Chapter - VI

Impact of RASS Promoted Watershed Programme on Income and Employment
6.1 INTRODUCTION

Rashtriya Seva Samithi (RASS) has taken up 18 watershed management projects in Chittoor district and of them, four most successful watershed projects have been selected for the study. The present chapter deals with the objectives of the watershed programmes, background, social composition, land holding pattern, specific problems addressed, socio-economic, demographic background of the respondents improving the ground water level, overall change in the cropping pattern and improvement in the crop yields and the end results in the selected four projects where the RASS has launched watershed programme. A successful watershed programme in any area will have its impact on the skill development of the people as well as on their social aspects besides economic impact in terms of increase in the income as well as on household expenditure.

The watershed development programmes were implemented for the development of 1350 hectares (approximately) in each of the four selected watershed projects in phased manner and a sum of Rs1.25 crore was allotted for each watershed programme spanning a period of 4 years by the government of India according to the norms of Technical Committee on DPAP and DDP (1994), headed by Dr.C.H.Hanumantha Rao. The broad objectives of the watershed development projects are:

1. To promote the economic development of the village community which is directly or indirectly dependent upon the watershed through optimum utilization of watershed natural resources like land, water, vegetation etc. that will mitigate the adverse effects of drought and prevent further ecological degradation besides employment generation and development of human and other economic resources of the village in order to promote savings and other income generation activities.

2. To encourage restoration of ecological balance in the village through sustained community action for the operation and maintenance of assets created and for the further development of the potential of the natural resources in the watershed, suggesting simple, easy and affordable technological solutions and making institutional arrangements which make use of built upon, local technical knowledge and available materials.
3. Special emphasis to improve the economic and social condition of the resource-poor and the disadvantaged sections of the watershed community such as the assetless and the women through more equitable distribution of the benefits of land and water resource development and consequent biomass production, greater income generation activities and focus on human resource development.

6.2 WATERSHED PROGRAMMES

Brief information about the selected watershed programmes carried out by them is given below.

- Location of the Project (under watershed)
- Climate
- Vegetation
- Social composition of the village
- Problems faced by the farmers
- Mobilization of the watershed programme

6.2.1 Thummachenupalli Watershed

Thummachenupalli watershed is located in Chinnagottigallu mandal of Chittoor district. As an entry point activity, initially RASS constructed check dam and motivated the grampanchayat to pass resolution for public contributions, organized Participatory Rural Appraisal (PRA) to prepare the developmental plans for watershed and provided technical guidance.

Location

The project area is located at Thummachenupalli 15 km away from the headquarters of Chinnagottigallu and 75 km from the district headquarters i.e., Chittoor. The longitude is 79°-9' to 79°-12' and latitude is 13°-39' to 13°-42' the total area of the project is 1350 ha, out of which only 581 ha are cultivable. The remaining area includes waste land, ridges and marginal soils.

Climate

The project receives about 473 mm rainfall annually distributed over 130 days. The rainfall is high during September to November which is about 180 mm.
Soils

The soils in the area are red gravel, red rocky, light black and sandy with minimal presence of saline soils. The soils are highly eroded.

Crops

The important crops raised in the village are paddy, red gram, groundnut, tomato and mangoes. Water sources of the village are wells, bores, ponds and tanks.

Social Composition and Land Holding Pattern

More than 82 per cent of the families of the project depend on agriculture. Particulars about the social composition and land holding pattern of the villagers are given in the table 6.1.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Social Composition</th>
<th>No. of Families</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Landless people</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Small Farmers</td>
<td>Medium Farmers</td>
</tr>
<tr>
<td>1</td>
<td>Forward Caste</td>
<td>3 (0.7)</td>
<td>231 (61.3)</td>
</tr>
<tr>
<td>2</td>
<td>Backward Caste</td>
<td>6 (2.1)</td>
<td>248 (87.0)</td>
</tr>
<tr>
<td>3</td>
<td>Schedule Caste</td>
<td>25 (59.5)</td>
<td>61 (57.5)</td>
</tr>
<tr>
<td>4</td>
<td>Schedule Tribes</td>
<td>8 (11.4)</td>
<td>47 (67.1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(19.0)</td>
<td>(8.0)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>42 (5.0)</td>
<td>587 (70.0)</td>
</tr>
</tbody>
</table>

Source: Primary data
Note: Figures on the parenthesis show the percentages.

A total of 838 families are covered by the watershed programme under the project area. In Thummachenupalli project area, majority of the families i.e. 377 (45 per cent) are from Forward Caste. Not only are these, except 3(7.1 per cent) families who are landless, the rest of them distributed over the categories of small (61.3 per cent), medium farmers (26 per cent) and large (12 per cent) farmers. There are 285 (34 per cent) Backward Caste families, of which 6(2.1 per cent) are landless, 248 (87 per cent) are small farmers category, 20(7 per cent) are medium farmers category and
11(3.9 per cent) fall under large farmers category. Scheduled Castes constitute 106 (12.6 per cent) families, of which 25(23.6 per cent) are landless, 61(61 per cent) are small farmers category, 14(13.2 per cent) are medium farmers category and the remaining 6(5.7 per cent) are under the category of large farmers. 70(8.4 per cent) families of the total families belong to Scheduled Tribes. Of them 8(11.4 per cent) are landless, 47(67.1 per cent) are small farmers, 10(14.3 per cent) are medium farmers category and 5(7.1 per cent) belong to large farmers category. Of all the 838 families in the project 42(5.0 per cent) are landless, 587(70 per cent) are small farmers, 142 (17 per cent) are medium farmers category and 67(8 per cent) fall under the large farmers category.

Problems of the Farmers

- Traditional mode of cultivation
- Large area under fallows
- Irregular and scarcity of rain fall
- Scarcity of irrigation facilities
- Low productivity despite the use of chemical fertilizers and pesticides.
- Scarcity of green fodder
- Intensity of disease in the cattle
- Salinity of the soil

Watershed Development Works by RASS

On the basis of the detailed analysis of soil, climate, vegetation and present land usage, the following works are undertaken in the watershed programme in the project area.

Agricultural Works

- Soil and moisture conservation works, stone terracing and plantation on bunds.
- Constructions of check dams on Nereellavanka, Maddelabandavanka, Peddavagu.
- Construction of percolation tanks on Gajarevuvar, Gajilagunta and Nayanicheruvavanka.
- Afforestation, avenue plantation, utilization of waste land for cultivation of horticulture etc.
Mobilization of the Villagers

- Entry point activity
- Networking with SHGs and Village Organizations
- Kala jathas, awareness camps and video shows
- Shramadanam in the village, Exposure visits, Sanitation and provision of drinking water
- Utilization of non-conventional energy source

6.2.2 Bodireddigari palli Watershed

Bodireddigari palli Watershed is located in Pullicherla mandal of Chittoor district.

Location

The project area is located at Bodireddigari palli, 13kms away from the mandal headquarters and 65kms from the district headquarters. The latitude is 13° 11' 45" and longitude is 79° 21' 22". The total area of the watershed is 1250 ha, out of which 710 ha are agricultural lands, 490 ha are wastelands and 50 ha are fallows.

Climate

The average rainfall of the village is 620 mm. The rainfall is high during October (203.34 mm). The maximum temperature is 42° C and the minimum temperature is 27° C in the project area.

Soils

Most of the soils of the village are black soil, red sandy soils and red gravel.

Crops

Major crops grown in the village are paddy, groundnut, tomato, mango, red gram, horsegram etc.

Water Sources

Water sources of the village are dug wells, bores, tanks and ponds.

Facilities Available

The project area has five primary schools, APSRTC bus facility, post office and almost all the houses are electrified.
Social Composition and Land Holding Pattern

The social composition and land holding pattern of the villages are shown in the table 6.2.

