CHAPTER V
CHAPTER- V
SOCIO-ECONOMIC PROFILE OF SELECTED WATERSHED DEVELOPMENT PROGRAMS IN PRE & POST IMPLEMENTATION

The present study would like to observe the implementation of Watershed Development Programmes from the grassroots therefore it is essential to find the basic information regarding the structure, installation & implementation of WDPs and mostly the areas in which the programme is implemented and farmers who are the main beneficiaries. For further to study the researcher collected data on impact of socio-economic status of the beneficiary groups. To furnish the information a further analysis of factors that govern success and failures of WDPs are keenly taken into note. Researcher also observes the socio economic conditions of the study of villages to substantiate the information for the continuity of the programme.

Present study posed certain questions to have an understanding over the socio-economic conditions of the areas of Watershed Development Programmes. Questions such as age, sex, religion, caste, education, family size, livestock, and other positions are posed. To go deep into the observation of Watershed Development Programme it is necessary to know the socio-economic conditions.
5.1. Age:

Respondents in watershed area are divided into a set of groups for a better observation of the research. The age indicator is classified into three age groups, such as below 25, between 26 years to 45 and above 45 years. In the total population 17 per cent are below the age of 25 years, 57 per cent is the respondents are of age group between 26 and 45 years and 25 per cent is the population of the age group above 45 years.

The corresponding numbers for Rayalaseema are, 23 per cent below 25 years, 45 per cent are 26 to 45 age group and 32 per cent are above 45 age group. Where as in coastal Andhra, age group of below 25 is 15 per cent, 59 per cent is between 26 to 45 years and 26 per cent constitute the rest of the group above 45 years. In Telangana the first group below 25 is 18 per cent, 60 per cent are between 26 to 45 years group and 22 per cent are above 45 years.

Fig: 5.1: Distribution of respondents by their Age
5.2. Sex:

Total respondents in the state, mainly consists of male members. Female members are very small, 94 per cent is male and 6 per cent is female respondents. In Rayalaseema male respondents are 95 per cent and female respondents are 5 per cent, in Coastal Andhra male respondents are 96 per cent and female respondents are 4 per cent, and in Telangana also male respondents are 95 per cent and female respondents are 5 per cent. Therefore it is very much evident that the respondents are predominantly men, and women who are the equal participants of the society show less interest in the responsive activity.

Fig: 5.2: Distribution of respondents by their Sex
5.3. Religion

Total respondents are classified into their respective religious background. They are usually the followers of major three religions, such as Hindu, Muslim and Christian. Out of the total respondents, Hindus consist 91 per cent, Muslim 4 per cent and Christians 5 per cent. Same numbers are reflected in the three zones of concern. In Rayalaseema respondents are of Hindus 89 per cent, Muslims 2 per cent and Christians 9 per cent. In Coastal Andhra participants are of Hindus 90 per cent Muslims 4 per cent and Christians 6 per cent. In Telangana these numbers are not far from the other regions, they are, Hindus 92 per cent, Muslims 5 per cent and Christians are 3 per cent.

**Fig: 5.3: Distribution of respondents by their Religion**
Caste indicators of the respondents are as follows: In the state, they have been classified as forward classes or other castes, Backward Castes, Scheduled Castes and Scheduled Tribes. Out of total respondents of the state Forward Castes consists of 20 per cent, Backward Castes 49 per cent, Scheduled Castes 13 per cent and Scheduled Tribes 10 per cent.

In Rayalaseema Forward Castes are 39 per cent, Backward Castes are 45 per cent, Scheduled Castes are 11 per cent and Scheduled Tribes are 5 per cent. These numbers are almost same for the three zones. Coastal Andhra have respondents from Forward Castes of 29 per cent, Backward Castes 48 per cent, Scheduled Castes are 10 per cent and Scheduled Tribes 13 per cent. In Telangana Forward Castes 24 per cent, Backward Castes 51 per cent Scheduled Castes 17 per cent and Scheduled Tribes 8 per cent.

Fig: 5.4: Distribution of respondents by their Caste
5.5. Education

Total respondents have been divided into four groups on the basis of their education background, they are 1 illiterates, or people who had no formal education, those who stopped studies with primary education, secondary education, and degree and above. The numbers for the state on this list is in such a way that the Illiterates are 31 per cent, for primary education 27 per cent, secondary education 30 per cent, and degree are 12 per cent.

In Rayalaseema illiterates are 34 per cent, primary education 35 per cent, secondary education 25 per cent and degree 6 per cent. The total respondents in Coastal Andhra on the basis of education are illustrated as, illiterates 26 per cent; primary education 23 per cent, secondary education 34 per cent, and degree are 16 per cent. The corresponding numbers in Telangana, indicators show that, illiterates 33 per cent, primary
education 26 per cent, secondary education 29 per cent and degree & above are 12 per cent.

**Fig: 5.5: Distribution of respondents by their Education**

![Distribution of respondents by their Education](chart.png)

**Source: Evidence from the field work**

### 5.6 Family

Throughout the Andhra Pradesh, in the watershed areas, family size of the respondents is classified into three categories: They are small family (2+2), medium family (2+4) and large family (2+5). Total respondents of the state consist of Small family 50 per cent, medium 39 per cent, and large family 11 per cent.

The size of the family in the three respective regions is identically same with some small difference. In Rayalaseema size of the families are as follows, small family 54 per cent
medium family 35 per cent and large family 11 per cent. In Coastal Andhra family sizes are varied, small family 49 per cent, medium family 40 per cent, and large family 11 per cent. In Telangana small families are 49 per cent, medium families are 40 per cent and large families are 11 per cent.

