning and coordination in Watershed Development Programme between the beneficiaries and implementing machinery. The local officials, who are poor in technical know-how are selecting the places for Water Harvesting Structures. Instead of that more technical experts have to be appointed for selection of sites for water harvesting structures.

- The indifferent attitude of the farmers towards the Watershed Development Programme is to be weaned. The farmers shall come to know that the money spent on the programme is their money. They should be made actively participate in planning, decision making and implementation of Watershed Development Programme activities.

- To improve crop yield the soil water testing should be made compulsory before releasing input subsidy to the farmers. This enables the farmers to sow seeds suitable to their land and water.

- Modern agricultural equipment at subsidized rates should be supplied and bring them awareness in using them in agricultural operations.

- Model farming should be encouraged among the selected farmers by using modern methods and made them model to other farmers.
• Training shall be imparted for change in cropping pattern according to fluctuations in the seasons.

• The knowledge of the people on cost effectiveness of the structures shall be improved and mere awareness about some structures will not help in achieving the goals of the project.

• Selection of beneficiaries should be based on skills and interest in any development programmes.

• Improved use of local material should be adopted to provide better job avenues for the traditional village like seeds companies, local markets, etc.

• Formal or informal meetings should be conducted of the farmers of upstream and downstream areas, so that conflict will be avoided between them and thereby organizational unity will be strengthened.

• Watershed being an interdisciplinary area, officials of various departments such as agriculture, public works, agricultural engineering, soil science, animal husbandry and rural development should be involved in decision making of the watershed development programmes.

• Various government departments like Minor Irrigation, Soil conservation, Agriculture, Forest, Social Forestry, Revenue, Animal Husbandry, Ground water survey and Development Agency, District Rural Development Agency and Banks, Voluntary Agencies and Village local organizations have to work in a synchronized manner to carry out various works set out in the project proposed.
Labour intensive works should be preferred over capital intensive. This would enable providing employment to needy people and would generate scope for involvement of local people and would in turn subsidize the cost of the project.

- The changes in the income of the landowning community in the sample watershed areas are significant since the implementation of watershed activities. It is seen that the income of the sample households has increased by nearly one third since the pre-project situation.

- The institutionalization of the watershed programme through the formation of Watershed Associations is a step towards bringing equity and sustainability. However, in reality, the watershed associations are dominated by big land owning community.

- The changing cropping pattern between the pre-project and post-project period clearly indicates a shift towards the cultivation of commercial crops such as groundnut, pulses and horticultural crops in the watershed areas.

- Training shall be imparted for change in cropping pattern according to fluctuations in the seasons.

- The knowledge of the people on cost effectiveness of the structures shall be improved and mere awareness about some structures will not help in achieving the goals of the project.
Role of Social Worker in Watershed Development Programmes:

Professional Social worker plays a vital role in the community development, through creating awareness on the various developmental activities implementing at their community level. Watershed is an important alternative or method for the water conservative systems for sustainable agriculture and livelihoods. While these programmes can continue for a longer period it is always necessary to educate the communities on the implementation guideline and process of watershed management.

Social worker can plan to enable these groups should develop communication skills and knowledge which would lead to effective interpersonal relationships within the groups not only at their workplace but also with the people in their community. If the groups could establish good interpersonal relationships, they could build a social network through which they could effectively use whenever they need and also these networks helps them to overcome the issues at the community level. Such efforts would help the community to uplift their standard of living including social and economic status. As per the process guidelines help the watershed user committees, to include increase the participation of women, weaker sections, needy, and vulnerable for their betterment and better livelihoods.
CONCLUSION

The present study emphasizes the Impact of Watershed Development Programmes (WDPs) is one of the most popular development programmes implemented across the country. It is widely admitted that WDPs is seen as the panacea. This programme has been directed towards the promotion of overall economic development and improvement of the socio-economic conditions of the farmer’s poor sections of people inhabiting the programme areas through WDPs. Over the years there is much visible impact of watershed development programmes among different communities across watershed areas.

There was reduction in soil erosion in the watershed areas. However, the variation in the percentage of reduction primarily depended on quality of soil and moisture conservation activities in the respective regions.

It was observed that the programme is mostly successful in maintaining runoff reduction. There is positive change in the land use pattern reported in most of the WDPs regions. In these regions, more waste land was converted for productive use by the farmers. This has resulted increase in net sown area in majority of the watershed areas. Further, better land use pattern has helped increase in agricultural intensification and thus enhance agricultural production.
There was reduction in soil erosion in the watershed areas. However, the variation in the percentage of reduction primarily depended on quality of soil and moisture conservation activities in the respective regions.

There was marginal increase in ground water level in some areas but some other areas exhibit better increase in groundwater level. It was observed that the programme is mostly successful in maintaining runoff reduction.

There is positive change in the land use pattern reported in most of the WDP regions. In these regions, more waste land was converted for productive use by the farmers. This has resulted increase in net sown area in majority of the states. Further, better land use pattern has helped increase in agricultural intensification and thus enhance agricultural production.

Crop diversification is resulted out of more irrigation facilities available in the watershed areas. However, the concern is that the people invest more in good class of land. The investment in low quality land has not received much attention.

Watershed programme resulted positively in reducing the workload of women in terms of fetching drinking water, collecting fuel wood and fodder for livestock in almost all the study areas.

The income of the community members has increased to some extent but watershed activities have been unable to make much visible impact in enhancing employment opportunities.
The Watershed Committees had been actively involved in the implementation of watershed programme in majority areas. User groups are formed in majority areas, but their degree of involvement varies. The user groups are hardly visible in watershed activities after completion of the project. Very few CBOs seem to have survived after withdrawal of the project.

The position about common property resources leaves much to be desired and, therefore, it calls for concerted efforts from the authorities concerned. Migration was mostly reduced during the project implementation stage. But further attempt is necessary to stop migration completely.

The analysis of women’s empowerment shows that the women participation was not adequate. Mostly, women lack in mobility, voice in decision making at home or in community. Same is the case with landless members. It seems that the livelihood conditions of landless communities have not been significantly improved. Apart from some minor labour work, there was nothing much to improve their livelihood. It was realized that the position with regard to flow of funds and social audit is limited to some watershed areas.

It was realized that participation of local community member is key to success of the watershed projects. Participation also enhances community empowerment. The participation of beneficiaries in planning and execution of the watershed was seen more from LMF group. Poor rural households were less involved in planning and decision making processes in the watersheds.
Economic impacts across the schemes reveal that the performance of DPAP watersheds is relatively as good as that of IWDP watersheds. DDP watersheds have scored better under some activities like quality of water harvesting structure but in some areas like reduction in soil erosion, runoff reduction, etc DDP has scored less. However, it must be considered that this scheme is implemented in the extreme environmental conditions. Hence, even this limited impact can be judged as positive. Nevertheless, there is a need to find out the gaps and reasons so as to make it even more effective and realize full benefits of the programme.

It was also found that majority of the households across all the study areas had reported slight improvement in their standard of living. The benefits of WSD have not been fully translated into disposable income or net gains to improve the standard of living.

The study also suggests that the impact of watershed is more focused towards physical and biological achievement, but the focus on social aspects is limited. There are certain positive trends towards growth of water level, soil regeneration capacity, land use pattern, cropping pattern, livestock production, etc. However, social achievements have properly addressed with implementation of WDPs.