Table 6.2
Social Composition and Land Holding Pattern of Bodireddiguripalli Watershed

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Social Composition</th>
<th>No. of Families</th>
<th>Land Holdings</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Landless people</td>
<td>Small Farmers</td>
<td>Medium Farmers</td>
</tr>
<tr>
<td>1</td>
<td>Forward Caste</td>
<td>5 (1.0) (6.3)</td>
<td>144 (30.5) (23.0)</td>
<td>244 (51.7) (61.8)</td>
</tr>
<tr>
<td>2</td>
<td>Backward Caste</td>
<td>18 (3.4) (22.8)</td>
<td>320 (61.2) (51.0)</td>
<td>115 (22.0) (29.1)</td>
</tr>
<tr>
<td>3</td>
<td>Schedule Caste</td>
<td>36 (18.0) (45.6)</td>
<td>120 (60.0) (19.1)</td>
<td>24 (12.0) (6.1)</td>
</tr>
<tr>
<td>4</td>
<td>Schedule Tribes</td>
<td>20 (24.7) (25.3)</td>
<td>43 (53.1) (6.9)</td>
<td>12 (14.8) (3.0)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>79 (6.2) (49.1)</td>
<td>627 (49.1) (31.0)</td>
<td>395 (13.7) (13.7)</td>
</tr>
</tbody>
</table>

Source: Primary data
Note: Figures on the parenthesis show the percentages.

Numerically, out of the total 1276 families in the project area, families from Backward Castes are largest in number i.e., 523(41 per cent). Not only this, except 18(3.4 per cent) families who are landless, the rest of them are distributed over the categories of small 320(61.2 per cent), medium 115(22 per cent) and large 70(13.4 per cent) farmers. There are 472(37 per cent) Forward Caste families, of which 5(1 per cent) are landless, 244(51.7 per cent) are medium farmer category, 144(30.5 per cent) are small farmers category and 79(16.7 per cent) fall under large farmers category. Scheduled Castes constitute 200(15.7 per cent) families, of which 36(18 per cent) are landless, 120(60 per cent) are small farmers category, 24(12 per cent) fall in the category of medium farmers and the remaining 20(10 per cent) are under the category of large farmers. 81(6.3 per cent) families of the total families belong to Scheduled Tribes. Of them 20(24.7 per cent) are landless 43(53.1 per cent) are small farmers, 12(14.8 per cent) are medium farmers and 6(7.4 per cent) belong to large farmers category. Of all the total 1276 families in the project area, 79(6.2 per cent) are landless, 627(49.1 per cent) are small farmers, 395(31 per cent) are medium farmers and 175(13.7 per cent) fall under the large farmers category.
Problems of the Farmers

Following were the main problems of the farmers before initiating the watershed programme

- Traditional mode of cultivation
- Unfertile soil resulting in excessive use of fertilizers.
- Irregular and scarcity rain fall.
- Lack of proper water resources to cultivate irrigated crops.
- Pests
- Salinity of the soil.

Watershed Development Works by the RASS

Following are the works undertaken by the RASS in the 4 years of watershed programme.

Agricultural Works

- Soil and moisture conservation works, vegetative check dams, dugout ponds, farm ponds, stone checks and plantation on bunds.
- Water conservation works undertaken.

Construction of nalaband on Ramulakunta, repairing and development of Marlaguntavagu, construction of check dams in project area etc. Agro forestry (150 ha), horticulture (120 ha), mango plantation and kitchen gardens are under watershed area.

Mobilization of Formers

- SHGs and Village Organizations were strengthened and encouraged to go for micro-credit.
- Organized awareness camps and video shows on family planning, health, sanitation and provision of drinking water etc.
- Exposure visits.
- Non-conventional energy sources utilization.
- Groups of adolescent girls and women were organized and strengthened to address issues affecting their lives and acquire their due status.
6.2.3 Mellacheruvu Watershed

Mellacheruvu watershed project is located in Piler mandal of Chittoor district.

Location

The project area is located at Mellacheruvu 22 kms away from the mandal headquarters and 93 kms from the district headquarters. It lies between is longitude 78° 33' to 79° 55'E and latitude 12° 37' to 14° 0'N. The area of the watershed is 1350 ha, out of which 850 ha. are agricultural lands and the remaining are wastelands.

Climate

The average rainfall of the village is 750.9 mm. Rainfall is in August (170.0 mm) and October (485 mm). Maximum temperature is 40° C and the minimum temperature is 23° C in the village.

Soil

Lands in the village are black soils, rocky soils, red loam soils, red sandy soils and red gravel.

Crops

Main crops grown the project area are groundnut, tomato, mangos, paddy, horsegram and red gram.

Water Sources

Water sources of the project area are bore well and wells.

Public Utilities

The project area consists of consists of 6 primary schools, APSRTC bus stop, telephone facility, post office and almost all the houses are electrified.

Social Composition and Land Holding Pattern

The social composition and land holding pattern are presented in the table 6.3.
A total of 882 families are covered by the watershed programme in this project area. In Mellacheruvu project majority of the families i.e., 463 (52.5 per cent) are from Backward Castes. Next except 16 (3.4 per cent) families who are landless the rest of them are distributed over the categories of small 298 (64.4 per cent), medium farmers 99 (21.4 per cent) and large 50 (10.8 per cent) farmers. There are 185 (21 per cent) Schedule Caste families, of which 55 (29.7 per cent) are landless, 70 (37.9 per cent) are small farmers category, 38 (20.5 per cent) are medium farmers category and 22 (11.9 per cent) fall under large farmers category. Forward Castes constitute 141 (16 per cent) families, of which 4 (2.8 per cent) are landless, 69 (49 per cent) are small farmers category, 32 (22.7 per cent) are medium farmers category and the remaining 36 (25.5 per cent) are under the category of large farmers. 93 (10.5 per cent) families of the total families belong to Scheduled Tribes. Of them 25 (26.9 per cent) are landless, 52 (55.9 per cent) are small farmers, 12 (12.9 per cent) are under medium farmers and 4 (4.3 per cent) belong to large farmers category. Of all the 882 families in the project, 100 (11.4 per cent) are landless, 489 (55.4 per cent) are small farmers, 181 (20.5 per cent) are medium farmers and 112 (12.7 per cent) fall under the large farmers category.

Table 6.3
Social Composition and Land Holding Pattern of Mellacheruvu Watershed

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Social Composition</th>
<th>No. of Families</th>
<th>Land Holdings</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Landless people</td>
<td>Small Farmers</td>
<td>Medium Farmers</td>
</tr>
<tr>
<td>1</td>
<td>Forward Caste</td>
<td>4 (2.8)</td>
<td>69 (49.0)</td>
<td>32 (22.7)</td>
</tr>
<tr>
<td>2</td>
<td>Backward Caste</td>
<td>16 (3.4)</td>
<td>298 (64.4)</td>
<td>99 (21.4)</td>
</tr>
<tr>
<td>3</td>
<td>Schedule Caste</td>
<td>55 (29.7)</td>
<td>70 (37.9)</td>
<td>38 (20.5)</td>
</tr>
<tr>
<td>4</td>
<td>Schedule Tribes</td>
<td>25 (26.9)</td>
<td>52 (55.9)</td>
<td>12 (12.9)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>100 (11.4)</td>
<td>489 (55.4)</td>
<td>181 (20.5)</td>
</tr>
</tbody>
</table>

Source: Primary data
Note: Figures on the parenthesis show the percentages.
Problems of the Farmers

Following are the main problems of the farmers before the watershed programme was initiated.

- Traditional method of cultivation
- Excessive use of fertilizers because of infertility of the soils.
- Irregular and scarcity of rain fall.
- No water for irrigation
- Pests and low yields
- Salinity of the soil
- Soil erosion

Watershed Development Works taken up by the RASS

Following are the works undertaken by the RASS during the 4 year period of watershed programme.