Fig: 5.6: Distribution of respondents by their Family

Source: Evidence from the field work

5.7. Agricultural Lands

As the main aim of the watershed is to provide irrigation facility for agricultural lands, it is very important to know the land holdings of each respondent. In the state the total respondents land holdings are categorized in three ways: 1) below 5 acres, 2) 6 to 10 and 10 acres and above. Numbers for the state are, below 5 acres 55 per cent, 5 to 10 acres, 34 per cent and 10 acres and above 11 per cent.
In Rayalaseema below 5 acres is 43 per cent, between 5 to 10 acres of land is 29 per cent and above 10 acres of land is 28 per cent. The corresponding numbers in coastal Andhra are as follows, below 5 acres of land 56 per cent, between 5 to 10 acres 36 per cent and above 10 acres is 8 per cent. In Telangana agricultural land of the respondents is, below 5 acres is 57 per cent, between 5 to 10 acres is 34 per cent and above 10 acres is 9 per cent.

**Fig 5.7: Distribution of respondents by their Agricultural Lands**

![Bar chart showing distribution of respondents by their agricultural lands in Rayalaseema, Coastal Andhra, and Telangana across different land categories.](image)

**Source: Evidence from the field work**

**5.8. Availability of Livestock**

Main source of the rural areas is domestication of animals, animal husbandry found to be one of the profitable economical activities. Livestock has been categorized as, cows, buffalos, goats, bullocks, poultry birds and others. Out of the total livestock in the state, Cow 12 per cent, buffaloes 24 per cent goats 9 per cent, bullocks 28 per cent, poultry, 20 per cent and others 7 per cent, in the state.
Livestock in Rayalaseema cows 13 per cent buffalos, 24 per cent goats, 9.3 per cent, bullocks, 29.3 per cent, poultry 19 per cent, others, 5.9 per cent. In costal Andhra cows, 11.2 per cent, buffalos, 22 per cent, goats 8.6 per cent, bullocks 29.5 per cent, poultry, 21.7 per cent, others, 7.1 per cent. The numbers for the livestock in Telangana is cows 12.7 per cent, buffalos 25.1 per cent, goats 11.4 per cent, bullocks 25.8 per cent, and poultry 18.9 Per cent and Others 6.1 per cent.

Table 5.1: Distribution of respondents by their availability of Livestock

<table>
<thead>
<tr>
<th></th>
<th>Coastal Andhra</th>
<th>Rayalaseema</th>
<th>Telangana</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cows</td>
<td>11.2</td>
<td>12.7</td>
<td>12.7</td>
</tr>
<tr>
<td>Buffalos</td>
<td>22.0</td>
<td>23.9</td>
<td>25.1</td>
</tr>
<tr>
<td>Goats</td>
<td>8.6</td>
<td>9.3</td>
<td>11.4</td>
</tr>
<tr>
<td>Bullock</td>
<td>29.5</td>
<td>29.3</td>
<td>25.8</td>
</tr>
<tr>
<td>Poultry birds</td>
<td>21.7</td>
<td>19</td>
<td>18.9</td>
</tr>
<tr>
<td>Others</td>
<td>7.1</td>
<td>5.9</td>
<td>6.1</td>
</tr>
</tbody>
</table>

Source: Evidence from the field work

5.9. Fishery Pond

Throughout the selected districts of the state of Andhra Pradesh, the respondents were asked for the fisher pond in their watersheds. A minimum of 2.6 per cent said they have and the rest of 97.4 per cent, have negated that they have no fishery pond.

Fig: 5.8: Distribution of respondents by their Fishery Ponds
5.10. Use of forest land

Forest is a source of many things that are essential for human life. It provides humans with wood, timber, herbal medicine leaves and grass for the livestock; forests prevent soil erosion, and bring rainfall. Forest is like an endless boon that is given by the creation. This particular question received an over whelming response and 83.4 per cent have said they do use forest land for some purpose and the rest of 16.6 per cent said they do not use forest lands for any purpose.

Fig. 5.9: Distribution of respondents by the use of Forest Land
5.10.1. Fodder

The fodder for livestock; live stock is the back bone of the rural people. Many domesticated animals give many reasons for the rural people’s survival. Cattle provide a much needed aid in the agricultural activities, such as conventional soil tilling, transport and as compost for the fields. Out of the total respondents of the state, 45 per cent use forest lands for fodder and the rest of the 55 per cent do not use for fodder as they do not have the cattle.

Fig: 5.10: Distribution of respondents by their Fodder
5.10.2 Fuel wood:

Fuel wood is the most conventional form of fire making for coking in the rural areas. Naturally abundance of fuel wood is drawn from the wrecked branches and trees. However human kind continuously destroys forest for getting convenient fuel wood. Most of the regions of Andhra are vastly spread by forests bush land and other resourceful wood as most of these lands are surrounded within the geographical region of Deccan Plateau. These woods are natural formations. Thus collection of fuel woods was never a problem. But in the due course of spread of human settlements, deforestation for other uses of land increasingly disposes rural people from their natural collection of types of woods.

Prior to the installation of WDPs fuel wood was scarcely available in the respondent areas. Before the project the frequency of collection was low and the amount collected was also on the lower side. However there was a positive response from the
respondents over the issue of collection and availability of fuel wood. In this regard the researcher used five scale method and the frequency of collection of fuel wood:

Out of the total respondents of Andhra Pradesh 29 per cent opted for daily collection, 14 per cent thrice a week, 16 per cent twice a week, 27 per cent once a week, rest of the 14 per cent opted for other mode of collection. These numbers for Rayalaseema region are a bit reverse where the woods are distant from habitations thus they tend to collect fuel wood on a longer basis. 8 per cent opted for daily collection. 14 per cent thrice a week, 12 per cent twice a week, 25 per cent ones in a week and rest of the 41 per cent collect wood others. In Costal Andhra where collection of fuel wood is not that much required opted more or less for the shorter duration. 8 per cent collect daily, 12 per cent thrice in a week, 12 per cent twice in a week, 20 per cent ones in week and rest of the 48 per cent once in a month. However Telangana region which has abundance of forest lands require not much collection for fuel wood therefore they also collect fuel wood on a longer basis such as Rayalaseema. 9 per cent collect daily, 14 per cent thrice in a week, 20 per cent twice in a week, and 57 per cent once in a week. All these numbers vary from time to time and season to season the number of longevity increases during the rainy season and winter due to the difficulty of collection in the wet lands. Watershed Development Programme facilitated rural people with a promising growth of forests and bush lands for easy collection of wood for fuel and other purposes.