Agricultural Works

- Soil and moisture conservation works undertaken in the village are vegetative check dams, stone checks land leveling, farm ponds, plantation on bunds, salinity reclamation and rock farm dams.
- Water conservation works are repair and development of Achammagunta, repair and development of Velamavarigunta and Yerracheruvu.
- Conversion of wasteland into cultivable lands, agro forestry (75 ha), avenue plantation (38 ha) social forestry (35 ha), plantations on bunds, barren hill, vegetative bunds with grass and kitchen gardens.

Mobilization of Villagers

- Formation of SHGs and Village Organizations
- Conducted awareness camps and video shows about family planning, health, sanitation and protection of drinking water etc.,
- Exposure visits.
- Utilization of non-conventional energy sources.
6.2.4. Valasareddigari Palli Watershed Project

Valasareddigari Palli watershed is located in Chinnagottigallu Mandal of Chittoor district. As an entry point activity, initially RASS repaired the village tank for drinking water and gathered the villagers to discuss the problems of the village.

Location

The project area is located at Valasareddigari Palli 16 kms away from the Mandal headquarters and 90 kms from the district headquarter. It lies between longitude 79°04' to 79°07'E and latitude 13°40' to 13°43'N. With an area of the watershed project is 1350 ha. out of which 850 ha. are agricultural lands and remaining wastelands.

Climate

Average annual rainfall of the village is 650 mm rain fall which is high during November (120 mm). Maximum temperature in the region is 40°C and minimum is 39°C.

Soils

The soils in the area are red gravel, red rocky and sandy with minimal presence of saline. The soils are highly eroded.

Crops

Important crops raised in the project area are groundnut, paddy, tomato, mangos, sugarcane and red gram.

Water sources

Water sources of the project area are wells, bores and ponds.

Public Utilities

The project area has four primary schools, APSRTC bus stop, telephone facility, post office and almost all the houses are electrified.

Social Composition and Land Holding Pattern

Social composition and land holding pattern in the project area are shown in the table 6.4.
Table 6.4
Social Composition and Land Holding Pattern in the Valasareddigariipalli Watershed Project

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Social Composition</th>
<th>No. of Families</th>
<th>Landless</th>
<th>Small Farmers</th>
<th>Medium Farmers</th>
<th>Large Farmers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Landless people</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Forward Caste</td>
<td></td>
<td>13 (10.0) (13.7)</td>
<td>83 (64.3) (27.2)</td>
<td>21 (16.3) (25.3)</td>
<td>12 (9.3) (36.4)</td>
<td>129(25.0)</td>
</tr>
<tr>
<td>2</td>
<td>Backward Caste</td>
<td></td>
<td>25 (16.5) (26.3)</td>
<td>67 (44.4) (22.0)</td>
<td>45 (29.8) (54.2)</td>
<td>14 (9.3) (42.4)</td>
<td>151(29.3)</td>
</tr>
<tr>
<td>3</td>
<td>Schedule Caste</td>
<td></td>
<td>55 (25.1) (57.9)</td>
<td>142 (64.8) (46.5)</td>
<td>15 (6.9) (18.1)</td>
<td>7 (3.2) (12.1)</td>
<td>219 (42.4)</td>
</tr>
<tr>
<td>4</td>
<td>Schedule Tribes</td>
<td></td>
<td>2 (11.8) (2.1)</td>
<td>13 (76.5) (4.3)</td>
<td>2 (11.8) (2.4)</td>
<td>0 (0.0) (0.0)</td>
<td>17 (3.3)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>95 (18.4) (59.1)</td>
<td>305 (64.3) (16.1)</td>
<td>83 (16.1) (6.4)</td>
<td>33 (6.4) (100)</td>
<td>516 (100)</td>
</tr>
</tbody>
</table>

Source: Primary data
Note: Figures on the parenthesis show the percentages.

There are 516 families in the project area of whom and majorities are Schedule Castes, i.e., 219(42.4 per cent). About 55(25.1 per cent) families are landless and the rest of them are distributed over the categories of small 142(64.8 per cent), medium 15(6.9 per cent) and large 7(3.2 per cent) farmers. There are 151(29.3 per cent) Backward Caste families, of which 25(16.5 per cent) are landless, 67(44.4 per cent) are medium farmers, 45(29.8 per cent) are small farmers and 14(9.3 per cent) fall under large farmers category. Forward castes constitute 129(25 per cent) families, of which 13(10 per cent) are landless, 83(64.3 per cent) are small farmers, 21(16.3 per cent) fall in the category of medium farmers and the remaining are 12(9.3 per cent) under the category of large farmers. 17(3.3 per cent) families of the total families belong to Scheduled Tribes. Of them 2(11.8 per cent) are landless 13(76.5 per cent) are small farmers and 2(11.8 per cent) are medium farmers. There are no large farmers among Schedule Tribes. Of all the total 516 families in the project area, 95 (18.4 per cent) are landless, 305(59.1 per cent) are small farmers, 83(16.1 per cent) are medium farmers and 33(6.4 per cent) fall under the large farmers category.
Problems of the Farmers

Following are the main problems of the farmers before the watershed programme was started.

➤ Traditional mode of cultivation.
➤ Unemployment and under-employment.
➤ Unfertile soils
➤ Ineffective management of pests and diseases.
➤ Soil erosion and depletion of economic vegetation
➤ Soil salinity in the agricultural lands
➤ Diminished livestock productivity
➤ Absence of plantations on banks.
➤ Degradation of surrounding forest area
➤ Excessive water run-off.

Watershed Development Works by RASS

On the basis of the detailed analysis of soils, climate, vegetation and present land usage, the following are the steps taken by the watershed.

Agricultural Works

➤ Soil and moisture conservation works done in the village are stone terracing, vegetative check dams, contour bunding, gully plugging, rock fill dams over deep gullies, land levelling and removal of rocks, raising grass seed hamates on the foot hill, salinity reclamation and rock farm dams.
➤ Water conservation works are construction of percolation tanks and construction of check dams on Rallavagu and Kakulavagu.
➤ Agro-forestry, avenue plantation, plantation on road sides, horticulture, plantations on bunds, vegetative bunds and kitchen gardens.
➤ Demonstration of appropriate agricultural technology like seed treatment, intercropping, compost pits, integrated pest management and use of biopesticides.

211
Mobilization of Villagers

- Formation and management of Self-Help Groups.
- Development and management of revolving seed banks.
- Maintenance of accounts and records.
- Holistic resource management
- Fodder management
- Utilization of non-conventional energy sources.
- Shramadanam in the village, exposure visits, sanitation and protection of drinking water.

Comprehensive Picture of Social Composition and Land Holding Pattern

The total picture of social composition and land holding pattern of all the selected four watersheds combined together is very important. The table 6.5 shows the total scenario of social composition and land holding pattern under the four watersheds together.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Social Composition</th>
<th>No. of Families</th>
<th>Landless people</th>
<th>Land Holdings</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Small Farmers</td>
<td>Medium Farmers</td>
<td>Large Farmers</td>
</tr>
<tr>
<td>1</td>
<td>Forward Caste</td>
<td></td>
<td>25 (2.2)</td>
<td>527 (47.1)</td>
<td>395 (35.3)</td>
</tr>
<tr>
<td>2</td>
<td>Backward Caste</td>
<td></td>
<td>65 (4.6)</td>
<td>933 (65.6)</td>
<td>279 (19.6)</td>
</tr>
<tr>
<td>3</td>
<td>Schedule Caste</td>
<td></td>
<td>171 (24.1)</td>
<td>393 (55.4)</td>
<td>91 (12.8)</td>
</tr>
<tr>
<td>4</td>
<td>Schedule Tribes</td>
<td></td>
<td>55 (21.1)</td>
<td>155 (59.4)</td>
<td>36 (13.8)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>316 (9.0)</td>
<td>2008 (57.2)</td>
<td>801 (22.8)</td>
</tr>
</tbody>
</table>

Source: Primary data

Note: Figures on the parenthesis show the percentages.
A total of 3512 families are covered by the watershed programmes undertaken by the selected four watersheds of Chittoor district. It is clear from the table 6.5 that majority of the families in the four projects area are from Backward Castes, i.e., 1422 (40.5 per cent) among them 933(65.6 per cent) are small formers, 279(19.6 per cent) are medium formers and 145(10.2 per cent) are large formers. Only 65(4.6 per cent) families are landless among the Backward Castes. Next largest numbers of families are from Forward Castes 1119(31.9 per cent). Among the forward castes 25(2.2 per cent) are landless, 527(47.1 per cent) are small formers, 395(35.3 per cent) are medium formers and 172(15.4 per cent) are large formers. There are 710(20.2 per cent) families belonging to Scheduled Castes and among them 171(24.1 per cent) are landless followed by 393(55.4 per cent) are small formers, 91(12.8 per cent) are medium formers and 55(7.7 per cent) are from large formers category. Around 261(7.4 per cent) families of the total families belong to Scheduled Tribes, of them 55(21.1 per cent) are landless, another 155(59.4 per cent) are small formers, 36(13.8 per cent) are medium formers and 15(5.7 per cent) belong to large formers category. Of all the total 3512 families, 316(9 per cent) are landless, 2008(57.2 per cent) are small formers, 801(22.8 per cent) are medium formers and 387(11 per cent) fall under the large farmers category.

Approach of the RASS

It is clear from the activities and works undertaken under watershed programme by the RASS that they went about it systematically. In the selection of watershed areas in the respective projects, though there were some allegations in respect of one or two projects that political and caste considerations played major role in selecting the project areas to be covered, one cannot deny that after the selection of the projects, all the four projects went about their job in a methodical manner. The approach of the RASS is holistic and people oriented. The prior experience of RASS working with various people’s problems, dealing with issues of welfare, health, child labour etc., seems to have helped them in mobilizing the people participation and in attempting to address the other problems related directly to the watershed management and indirectly to other problems like literacy, health and exposure to mass media etc. It is also clear that before launching the watershed programme, the RASS surveyed the existing water sources, recorded the rainfall particulars, tested the fertility and salinity of the soils, identified waste lands, vegetation etc. Further they
identified the works to be undertaken under watershed programme and surveyed the socio-economic condition of the households being covered under the programme.

The most important aspect of any developmental programme particularly in the rural areas is to achieve "people participation", which really makes a difference between the failure and success of a programme. The RASS has initiated a number of social mobilization programmes so that people is participation is achieved in the watershed programme. However, according to the RASS, they did not want to take it for granted that the people would come forward to participate voluntarily in the watershed programme. Hence they initiated social mobilization process.

To achieve people participation in the programme, the RASS initiated and put into practice many mobilization programmes. Most important of them are (i) Formation of new SHGs (Self Help Groups) and providing them with revolving funds. They are networked with the existing RASS as well as helped them to start income generating activities, (ii) Shramadanam seems to have played an important role in bringing the families and people covered under watershed together to participate in the programme. Under the shramadanam programme, people were motivated to repair the drinking water wells, school buildings and lay roads in the villages, (iii) Awareness programmes and video shows were arranged not only on the watershed programmes but also on awareness about various problems faced by the villagers, (iv) Training programmes were organized in the technical aspects in cultivation like seed processing, inter cropping, crop rotation, drip irrigation, pest management, use of organic manure, management of soil erosion, reduction of salinity in the soil, judicial management of ground water, management of cattle (both milch and draught cattle) etc., (v) Production of education material to help the primary schools in the watershed areas and (vi) Organization of young girls in the villages to train them to address their own problems. It is a kind of empowerment process of the young girls and the establishment of girl child resource centers as well for adolescent girls etc. Watershed works undertaken consisted of construction of check dams on the streams, repair of existing tanks and wells, contour bunding, avenue plantation, social forestry, introduction of horticulture, stone terracing, grass land development, agro forestry, raising of kitchen gardens, digging of ponds, plantation on bunds, construction of drains, widening channels to the tanks, etc.
When the impact of watersheds in the four projects area as reported by the RASS themselves is examined, it is clear that the RASS was sure about some of the tangible impact but not in intangible impact in the people. For example, area of cultivation under different crops increased but in some cases, substantial increase was recorded while in other cases only marginal increases was achieved. Increase was only marginal, prices of the land increased substantially. There seems to be substantial increase in the green fodder production and the result was increase in the number of cattle in the villages and increase in the milk production. Another substantial impact was increase in the number of days of employment which is particularly beneficial to landless labourers and underemployed marginal and small farmers. Unfortunately the RASS did not speak about the extent control of soil erosion, reduction in soil salinity, and change in the cropping pattern. RASS is also not clear on the aspects of health, sanitation, literacy except making a general statement that they have improved. No information is provided on intangible aspects like, the process of decision-making, empowerment etc.

6.3 CHARACTERISTICS OF THE SAMPLE FARMERS

Social, economic and demographic backgrounds of the respondents (target groups) do play an important role in the outcome of any development programme. A few characteristic features like illiteracy may act as a constraint in achieving the objectives of the programme while a few like high rate of literacy may act as catalyst in making a programme a success. Hence, the characteristics of the sample respondents have been recorded and the same is presented in the following pages.

6.3.1 Age

Age is one of the important demographic variables that show experience, maturity of mind and endurance. It plays an important role in decision making through experience. The age of the sample respondents has been presented in the table 6.6.

The table 6.6 shows that out of 176 respondents, around 41 per cent are in the age group of 26-40 years, followed by more than 36 per cent in the age group of 41-55 years and more than 10 per cent are above 56 years of age. On the contrary, youth
below 25 years of age constitute mere 12.5 per cent. It is concluded that majority of the respondents are in the age group of 26-40 years.

Table 6.6
Age-wise Particulars of the Sample Respondents

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Age (Years)</th>
<th>Thumma chenupalli</th>
<th>Bodireddi garipalli</th>
<th>Mella cheruvu</th>
<th>Valasaredi garipalli</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Below25</td>
<td>6 (14.3)</td>
<td>7 (10.9)</td>
<td>6 (13.6)</td>
<td>3 (11.5)</td>
<td>22 (12.5)</td>
</tr>
<tr>
<td>2</td>
<td>26-40</td>
<td>17 (40.5)</td>
<td>27 (42.2)</td>
<td>17 (38.6)</td>
<td>11 (42.3)</td>
<td>72 (40.9)</td>
</tr>
<tr>
<td>3</td>
<td>41-55</td>
<td>14 (33.3)</td>
<td>22 (34.4)</td>
<td>18 (38.5)</td>
<td>10 (36.4)</td>
<td>64 (36.4)</td>
</tr>
<tr>
<td>4</td>
<td>56 above</td>
<td>5 (11.9)</td>
<td>8 (12.5)</td>
<td>3 (6.8)</td>
<td>2 (7.7)</td>
<td>18 (10.2)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>42 (100)</td>
<td>64 (100)</td>
<td>44 (100)</td>
<td>26 (100)</td>
<td>176 (100)</td>
</tr>
</tbody>
</table>

Source: Primary data
Note: Figures on the parenthesis show the percentages.

6.3.2. Caste

In rural areas caste plays a significant role in various aspects in India. The caste of the beneficiary respondents has been presented in the table 6.7.