<table>
<thead>
<tr>
<th>Table: 5.2: Distribution of respondents by their use of Fuel Wood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel Wood</td>
</tr>
</tbody>
</table>

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5.10.3. Timber:

Ever since the human civilisation on set, people started to use wood or stick as a tool of mechanism and source of shelter after they undo with the same mode of shelter. Therefore houses in rural areas were and have been depended upon timber. Even the modern house construction also needed wood at various stages.

Regarding the use of the timber for house construction the researcher ask the respondents with a four scale model which consist of a) once in six months b) once in year c) once in three years d) once in five years or more. Most of the respondents opted for a relatively longer period on the use of timber for house construction. In spite of the modern techniques and welfare schemes for house construction people from rural areas still use the traditional thatched houses and roof with palm and other leaves. Thus the use of timber is regularity in remote areas.

Out of the total respondents of Andhra Pradesh 2 per cent opted for six months, 15 per cent opted for once in a year, 48 per cent once in three years, 35 per cent use timber once in five years or more. In Rayalaseema the response of the use of timber is slightly

<table>
<thead>
<tr>
<th></th>
<th>Coastal Andhra</th>
<th>Rayalaseema</th>
<th>Telangana</th>
<th>Andhra Pradesh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily</td>
<td>8</td>
<td>8</td>
<td>9</td>
<td>29</td>
</tr>
<tr>
<td>Thrice a Week</td>
<td>12</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Twice a Week</td>
<td>12</td>
<td>12</td>
<td>20</td>
<td>16</td>
</tr>
<tr>
<td>Once a Week</td>
<td>20</td>
<td>25</td>
<td>17</td>
<td>27</td>
</tr>
<tr>
<td>Others</td>
<td>48</td>
<td>41</td>
<td>40</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Evidence from the field work
on the middle path. 1 per cent of the respondents opted for once in six months, 20 per cent opted for once in a year, 58 per cent opted for once in three years, and the rest of the 21 per cent opted for five years and above. In Costal Andhra where severity of floods is more, respondents opted either for shorter duration or for longer duration. 6 per cent of respondents opted for once in six months, 25 per cent opted for once in a year, 32 per cent of respondents opted for once in three years and the rest of the 37 per cent of respondents opted for the longer duration five or more. These numbers for Telangana region however are on the longer side. 0.5 per cent opted for once in six months, 11.5 per cent opted for once in a year, 64 per cent opted for once in three years, and rest of 24 per cent opted for the use of timber on a longer scale of five or more years.

Table: 5.3: Distribution of respondents by their Timber

<table>
<thead>
<tr>
<th>Timber</th>
<th>Coastal Andhra</th>
<th>Rayalaseema</th>
<th>Telangana</th>
<th>Andhra Pradesh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Once in 6 Months</td>
<td>6</td>
<td>1</td>
<td>0.5</td>
<td>2</td>
</tr>
<tr>
<td>Once in Year</td>
<td>25</td>
<td>20</td>
<td>11.5</td>
<td>15</td>
</tr>
<tr>
<td>Once in 3 Years</td>
<td>32</td>
<td>58</td>
<td>64</td>
<td>48</td>
</tr>
<tr>
<td>Above 5 Years</td>
<td>37</td>
<td>21</td>
<td>24</td>
<td>35</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Evidence from the field work

5.10.4. Herbs/Medicinal Plants:

According to Buddhist Jataka stories “There is no plant or herb in the universe which cannot be used for Medicine or Medicinal values”. Thus this quotation has biggest
impact on humans regarding the use of plants for medicines. Andhra Pradesh state has wide range of forest with full of Herbs and Plants that or regularly used in organic and inorganic medicine. There is no medicine that is made without ever use in a single substance that is derived from any tree. Therefore most of the respondents of Andhra Pradesh gave a high positive attitude regarding the use of forest for Herbs and Medicinal plants.

This particular question is sought with a four scale method such as A) Monthly B) Quarterly C) Seasonally and D) Not applicable. Out of the total respondents of Andhra Pradesh 5 per cent opted for monthly usage, 12 per cent opted for Quarterly, 80 per cent opted for seasonal, and 3 per cent usage opted for not applicable. Respondents of Rayalaseema gave positive response with 10 per cent opted for monthly usage, 23 per cent opted for quarterly, 66 per cent opted for seasonally usage and 1 per cent not applicable. Respondents of Costal Andhra however showed a little in difference as, 4 per cent of respondents for opted monthly usage, 18 per cent opted for quarterly usage, 62 per cent opted for seasonal usage and 16 per cent opted for not applicable. In Telangana the respondents gave a high positive response on the use of forests for Medicine they do depend upon herbal medicine for un testified diseases and there is a omen to visit any sought of Doctors and hospitals due to this phobia people of Telangana consume more Herbal medicine instead of Allopathic out of the total respondents of the Telangana region 10 per cent opted for monthly, 23 per cent of the respondents opted for quarterly usage, 67 per cent opted for seasonal and none of them opted for not applicable option.
Table: 5.4: Distribution of respondents by their Herbs/Medicinal Plants

<table>
<thead>
<tr>
<th>Herbs/Medicinal Plants</th>
<th>Coastal Andhra</th>
<th>Rayalaseema</th>
<th>Telangana</th>
<th>Andhra Pradesh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly</td>
<td>4</td>
<td>10</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>Quarterly</td>
<td>18</td>
<td>23</td>
<td>23</td>
<td>12</td>
</tr>
<tr>
<td>Seasonally</td>
<td>62</td>
<td>66</td>
<td>67</td>
<td>80</td>
</tr>
<tr>
<td>Others</td>
<td>16</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Evidence from the field work

5.11. Main and Variety Crops Grow:

The state of Andhra Pradesh is predominantly an agricultural state more than 65 per cent of its population depend directly upon agriculture and above 15 per cent of its population get the livelihood from the ancillary industries of agriculture. Therefore the crop patterns and growth of verity of crops increases the life standard of the people in these areas. Installation of WDPs gave rise to the growth of variety of crops by providing most available irrigation facilities, thus farmers in Watershed Development Programme villages grow many crops along with the main crops. Main crops usually are Food Grains, Sugarcane, Cotton, Tobacco, and pulses. Along with main crops farmers grow Medicinal plants, Fodder for Livestock and horticulture and other interested plants of vegetation and fruits.

5.11.1. Agricultural Crops;
In the state of Andhra Pradesh agricultural crops were cultivated for 65 per cent of the total land cultivated in the areas where Watershed Development Programmes (WDPs) are implemented. At present area cultivated has increased to 85 per cent as the programme implemented with good success rate. The success rate of the programme is reviled with the increase as 15 per cent yield quintal per hectare after the implementation of the programmes.

5.11.2. Medicinal Plants;

Growing medicinal plants is also a regular phenomenon in the WDPs aria. Plants like eucalyptus, Neem, Turmeric, Chandan, and other small herbs and plants, use of land for these crops is not specified as the other crops, some of these are grown at the side of the form lands and some of these are grown as inner crops. However, turmeric and spices are cultivated as a separate crops I few arias of WDPs. According to the total respondents area cultivated before the implementation of WDPs is 12 per cent and it has increased to 15 per cent after the program. Yield also showed the corresponding result from 60-70 per cent after the program. 10 per cent of the farmers expressed growing medicinal plants is a profitable job as most of these plants and herbs were used in multi-level product making business, specially cosmetics, medicines and agricultural products such as manure and pest control substances.

5.11.3. Horticulture:-
It is one of the jobs that require interest and passion of the individuals though it is one of the most profitable jobs. It requires so many skills that the farmers have to bear unexpected losses. In opinion of the respondents area cultivated under horticulture before the project implemented was 65 per cent and it was increased to 90 per cent after the programs. Yield per quintal also increased from 8% to 13 per cent per hectare. These numbers that indicate growing fruits flowers and maintenance of nursery for variety and hybrid plants is a growing business and a profit oriented with nominal facilities. Even with minimum water facilities and small portion of land quality nurseries can be maintained.

5.11.4. Fodder Species:-

Fodder seems to be next necessity to rural people after human basic needs as food for human is important is same for the cattle. Thus it can be concluded that well being of the cattle and domesticated animals is for the welfare of human. Fodder species like small, grass long grass, pilli pesara, pichi jonna, and others cultivable weeds are grown for the feeding of the grazing animals. Response of the WDPs, respondents indicate that area cultivated for fodder species has increased from 70 per cent before the project to 80 per cent after. There was no indication on the rate of increase.

Table: 5.5: Distribution of respondents by their Main and Variety of Crops

<table>
<thead>
<tr>
<th>Crops</th>
<th>Area Cultivated Before WDP</th>
<th>Area Cultivated After WDP</th>
<th>Yield (quintal per hectares) Before WDP</th>
<th>Yield (quintal per hectares) After WDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crops</td>
<td>Before WDP</td>
<td>After WDP</td>
<td>Before WDP</td>
<td>After WDP</td>
</tr>
</tbody>
</table>
5.12. Sources of Irrigation:-

Irrigation sources in Andhra Pradesh are rivers, spring, canal, channel, tank and pond. Apart from these man-made pump sets, wells of both conventional and bore wells also provide necessary facilities for irrigation. The state of Andhra Pradesh is divided into three geographical zones mainly on the basis of water availability and on the spread and extension of Eastern Ghats which provide natural boundaries as well as demarcations of zones. They were also divided on the basis of availability of water resources. Rayalaseema region, which is poorly inundated, is regarded as the most drought-prone area in Andhra. Telangana region is rich with flowing rivers but its unconquered terrain, spread of hills and hillocks, and widespread forests disrupt canal/channel making. Therefore Telangana also is poorly supplied with sufficient water. Coastal Andhra has naturally formed plains. Krishna-Godavari delta gives an additional advantage for people of these areas with higher agricultural facilities. However, some of the districts of Coastal Andhra suffer drought. Interestingly, Anantapur is the only district of Andhra Pradesh which is classified under Desert Development Program.
In response to the question regarding the source of irrigation in the village, the respondents gave positive response towards the improvement of irrigation facilities after the implementation of water shed development programs. Irrigation sources pertaining to rivers/spring has increased from 15 per cent to 25 per cent, canal/channel improved from 20 per cent to 30 per cent tank/pond increased from 40 per cent to 53 per cent, pump sets increased from 20 per cent to 37 per cent. There are indicators of other unspecific irrigation facilities which improved from 5 per cent to 9 per cent.