Table 6.7
Caste-Wise Analysis of the Sample Respondents in the Study Area

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Caste</th>
<th>Thumma chenupalli</th>
<th>Bodireddi garipalli</th>
<th>Mella cheruvu</th>
<th>Valasaredi garipalli</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Forward Caste</td>
<td>11 (26.2)</td>
<td>14 (21.9)</td>
<td>16 (36.4)</td>
<td>14 (53.8)</td>
<td>55 (31.3)</td>
</tr>
<tr>
<td>2</td>
<td>Backward Caste</td>
<td>19 (45.2)</td>
<td>32 (50.0)</td>
<td>15 (34.1)</td>
<td>9 (34.6)</td>
<td>75 (42.6)</td>
</tr>
<tr>
<td>3</td>
<td>Schedule Caste</td>
<td>10 (23.8)</td>
<td>15 (23.4)</td>
<td>8 (18.2)</td>
<td>3 (11.5)</td>
<td>36 (20.4)</td>
</tr>
<tr>
<td>4</td>
<td>Schedule Tribe</td>
<td>2 (4.8)</td>
<td>3 (4.7)</td>
<td>5 (11.4)</td>
<td>0 (0.0)</td>
<td>10 (5.7)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>42 (100)</td>
<td>64 (100)</td>
<td>44 (100)</td>
<td>26 (100)</td>
<td>176 (100)</td>
</tr>
</tbody>
</table>

Source: Primary data
Note: Figures on the parenthesis show the percentages.

Among the respondents, more than 42 per cent hail from Backward Caste, more than 20 per cent hail from Scheduled Caste, around 5.7 per cent hail from Scheduled Tribes and more than 31 per cent hail from Forward Caste. By and large, majority of the respondents belongs to BCs (42.6 per cent).
6.3.3 Religion

The religion of the respondents has been presented in the table 6.8.

Table 6.8
Religion -Wise Particulars of the Sample Respondents in the Study Area

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Religion</th>
<th>Thummachenupalli</th>
<th>Bodireddigari palli</th>
<th>Mella cheruvu</th>
<th>Valasareddigari palli</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hindu</td>
<td>16 (38.1)</td>
<td>49 (76.6)</td>
<td>30 (68.2)</td>
<td>1 (3.8)</td>
<td>96 (54.5)</td>
</tr>
<tr>
<td>2</td>
<td>Muslim</td>
<td>13 (31.0)</td>
<td>8 (12.5)</td>
<td>8 (18.2)</td>
<td>13 (50.0)</td>
<td>42 (23.9)</td>
</tr>
<tr>
<td>3</td>
<td>Christian</td>
<td>11 (26.2)</td>
<td>7 (10.9)</td>
<td>5 (11.4)</td>
<td>10 (38.5)</td>
<td>33 (18.8)</td>
</tr>
<tr>
<td>4</td>
<td>Others</td>
<td>2 (4.8)</td>
<td>0 (0.0)</td>
<td>1 (2.3)</td>
<td>2 (7.7)</td>
<td>5 (2.8)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>42 (100)</td>
<td>64 (100)</td>
<td>44 (100)</td>
<td>26 (100)</td>
<td>176 (100)</td>
</tr>
</tbody>
</table>

Source: Primary data
Note: Figures on the parenthesis show the percentages.

The table 6.8 shows that among the respondents, around 55 per cent are Hindus followed by Muslims (23.9 per cent) and Christians (18.8 per cent). By and large, it is concluded that majority of the respondents are Hindus. Hindus are higher in Bodireddigari palli while Muslims are more in both Thummachenupalli and Valasareddigari palli areas.

6.3.4 Marital Status

The marital status of the respondents has been presented in the table 6.9.

Table 6.9
Marital Status of the Sample Respondents in the Study Area

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Marital status</th>
<th>Thummachenupalli</th>
<th>Bodireddigari palli</th>
<th>Mella cheruvu</th>
<th>Valasareddigari palli</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Married</td>
<td>37 (88.1)</td>
<td>40 (62.5)</td>
<td>33 (75.0)</td>
<td>22 (84.6)</td>
<td>132 (75.0)</td>
</tr>
<tr>
<td>2</td>
<td>Un-married</td>
<td>2 (4.8)</td>
<td>23 (35.9)</td>
<td>7 (15.9)</td>
<td>1 (3.8)</td>
<td>33 (18.8)</td>
</tr>
<tr>
<td>3</td>
<td>Widow</td>
<td>1 (2.4)</td>
<td>1 (1.6)</td>
<td>2 (4.5)</td>
<td>1 (3.8)</td>
<td>5 (2.8)</td>
</tr>
<tr>
<td>4</td>
<td>Divorcee</td>
<td>2 (4.8)</td>
<td>0 (0.0)</td>
<td>2 (4.5)</td>
<td>2 (7.7)</td>
<td>6 (3.4)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>42 (100)</td>
<td>64 (100)</td>
<td>44 (100)</td>
<td>26 (100)</td>
<td>176 (100)</td>
</tr>
</tbody>
</table>

Source: Primary data
Note: Figures on the parenthesis show the percentages.
It is observed from the table 6.9 that in the case of the respondents, three fourths are married and around 19 per cent are unmarried. More than 3 per cent are divorcees and around 3 per cent women are widows. It is concluded that majority of the beneficiaries (75 per cent) are married.

6.3.5. Education

The literacy status of the respondents has been shown in the table 6.10.

Table 6.10
Literacy Status of the Sample Respondents in the Study Area

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Education</th>
<th>Thummachenupalli</th>
<th>Bodireddigaripalli</th>
<th>Mella cheruvu</th>
<th>Valasareddigaripalli</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Illiterate</td>
<td>11 (26.2)</td>
<td>5 (7.8)</td>
<td>5 (11.4)</td>
<td>12 (46.2)</td>
<td>33 (18.8)</td>
</tr>
<tr>
<td>2</td>
<td>Primary</td>
<td>18 (42.9)</td>
<td>32 (50.0)</td>
<td>22 (50.0)</td>
<td>11 (42.3)</td>
<td>83 (47.2)</td>
</tr>
<tr>
<td>3</td>
<td>Secondary</td>
<td>7 (16.7)</td>
<td>20 (31.3)</td>
<td>11 (25.0)</td>
<td>2 (7.7)</td>
<td>40 (22.7)</td>
</tr>
<tr>
<td>4</td>
<td>Inter</td>
<td>3 (7.1)</td>
<td>5 (7.8)</td>
<td>4 (9.1)</td>
<td>0 (0.0)</td>
<td>12 (6.8)</td>
</tr>
<tr>
<td>5</td>
<td>Degree and Above</td>
<td>3 (7.1)</td>
<td>2 (3.1)</td>
<td>2 (4.5)</td>
<td>1 (3.8)</td>
<td>8 (4.5)</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>42 (100)</td>
<td>64 (100)</td>
<td>44 (100)</td>
<td>26 (100)</td>
<td>176 (100)</td>
</tr>
</tbody>
</table>

Source: Primary data
Note: Figures on the parenthesis show the percentages.

The table 6.10 shows that more than 47 per cent of the respondents have primary education followed by around 23 per cent having secondary education, around 7 per cent having intermediate education and around 5 per cent being graduates. On the contrary, around 19 per cent are illiterate among the respondents. It is concluded that 47.2 per cent of the respondents have only primary education. Illiterates are higher in Valasareddigaripalli and graduates are higher in Thummachenupalli.

6.3.6. Occupation of the Respondents

Occupation is the predominant determining factor the membership. In watershed, membership is a source of improving or supplementing the income from main occupational sources. The labours engaged in low average income occupations tend to join the watershed in order to enhance their income or to insure against the
income fluctuations due to seasonal occupational variations or low income levels.