Table: 5.6: Distribution of respondents by their Use of Sources of Irrigation

<table>
<thead>
<tr>
<th>Source</th>
<th>Before WDP</th>
<th>After WDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>River/Spring</td>
<td>15</td>
<td>25</td>
</tr>
<tr>
<td>Canal/Channel</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>Tank/Pond</td>
<td>40</td>
<td>53</td>
</tr>
<tr>
<td>Pumpsets</td>
<td>20</td>
<td>37</td>
</tr>
<tr>
<td>Others</td>
<td>5</td>
<td>9</td>
</tr>
</tbody>
</table>

Source: Evidence from the field work

5.13. Health Status:-
In human society is naturally considered as progressive when it appears with good health. People of many countries and societies were associated or branded with some ethnic, epidemic and non epidemic diseases or natural defects. State of Andhra Pradesh has a few epidemic diseases and region associate diseases. Unfortunately Andhra Pradesh is known for its unwanted status which consists of high percent of AIDS patient children of Malnutrition, Epidemics like Fluorosis and Tuberculosis. UNESCO reports indicates that state of Andhra Pradesh is on the verge of falling from the indicators of average health apart from the above mentioned diseases people of rural Andhra Pradesh suffer water borne and air borne diseases associated with seasonal health disorders.

Indicators show an average of 2500 people die every year due to various kinds of fevers (typhoid, malaria, Chikungunya, dengue fever and many bacterial viral fevers) apart from the fevers, rural people also suffer from cold and respiratory problems. Diseases like eosinophilia, sinusitis, Bronchitis, pneumonia and tuberculosis etc.

5.13.1. Incidents of prevalent Diseases among villagers:-

Anemia: - it is a commonly seen disease in rural women before the project started 35 per cent women reported with cases of Anemia and it is decreased to 28 per cent after the project has implemented to worm infestation, this is common disease in children before the project started 43 per cent children are reported with worm infestation, the percentage has dropped to 24 per cent after the project is implemented. Third tuberculosis one big success of Indian Health Indicators is that Tuberculosis has brought under control even though seven percent of rural people were affected with this before this project
started. The rate has been brought down to 4% after the project had implemented. Fourth women and children related ailments, a famous quotation of old says if women and children are healthy your society and future is healthy. In connection to this rural “women and children suffer many diseases without ever knowing”. Lack of awareness and irregular health facilities hamper their health status. It is needless to mention percentages of how many women and children fall ill and recover. However implementation of WDPs improved health status of villages by providing necessary inputs such as clean and safe drinking water, construction of proper toilets and much more and also it increases the economic status of the rural people by which they can fight against any disease with extended affordability.

Table: 5.7: Distribution of respondents by their Health Status

<table>
<thead>
<tr>
<th>Disease</th>
<th>Before WDP</th>
<th>After WDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anemia</td>
<td>35</td>
<td>28</td>
</tr>
<tr>
<td>Worm Infestation</td>
<td>43</td>
<td>24</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>23</td>
<td>4</td>
</tr>
</tbody>
</table>

Source: Evidence from the field work

5.14. Enterprise/Income Generation Activities:
Rural India is source of economic generation field it has multiple variants to create employment of self and institutions. Mahatma Gandhi said villages are the basis for Indian economy; they are the branches on which India is depended. With this view it is evident that agriculture and its associate activities provide numerous opportunities for rural people to subsistence. Along with agro products rural India provide facilities for small and cottage industries on the basis of available resources.

Andhra Pradesh state also provides similar conditions as national economic generation. The following are the enterprises that generate economic activity in the village.

5.14.1. Dairy:

Dairy is the foremost employer of the rural Andhra Pradesh on an average it provides sustainability for 35 per cent village households. Alongside it provides an institutional employment dairy product has procurement of milk, storage, packing, selling of associative products of milk. According to the respondents around 62 per cent were engaged in the dairy activity from procurement to selling before and 75 per cent after the project was implemented.

5.14.2. Medicinal Plant Processing:

Study areas consist of a wide range of forest land. Sum of the medicinal plants were also grown in the agricultural fields as some or main and others has inner crops. Nature of activity in medicinal plant processing starts with the growing of itself. Many of
these crops were used from grain to leaf. Some of them are used as power, paste, vapors, oils etc... All these activities require multilayer processing. Before the project started 8 per cent of the respondents were engaged with medicinal plant processing. It has been increased to 15 per cent after the project was implemented.

5.14.3. Non-Timber Forest Products (NTFP):

As it was already mentioned that rural Andhra is a home of numerous forest products. Apart from medicinal herbs forest is a ”geny” of products. NTFP like Tamarind, Lakka, Gum, Honey, Rubber, Many nuts, Fruits, Mushrooms, Tree oils, Spices, Wax, etc… all these products are consumed directly or after processing. About 60% population of Khammam and Srikakulam most of the areas are depended upon the processing of NTFP before the project and 45 per cent after the project was implemented similarly 15 per cent of respondents before the project and 8 per cent after the project were engaged in the collection and processing NTFP in the rest of the study area.

5.14.4. Food Processing and Preservation:

Agriculture is divided into the production of food grains and non edibles. In other words it can be said edibles and non-edibles. However production of food grains and associates is the foremost activity of agriculture. As most of the agri- products are food grains Pulses, Cereal, Oils, Powers and Paste. Therefore they require processing and preservation before they are sold in the market. Before the implementation of the
programme 55 per cent were engaged in this activity and has increased to 72 per cent after the project.

5.14.5. Sewing, Knitting and Embroidery:

Agriculture activity is mostly seasonal therefore rural women are engaged in non-agricultural activities during the other time. Due to the effect the globalization even the rural people started to use garments with designing and embroidery, as some of the rural folk show interest in esthetics of knitting, sewing and embroidery this activity is providing alternative manner of subsistence. However this activity has more individualistic apart from sewing clothes the percentage also remains same before or after the project implemented because it falls under the list of necessity.