Particulars occupation of the respondents is shown in the table 6.11.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Occupation</th>
<th>Thumma chenupalli</th>
<th>Bodireddi garipalli</th>
<th>Mella cheruvu</th>
<th>Valasareddi garipalli</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Agriculture</td>
<td>19 (45.2)</td>
<td>32 (50.0)</td>
<td>23 (52.3)</td>
<td>12 (46.1)</td>
<td>86 (48.9)</td>
</tr>
<tr>
<td>2</td>
<td>Construction Labour</td>
<td>5 (11.9)</td>
<td>8 (12.5)</td>
<td>7 (15.9)</td>
<td>5 (19.2)</td>
<td>25 (14.2)</td>
</tr>
<tr>
<td>3</td>
<td>Agricultural Labour</td>
<td>15 (35.7)</td>
<td>18 (28.1)</td>
<td>10 (22.7)</td>
<td>4 (15.4)</td>
<td>47 (26.7)</td>
</tr>
<tr>
<td>4</td>
<td>Rural Artisans</td>
<td>1 (2.4)</td>
<td>1 (1.6)</td>
<td>1 (2.3)</td>
<td>2 (7.7)</td>
<td>5 (2.8)</td>
</tr>
<tr>
<td>5</td>
<td>Business</td>
<td>1 (2.4)</td>
<td>3 (4.7)</td>
<td>2 (4.5)</td>
<td>1 (3.8)</td>
<td>7 (4.0)</td>
</tr>
<tr>
<td>6</td>
<td>Non Agriculture</td>
<td>1 (2.4)</td>
<td>2 (3.1)</td>
<td>1 (2.3)</td>
<td>2 (7.7)</td>
<td>6 (3.4)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>42 (100)</td>
<td>64 (100)</td>
<td>44 (100)</td>
<td>26 (100)</td>
<td>176 (100)</td>
</tr>
</tbody>
</table>

Source: Primary data

Note: Figures on the parenthesis show the percentages.
In the Thummachenupalli watershed project, agriculture is the main source for the major group (45.2 per cent), followed by those being labours (35.7 per cent) and the remaining (11.9 per cent), (2.4 per cent), (2.4 per cent) and (2.4 per cent) of the respondents belongs to construction labour, rural artisans, business and non agriculture categories respectively. In the Bodireddigari palli watershed project agriculture is the main source for the major group (50 per cent), followed by those agricultural labour (28.1 per cent) and the remaining (12.5 per cent), (1.6 per cent), (4.7 per cent) and (3.1 per cent) of the respondents belong to construction labour, rural artisans, business and non agriculture categories respectively.

In the Mellacheruvu watershed project agriculture is the main source for the major group (52.3 per cent), followed by those agricultural labour (22.7 per cent) and the remaining (15.9 per cent), (2.3 per cent), (4.5 per cent) and (2.3 per cent) of the respondents belong to construction labour, rural artisans, business and non agriculture categories respectively. In the Valasareddigaripalli watershed project agriculture is the main source for the major group (46.1 per cent), followed by those as agricultural labour (15.4 per cent) and the remaining (19.2 per cent), (7.7 per cent), (3.8 per cent) and (7.7 per cent) of the respondents belong to construction labour, rural artisans, business and non agriculture categories respectively.

In all these projects, highest number of watershed respondents, i.e. 86(48.9 per cent) are agriculture labours and lowest number of watershed respondents, i.e., 6(3.4 per cent) are nonagricultural labours.

6.3.7. Type of Family

The information on the family type of the respondents such as nuclear, joint or extended has been elicited and the details are furnished in the table 6.12.

The table 6.12 shows that more than 57 per cent of the respondents are in the nuclear family, around 36 per cent are in joint family and more than 6 per cent are in the extended family among the respondents. By and large, majority of the respondents are (57.4 per cent) are in nuclear family. Nuclear family is largely observed in Mellacheruvu and joint family is mainly observed in Bodireddigaripalli. Extended family is largely present in Bodireddigaripalli.
Table 6.12
Family Type of the Respondents

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Type of Family</th>
<th>Thumma chenupall</th>
<th>Bodireddi garipalli</th>
<th>Mella cheruvu</th>
<th>Valasareddi garipalli</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Nuclear</td>
<td>26 (61.9)</td>
<td>25 (39.1)</td>
<td>33 (75.0)</td>
<td>17 (65.4)</td>
<td>101 (57.4)</td>
</tr>
<tr>
<td>2</td>
<td>Joint</td>
<td>15 (35.7)</td>
<td>29 (45.3)</td>
<td>11 (25.0)</td>
<td>9 (34.6)</td>
<td>64 (36.4)</td>
</tr>
<tr>
<td>3</td>
<td>Extended</td>
<td>1 (2.4)</td>
<td>10 (15.6)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>11 (6.3)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>42 (100)</td>
<td>64 (100)</td>
<td>44 (100)</td>
<td>26 (100)</td>
<td>176 (100)</td>
</tr>
</tbody>
</table>

Source: Primary data
Note: Figures on the parenthesis show the percentages.

6.3.8. Size of the Family

Family size indicates strength, income as well as expenditure. The family size of the respondents has been shown in the table 6.13.

Table 6.13
Family Size of the Respondents

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Size of Family (Persons)</th>
<th>Thumma chenupalli</th>
<th>Bodireddi garipalli</th>
<th>Mella cheruvu</th>
<th>Valasareddi garipalli</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Below 3</td>
<td>4 (9.5)</td>
<td>9 (14.1)</td>
<td>8 (18.2)</td>
<td>3 (11.5)</td>
<td>24 (13.6)</td>
</tr>
<tr>
<td>2</td>
<td>4-6</td>
<td>33 (78.6)</td>
<td>40 (62.5)</td>
<td>19 (43.2)</td>
<td>18 (69.2)</td>
<td>110 (62.5)</td>
</tr>
<tr>
<td>3</td>
<td>7-9</td>
<td>4 (9.5)</td>
<td>14 (21.9)</td>
<td>12 (27.3)</td>
<td>4 (15.4)</td>
<td>34 (19.3)</td>
</tr>
<tr>
<td>4</td>
<td>10 and above</td>
<td>1 (2.4)</td>
<td>1 (1.6)</td>
<td>5 (11.4)</td>
<td>1 (3.8)</td>
<td>8 (4.5)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>42 (100)</td>
<td>64 (100)</td>
<td>44 (100)</td>
<td>26 (100)</td>
<td>176 (100)</td>
</tr>
</tbody>
</table>

Source: Primary data
Note: Figures on the parenthesis show the percentages.

Among the respondents, the table 6.13 shows that around 63 per cent of the respondents have 4-6 members in their families, more than 19 per cent have 7-9 members, around 14 per cent have the family size of 10 and above. It is concluded that majority of the respondents have the family size of 4-6 members. Less number of family members is observed in Bodireddigari palli while high numbers are in the families of Mellacheruvu.
6.3.9 Own House

House is one the basic amenities of human life. The housing type of the respondents whether own or not has been shown in the table 6.14

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Own House</th>
<th>Thumma chenupalli</th>
<th>Bodireddigariipalli</th>
<th>Mella cheruvu</th>
<th>Valasareddigariipalli</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Yes</td>
<td>39 (92.9)</td>
<td>64 (100)</td>
<td>37 (84.1)</td>
<td>23 (88.5)</td>
<td>163 (92.7)</td>
</tr>
<tr>
<td>2</td>
<td>No</td>
<td>3 (7.1)</td>
<td>0 (0.0)</td>
<td>7 (15.9)</td>
<td>3 (11.5)</td>
<td>13 (7.3)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>42 (100)</td>
<td>64 (100)</td>
<td>44 (100)</td>
<td>26 (100)</td>
<td>176 (100)</td>
</tr>
</tbody>
</table>

Source: Primary data
Note: Figures on the parenthesis show the percentages.

The table 6.14 elucidates that around 93 per cent of the respondents possess own houses and all the respondents (100 per cent) in Bodireddigariipalli have own house. More than 7 per cent of the respondents have no own house and majority of them 15.9 per cent are in Mellacheruvu project.

6.3.10. Type of House

The house type of the respondents whether Katcha, semi-pucca, pucca etc, has been shown in the table 6.15.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Type of House</th>
<th>Thumma chenupalli</th>
<th>Bodireddigariipalli</th>
<th>Mella cheruvu</th>
<th>Valasareddigariipalli</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pucca</td>
<td>30 (71.4)</td>
<td>50 (78.1)</td>
<td>30 (68.2)</td>
<td>20 (76.9)</td>
<td>130 (73.9)</td>
</tr>
<tr>
<td>2</td>
<td>Semi pucca</td>
<td>5 (11.9)</td>
<td>7 (10.9)</td>
<td>2 (4.5)</td>
<td>1 (3.8)</td>
<td>15 (8.5)</td>
</tr>
<tr>
<td>3</td>
<td>Katcha</td>
<td>6 (14.3)</td>
<td>5 (7.8)</td>
<td>9 (20.5)</td>
<td>4 (15.4)</td>
<td>24 (13.6)</td>
</tr>
<tr>
<td>4</td>
<td>Other</td>
<td>1 (2.4)</td>
<td>2 (3.1)</td>
<td>3 (6.8)</td>
<td>1 (3.8)</td>
<td>7 (4.0)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>42 (100)</td>
<td>64 (100)</td>
<td>44 (100)</td>
<td>26 (100)</td>
<td>176 (100)</td>
</tr>
</tbody>
</table>

Source: Primary data
Note: Figures on the parenthesis show the percentages.
The table 6.15 shows that among the respondents around 74 per cent have pucca house and majority of them belong to Bodireddigariipalli. Around 8.5 per cent have semi-pucca houses and more than 13.6 per cent have Katcha houses. It is concluded that majority of the respondents have pucca houses.

6.3.11 Water Taps

Water is essential for sustenance of life. Due to population explosion, industrial development and agricultural advancement, water has become a scarce resource and water scarcity is looming large and water wars have begun and water woes are wide spread. The information whether the respondents have water tap for distribution has been elicited and the details are furnished in the table 6.16

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Water Taps</th>
<th>Thumma Chenupalli</th>
<th>Bodireddigariipalli</th>
<th>Mellacheruvu</th>
<th>Valasareddigariipalli</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Yes</td>
<td>37 (88.1)</td>
<td>50 (78.1)</td>
<td>39 (88.6)</td>
<td>19 (73.1)</td>
<td>145 (82.4)</td>
</tr>
<tr>
<td>2</td>
<td>No</td>
<td>5 (11.9)</td>
<td>14 (21.9)</td>
<td>5 (11.4)</td>
<td>7 (26.9)</td>
<td>31 (17.6)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>42 (100)</td>
<td>64 (100)</td>
<td>44 (100)</td>
<td>26 (100)</td>
<td>176 (100)</td>
</tr>
</tbody>
</table>

Source: Primary data
Note: Figures on the parenthesis show the percentages.

The table shows that more than 82 per cent of respondents have tap system for drinking water supply and majority of them are in Mellacheruvu and around 18 per cent have no taps and majority of them are in Valasareddigariipalli.

6.3.12 Electricity

Electricity is one of important basic amenities of human life today. The information whether the respondents have electrical connection in their house or not has been elicited and the details are presented in the table 6.17.
Table 6.17
Electrification of Houses

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Electricity</th>
<th>Thumma chenupalli</th>
<th>Bodireddigari pally</th>
<th>Mella cheruvu</th>
<th>Valasareddigari pally</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Yes</td>
<td>41 (97.6)</td>
<td>62 (96.9)</td>
<td>43 (97.7)</td>
<td>23 (88.5)</td>
<td>169 (96.0)</td>
</tr>
<tr>
<td>2</td>
<td>No</td>
<td>1 (2.4)</td>
<td>2 (3.1)</td>
<td>1 (2.3)</td>
<td>3 (11.5)</td>
<td>7 (4.0)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>42 (100)</td>
<td>64 (100)</td>
<td>44 (100)</td>
<td>26 (100)</td>
<td>176 (100)</td>
</tr>
</tbody>
</table>

Source: Primary data
Note: Figures on the parenthesis show the percentages.

It is evident from the table that around 96 per cent of the respondents have power connection in their house and majority are in Mella cheruvu and around 4 per cent do not have no power connection in their houses and among them majority of respondents are in Valasareddigari pally project.

6.3.13 Gas

The Govt. of Andhra Pradesh issued LPG gas connection under deepam scheme to all the eligible rural and poor people. The information whether the respondents got gas connection for cooking or not has been elicited and the details are presented in the table 6.18.

Table 6.18
Possession of Gas Connection

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Gas</th>
<th>Thumma chenupalli</th>
<th>Bodireddigari pally</th>
<th>Mella cheruvu</th>
<th>Valasareddigari pally</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Yes</td>
<td>22 (52.4)</td>
<td>40 (62.5)</td>
<td>33 (75.0)</td>
<td>13 (50.0)</td>
<td>108 (61.4)</td>
</tr>
<tr>
<td>2</td>
<td>No</td>
<td>20 (47.6)</td>
<td>24 (37.5)</td>
<td>11 (25.0)</td>
<td>13 (50.0)</td>
<td>68 (38.6)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>42 (100)</td>
<td>64 (100)</td>
<td>44 (100)</td>
<td>26 (100)</td>
<td>176 (100)</td>
</tr>
</tbody>
</table>

Source: Primary data
Note: Figures on the parenthesis show the percentages.

The table 6.18 shows that among the respondents, more than 61 per cent of the respondents got gas connection while around 39 per cent did not get gas connection. Majority of the respondents in Mella cheruvu (75 per cent) got gas connections and majority of the respondents in Thumma chenupalli (47.6 per cent) did not get gas connection.
6.3.14 Toilet Facility

Sanitation is one of the most important aspects of health and toilet facility is the basic need to have sanitation. The information whether the respondents have toilet facility has been elicited and the details are furnished in the table 6.19.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Toilet Facility</th>
<th>Thumma chenupalli</th>
<th>Bodireddigari palli</th>
<th>Mella cheruva</th>
<th>Valasareddigari palli</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Yes</td>
<td>16 (38.1)</td>
<td>32 (50.0)</td>
<td>28 (63.6)</td>
<td>9 (34.6)</td>
<td>85 (48.3)</td>
</tr>
<tr>
<td>2</td>
<td>No</td>
<td>26 (61.9)</td>
<td>32 (50.0)</td>
<td>16 (36.4)</td>
<td>17 (65.4)</td>
<td>91 (51.7)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>42 (100)</td>
<td>64 (100)</td>
<td>44 (100)</td>
<td>26 (100)</td>
<td>176 (100)</td>
</tr>
</tbody>
</table>

Source: Primary data  
Note: Figures on the parenthesis show the percentages.

Toilet facilities are available for more than 48 per cent of the respondents and majority of the respondents belong to Bodireddigari palli. But there is no toilet facility for around 52 per cent of the respondents and majority of them belong to Valasareddigari palli.