5.14.6. Others:

There are other activities which provide minimum guarantee income with some specialized skills. Such as rope making for agriculture and non-agriculture purpose, quire industry, Beedi making, Preparation of Dining leaves (Visthakulu) these are made of thin leaves skillfully knitted with threads as alternative to plates for eating food. They are very famous in south Indian marriages and other functions and celebrations.
Table: 5.8: Distribution of respondents by their Income Generation Activities

<table>
<thead>
<tr>
<th>IGA</th>
<th>Enterprises/ Income Generation Activities</th>
<th>Before WDP (Engaged Persons %)</th>
<th>After WDP (Engaged Persons %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dairy</td>
<td></td>
<td>62</td>
<td>75</td>
</tr>
<tr>
<td>Medicinal Plant</td>
<td></td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>NTFP</td>
<td></td>
<td>15</td>
<td>8</td>
</tr>
<tr>
<td>Food Processing</td>
<td></td>
<td>55</td>
<td>72</td>
</tr>
<tr>
<td>Sewing/Knitting/Embroidery</td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Evidence from the field work

5.15 Market Facilities:

In the growing scenario of globalization, creation and maintenance of market facilities the most important economic activity. Marketing means creation of healthy conditions for the smooth functioning of selling and buying. In this regard advertisements, also play a vital role. However agricultural products when entered in the market, spear of multi-national companies. Sometimes many products are sold with attractive brands. Therefore proper marketing requires for promotion of selling of any products. Installation of WDPs also improved market facilities in the villages of study area according to the respondents.

The present study has divided into six major activities of marketable goods. They are classified on the basis of storage and processing, market facilitation, trend of selling price and income generation before and after the implementation of WDPs.
5.15.1. Agriculture Products:

The main aim of the WDPs is to improve the products and the income generation activities of farmers by providing much needed supplement of water and improved soil facilities in the study area.

5.15.1.1. Paddy:

Rice is the staple food of the state of Andhra Pradesh therefore it is not surprise that cultivation of the paddy the largest crop in the state. Similarly the study area also cultivate paddy on a larger scale sparing few mandals of Rayalaseema region. Therefore better storage facilities are provided for paddy seed and produce, marketing facilities are also rightly provided irrespective of the regional variation. Selling price of the crop has been increased by 2 per cent through the state after implementation of WDPs due to high yield owing to facilitation of the programme. Income generation concurrently rows as the selling price has increased. Paddy cultivators on an average expected a rise of 20 per cent to 30 per cent after the implementation of the Programme. Corresponding numbers for Rayalaseema in the selling price is 3.5 per cent and income of 28 per cent to 37 per cent. The same for coastal Andhra is bit falling due to arid lands of Prakasam and Agency of Srikakulam indicator show a price rise of 1.8 per cent and income of 17 per cent to 28 per cent.
In Telangana region paddy is cultivated in tune with the state numbers and price rise of 2.2 per cent and income about 25 per cent to 35 per cent after the implementation of the Programme.

5.15.1.2. Jowar:

Most of the people of Telangana region fondly consume Jowar as staple food as Roties and Malt Jonna Rotte is the primary food of tribal (Lambadi) and non-tribal people of districts adjacent to Karnataka and Maharashtra. Jowar is widely grown in entire Andhra Pradesh its one of the variant is widely used as fodder for cattle with all these uses it offers Jowar seems to be precious in cultivation and healthy in consumption. These values make necessary steps for storage and processing facilities alongside good marketing facilities. After the project, prices rise of 6.8 per cent and income generation of 23 per cent to 35 per cent is attained. In the down fall its income generation in spite of its high price is given to the prolonged process of its food preparation.

5.15.1.3. Cotton:

This crop comes under the commercial crop for which demand is high. However the variants of long staple and short staple are observed in the present study of places such as Khammam, Prakasam and Srikakulam districts grow cotton on a regular basis. However in other regions also similar in cotton growth. To observe the market facilities, the first headache regarding cotton is its processing and storage, said by the some of the respondents as the Yield increase maintenance of storage and market facilities has been
increased hopefully. Selling Price per quintal raised forms 300 to 500 which increase the income generation of 15 per cent to 30 per cent after the implementation of the Programme.

5.15.1.4. Groundnuts:

They are two interesting factors for the growth of groundnuts; India is the largest producer of the ground nut in the world of which 90 per cent of the produce comes from the state of Andhra Pradesh. Therefore it can be concluded that Andhra Pradesh is the largest producer in the world. Groundnut is grown in almost all the places of the study area. However Rayalaseema occupies the first place in Andhra Pradesh. Regarding the storage and processing of groundnuts respondents of the state give an opinion that it is very much important to save the seed for future crops. Storing the groundnuts is difficult since rat species, bugs, insects and other forms of creatures eats storage. This needs good concretized surface to deny passage of insects. With all these guaranteed storage facilities groundnuts are marketed. Direct use of groundnuts is nominal where as its products are sold better than the nut form oils groundnut oriented products and post product remains (Cattle are Famous). A five percent raise in the price enable the farmers with an additional increase of 25 per cent to 40 per cent income generation in the ground nut business. However few respondents expressed their grief with major remark. Retailers are benefitted for better than the farmers.
5.15.1.5. Pluses:

Consumption of pulses in day to day life is phenomenal thus production of pulses in Andhra Pradesh is also high. Different types of Dals and grams are consumed directly are in other forms as flours and powders. Almost all the districts of the study area cultivate pulses. Market facilities and storage for pulses is required for a great extent. An average price rise of a whopping 11 per cent to 15 per cent rise encourages farmers for growing pulses. However income generation activity is not encouraging where as minimum guarantee is not assured. Thus an income rise of 15 per cent to 25 per cent is limited farmers for cultivation.

5.15.1.6. Maize:

Maize/Corn is the important food grains of people of Andhra Pradesh it occupies 4th place in the food consumption after Rice, Wheat, and Jowar. It is one of the high nutrients ingredients in the food products of children. Even government started distributing Flours and powder made of fried corn in the nursery, kinder garden and Anganwaadi setups. Maize is cultivated throughout all the respondents regions. However cultivation of maize is secondary or third crop. So that its Yields also relatively lower compare to other food grains. After the project implemented there was a price raise of 8% facilitating farmers with an encouraging income of 32 per cent to 45 per cent. Therefore farmers are taking necessary steps for storage and marketing of maize.
5.15.1.7. Sugar Cane:

Sugar cane is widely cultivated in Andhra Pradesh however a few watershed areas cultivate it. Market facility in the watershed areas is not encouraging and there are no storage facilities and processing is not found high in watershed areas. Very few villages of Coastal Andhra are cultivated in the study area.

Fig: 5.11: Distribution of respondents by their Market Facilities

Source: Evidence from the field work
5.15.2. Horticulture

This is the alternative mode of income generation of agricultural activities. Plantation business of Mango, Banana, Citrus Fruits, Flowers, and nursery maintenance can be classified into horticulture.

5.15.2.1. Mango:

Mango is regarded as king of the fruits. High risk is required for the storage of mangos processing of mangos for associate products is one more risk. But mango business is the most profitable in Andhra Pradesh. An average price rise of 10 per cent and income generation of 40 per cent to 60 per cent provoke farmers for mango cultivation. However risks of weather disturbance, perish ability forces farmers towards incurring losses.

5.15.2.2. Banana:

Banana plantation also carried out all over the places of study area. However Telangana region is so blessed with the highly nutritious plant. An average price rise of 3 per cent an income generation of 15 per cent to 20 per cent expresses the limitations. Unripe bananas are used as vegetables its leaves were used for ceremonial dining leaves.
5.15.2.3. Citrus fruits

Consumption of these fruits increased in the globalized diabetic society. Orange, Cheeni, Mosambi/Battayi, lime etc… are classified among under the category of citrus fruits. Many of these were used in cosmetics and other in food products, therefore an average price rise of 4 per cent, income generation of 15 per cent to 30 per cent.

5.15.2.4. Papaya:

Papaya is widely grown fruit variety in the state its consumption has increased as it acts as antidote to un specific and many viral fevers. Wide range of its growth in Rayalaseema and Coastal Andhra reveals that there is a demand for papaya. An average of price rise 4 to 8 per cent and income generation activity of 20 per cent to 30 per cent encourages many farmers for its production increased.

Fig: 5.12: Distribution of respondents by their Horticulture

Source: Evidence from the field work
5.15.3. Animal Products

These products have demand wherever human habitations are present. Animal products include Milk, Meats, of various kinds eggs and other products of skin and fur. Milk is the most protein food that peoples consume about 99 percent. Meat eating is a passion and treated as royal habit. Eggs are proteins and provide high calories for children and women. Other products have specific uses from leather making to decorative. Many of animal products are used for clothes and other attires. Storage of animal products is usually not possible. Since many of these products are perishable unless they are too important, refrigerators are not used. However by products of animals have durable usage. Market facilities for animal products sometimes do not require separate market as such. In the study area where poultry and other forms of animal forms are encouraged average price rise for these products is 2.5 per cent to 4 per cent. Income generation also is on the higher side. As most of these products are animal dependent, they have classified demand for seasons.
Fig: 5.13: Distribution of respondents by their use of Animal Products

Source: Evidence from the field work

5.15.4. Milk Products:

Milk products are used everywhere in the world, storage and processing re the most difficult activities of rural people. Milk products such as Ghee, Butter Cheese, Curd, Khova, Butter Milk, Pannier etc… all these products require normal to deep freezers. Marketing of these goods is on a high scale an average price rise of 5 per cent to 8 per cent and income generation are 35 per cent to 50 per cent income generation is attained. Due to multiple facilitation for animal husbandry all these products increase after the installation of WDPs.
5.15.5. Fisheries:

Except few Mandals of the study area of Prakasam and Srikakulam fisheries are not found in other watershed district areas. Some of the distinguished products of fisheries are variety of fish, Prawn, Crab, Fish oil etc… demand of these products is mainly seasonal and occasional however they are high income generators has an average of 45 per cent to 60 per cent of income is created with a price rise of 10 per cent to 15 per cent.
5.15.6. Nursery:

Maintenance of nursery is widely seen in watershed areas. Some of the less yielding fields take up nursery management as they do not require most partial lands. Flower business is most profitable on the occasions of festival and Celebrations. As the corporate sector is increasing garland and bouquets, a high percentage of 8 per cent to 15 per cent enable formers with 50 per cent to 60 per cent of income generation.

Apart from these there are many income generation activities that take place in the present market. Such as vegetables, spices and Beatle leaves Cashew Nuts etc. vegetable business is found to be a sustainable activity that suffice needs of many families and marginal farmers. All these activities are on the higher side of income generation as all of these are on the high demand of necessities and passion.

5.16. Course of activities in the WDPs

Harvesting the rain and runoff water is the prime objective of the watershed development programme. To do this, many structures of various types like check dams, contour bunds, Stone bunds, farm ponds, growing greenery-Dry land Agriculture, forestry, horticulture and pastures, etc. needs to play a crucial role in generating impact in a post project scenario. It helps us in assessing the nature of project implementation. Further, unless the qualities of the structures are constructed across the gullies of various orders. Quality and current status of water harvesting structure good, the desired results cannot be produced. Also these structures are expected to withstand the rough conditions.
Thus the quality is essential to maintain status. Maintenance of water harvesting structures is significant to enhance storage capacity and also in certain cases the infiltration capacity. The structures also require periodical maintenance like plastering, pointing, and repairing to prevent cracks and leakages. Maintenance of storage capacity and infiltration capacity is essential in order to avoid water flow as a runoff.

5.17. Availability of Market facilities in WDP’s Areas:

Implementation of WDPs gives many added advantages to farmers with the improved facilities. Notable objective of watershed programme is optimum utilization of water resources of nature and manmade affectively. With this objective irrigation facilities and use of water in non-agricultural activities are improved. Apparently increase in the agriculture yield, horticulture, nursery products, animal husbandry and other productive activities. All these products necessarily wanted a perfect place to selves these commodities thus they require a proper market. Most of these study villages fall at the peripheries of high settlements therefore these interior villagers expected to travel far off places to market their goods. Before the start of the project proper markets are not available within near vicinity of these villages. Farmers travelled more than 50 km to dispatch their goods after the project implemented each Mandal of WDPs turn into a potential market, thus within 5 to 10 km of radian a potential market is created in each WDPs.
5.18 Access to Credit:

After independence they accrued a strange pattern of agriculture which has not been seeing before. Freedom broad down savagery culture of slave and Vetty indentured labor and forced labour. Along with these anarchic Jamindari system was abolished in 1951. Movements like Bhudhan, Land sealing and other land reforms enabled land less to acquire small portion of land. Growing population and individualization of family sizes, law of primogeniture is modified and ancestor property divided equally among legal hairs. size of the land holdings gradually decreased. Land holdings were fragmented in a sky fall. Therefore farmers are forced to take aid of the rich and the state.

Credit facilities can be divided into two major categories individual finance and institutional finance. Individual finance is the finance the credit that is taken from the private people. This credit is instant but on a higher rate of interest. Institutional finance is the credit taken from private and Government institutions like Banks, Cooperative societies, Microfinance.

5.18.1. Crop Loans:

To continue with any crop farmers has to bear many direct and indirect costs; therefore he takes loans from various institutions on the basis of guarantee pay back with certain assurances. Before the project started farmers had taken crop loan from formal institutions or individuals at 53 per cent and 62 per cent private individuals the formal
crop loans increased to 70 per cent after the project has implemented and there is a fall in the informal credit to 36 per cent.

### 5.18.2. Purchase of Variety of Seeds:

This has an unavoidable future of agriculture main dream and aspiration of any formal in India is to get maximum profits from the crops. Therefore all the farmers irrespective of age and affordability try to introduce high yield verity of crops. Before the start of the project 45 per cent credit was taken for the purchase of improved verity of seeds from institutional finance. And these numbers for individual and informal credit is 69 per cent. After the project has implemented the rate of institutional finance has increased to 85 per cent and individual finance has got down to 26 per cent.

### 5.18.3. Fertilizers and Pesticides:

All the crops require certain fertilizers for strength for the crop and pesticides for killing pests. In this regard 65% of credit is drawn from institutional finance and 35% from individuals before the project, after the project implemented institutional finance for purchase of fertilizers and pesticides increase to 75% and individual finance falls down to 25%.

### 5.18.4. Purchase of Form Machinery and Equipments:

To with stand the competition of co-farmers and International market farmers are forced to adopt different types of machinery. Mechanization of agriculture reduces manly labour to a great extant. The mechanization starts from pilling or ploughing to sowing,
fertilizing and harvesting. First and foremost machinery that is helpful for farmers are tractor from tilling to transportation, tractor suffices the needs of the farmers. Apart from the tractor machines such as power sprayers for fertilizing, sewing machines, irrigation drips and lifts, harvest machines. Harvesters differ from crop to crop. Different harvesters for paddy, wheat, maize, sugarcane etc…. are available in the market. These machines cut the crop separates grain from the straw, loads the grains to transport vehicles, arranges straw in heaps etc… corn harvesters removes corn from the pouch.

Before the implementation of the project 30 per cent of machinery loan is taken from institutional finance and 40 per cent from individual finance. After the project implemented yield has started to increase better and institutional finance is more required. Therefore 65 per cent of loans for machinery is taken from institutional finance and 15 per cent from informal or individuals. To encourage farmers to use machinery government started giving on low interest at time majority of the cost is shared by the Government and minimum by the individuals. In some special cases 80:20 and 90:10 ratio of loans were to be boar by the institutions to encourage formers in specialized machinery.

5.18.5. Livestock Purchase and Treatment:

Livestock provides farmers with many agricultural facilities therefore it is his duty to protect and look after their well being. Before the implementation of the project 50 per cent of loans on purchase of livestock is drawn from institution and 30 per cent to 40 per cent from individuals. After the implementation of the project 70 per cent of the loan on
purchase of livestock is taken from institutional finance and mere 10 per cent from 
individual finance.

The above furnished data is a carbon copy of watershed development villages 
from specific geographical zones. As state of Andhra Pradesh has been divided into three 
major zones, it is evident ecological, environmental climatic differentiation or apparent. 
Evident from these

natural variations, encouraged people to take-up occupations to suit their 
topographical conditions. Based upon the standard of living condition society is divided 
into compartments or class. The class structure ultimately prevailed over the social 
stigma. However Indian villages still clung on to their traditional roots. The same roots 
are apparent the form of agriculture as it is the back bone of Indian society improvement 
of it is the foremost principal of the social order.

In this connection government has taken necessary steps to strengthen agriculture 
sector. To boost of this it has established water locking and conservation to improve the 
yield as part of that WDPs clay in valuable service to farmers. A respondent of the 
farmers is outstanding that the WDPs had improved their lives by initiation of 
intensification of facilities to improve much needed produce. Improvement of farmer’s 
productivity in various fields of agriculture and its related activities are ably illustrated 
above. The chapter preceding wood give a better picture on the success rate of WDPs.