6.3.15 Classification of Farmers

The classification of farmers in the areas of selected watershed programmes is presented in the table 6.20.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Classification</th>
<th>Thumma chenupalli</th>
<th>Bodireddigari palli</th>
<th>Mella cheruva</th>
<th>Valasareddigari palli</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Small farmers 1-5 acres</td>
<td>17 (40.5)</td>
<td>35 (54.7)</td>
<td>22 (50.0)</td>
<td>18 (69.2)</td>
<td>92 (52.3)</td>
</tr>
<tr>
<td>2</td>
<td>Medium farmers 6-10 acres</td>
<td>22 (52.3)</td>
<td>22 (34.3)</td>
<td>8 (18.2)</td>
<td>2 (7.7)</td>
<td>54 (30.7)</td>
</tr>
<tr>
<td>3</td>
<td>Large farmers Above 10 acres</td>
<td>3 (7.1)</td>
<td>7 (10.9)</td>
<td>14 (31.8)</td>
<td>6 (23.1)</td>
<td>30 (17.0)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>42 (100)</td>
<td>64 (100)</td>
<td>44 (100)</td>
<td>26 (100)</td>
<td>176 (100)</td>
</tr>
</tbody>
</table>

Source: Primary data  
Note: Figures on the parenthesis show the percentages.
The table 6.20 shows that more than 52 per cent of the respondents are small farmers and majority of them are in Valasa Reddi Garipalli and around 31 per cent are medium farmers and majority are in Thumma Chenupalli project, 17 per cent are large farmers and majority of them are in Mellacheruvu.

6.3.16 Farming Experience

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Farming Experience (Years)</th>
<th>Thumma Chenupalli</th>
<th>Bodireddi Garipalli</th>
<th>Mella Cheruvu</th>
<th>Valasa Reddi Garipalli</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Below 5</td>
<td>2 (4.8)</td>
<td>2 (3.1)</td>
<td>8 (18.2)</td>
<td>0 (0.0)</td>
<td>12 (6.8)</td>
</tr>
<tr>
<td>2</td>
<td>6-10</td>
<td>18 (42.9)</td>
<td>2 (3.1)</td>
<td>12 (27.3)</td>
<td>12 (46.2)</td>
<td>44 (25.0)</td>
</tr>
<tr>
<td>3</td>
<td>11-15</td>
<td>22 (52.4)</td>
<td>11 (17.2)</td>
<td>11 (25.0)</td>
<td>14 (53.8)</td>
<td>56 (33.0)</td>
</tr>
<tr>
<td>4</td>
<td>16 and Above</td>
<td>0 (0.0)</td>
<td>49 (76.6)</td>
<td>13 (29.5)</td>
<td>0 (0.0)</td>
<td>62 (35.2)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>42 (100)</td>
<td>64 (100)</td>
<td>44 (100)</td>
<td>26 (100)</td>
<td>176 (100)</td>
</tr>
</tbody>
</table>

Source: Primary data
Note: Figures on the parenthesis show the percentages.
The table 6.21 shows that more than 35 per cent of the respondents have farming experience of 16 years and above and majority of them are in Boddireddigariplalli. 33 per cent of respondents have 11-15 years of farming experience and majorities are in Thummachenupalli. It is concluded that 68 per cent have more than 11 years of farming experience.

6.3.17 Land Holdings

Distribution of the beneficiaries according to land holding is presented in the table 6.22.

Table 6.22
Distribution of Respondents According to Land Holdings

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Land type</th>
<th>Acres</th>
<th>Thummachenupalli</th>
<th>Bodireddigariplalli</th>
<th>Metla cheruvu</th>
<th>Valasareddigariplalli</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Irrigated land</td>
<td>0 to 2 acres</td>
<td>10 (23.8)</td>
<td>18 (28.1)</td>
<td>7 (15.9)</td>
<td>4 (15.4)</td>
<td>39 (22.1)</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>2 acres above</td>
<td>6 (14.3)</td>
<td>7 (10.9)</td>
<td>5 (11.4)</td>
<td>3 (11.5)</td>
<td>21 (11.9)</td>
</tr>
<tr>
<td></td>
<td>Un-irrigated land</td>
<td>0 to 2 acres</td>
<td>18 (42.8)</td>
<td>23 (35.9)</td>
<td>21 (47.7)</td>
<td>14 (53.8)</td>
<td>76 (43.2)</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>2 acres above</td>
<td>6 (14.3)</td>
<td>13 (20.3)</td>
<td>10 (22.7)</td>
<td>4 (15.4)</td>
<td>33 (18.7)</td>
</tr>
<tr>
<td></td>
<td>No land</td>
<td>2 (4.8)</td>
<td>3 (4.7)</td>
<td>1 (2.3)</td>
<td>1 (3.8)</td>
<td>7 (4.0)</td>
<td>176 (100)</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Total</td>
<td>42 (100)</td>
<td>64 (100)</td>
<td>44 (100)</td>
<td>26 (100)</td>
<td>176 (100)</td>
</tr>
</tbody>
</table>

Source: Primary data.
Note: Figures in parentheses indicate percentages to the total number of beneficiaries.

As per the table 6.22 in the Thummachenupalli project, 10(23.8 per cent) respondents have irrigated land of 2.00 acres, 6(14.3 per cent) respondents have irrigated land of 2.00 acres and above, 18(42.8 per cent) respondents have 2.00 acres of un-irrigated land, 6(14.3 per cent) of the respondents have 2.00 and above un-irrigated land and 2(4.8 per cent) respondents do not own any land. In Boddireddigariplalli project, 18(28.1 per cent) respondents have irrigated land of 2.00 acres, 7(10.9 per cent) respondents have irrigated land of 2.00 acres and above, 23 (35.9 per cent) respondents have 2.00 acres of un-irrigated land, 13(20.3 per cent) of
the respondents have 2.00 and above of un-irrigated land and 3(4.7 per cent) respondents do not own any land.

In the Mellacheruvu project 7(15.9 per cent) respondents have irrigated land of 2.00 acres, 5(11.4 per cent) respondents have irrigated land of 2.00 acres and above, 21(47.7 per cent) respondents have 2.00 acres of un-irrigated land, 10(22.7 per cent) of the respondents have 2.00 and above of un-irrigated land and 1(2.3 per cent) respondents do not own any land. In Valasareddigari palli project, 4(15.4 per cent) respondents have irrigated land of 2.00 acres, 3(11.5 per cent) respondents have irrigated land of 2.00 acres and above, 14(53.8 per cent) respondents have 2.00 acres of un-irrigated land, 4(15.4 per cent) of the respondents have 2.00 and above of un-irrigated land and 1(3.8 per cent) respondents do not own any land.

6.3.18 Crop Production

The information on the type of crops the respondents produce has been collected and shown in table 6.23.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Crop Production</th>
<th>Thummache nupalli (%</th>
<th>Bodireddigar ipalli (</th>
<th>Mellacheruvu (</th>
<th>Valasareddigari palli (</th>
<th>Total (</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Paddy</td>
<td>5 (11.9)</td>
<td>10 (15.6)</td>
<td>3 (6.8)</td>
<td>0 (0.0)</td>
<td>18 (10.2)</td>
</tr>
<tr>
<td>2</td>
<td>Ground net</td>
<td>8 (19.0)</td>
<td>18 (28.1)</td>
<td>6 (13.6)</td>
<td>7 (26.9)</td>
<td>39 (22.2)</td>
</tr>
<tr>
<td>3</td>
<td>Sugar cane</td>
<td>7 (16.7)</td>
<td>5 (7.8)</td>
<td>8 (18.2)</td>
<td>2 (7.7)</td>
<td>22 (12.5)</td>
</tr>
<tr>
<td>4</td>
<td>Red grams</td>
<td>3 (7.1)</td>
<td>10 (15.6)</td>
<td>11 (25.0)</td>
<td>2 (7.7)</td>
<td>26 (14.8)</td>
</tr>
<tr>
<td>5</td>
<td>Mangos</td>
<td>17 (40.5)</td>
<td>15 (23.4)</td>
<td>14 (31.8)</td>
<td>13 (50.0)</td>
<td>59 (33.5)</td>
</tr>
<tr>
<td>6</td>
<td>Others</td>
<td>2 (4.8)</td>
<td>6 (9.4)</td>
<td>2 (4.5)</td>
<td>2 (7.7)</td>
<td>12 (6.8)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>42 (100)</td>
<td>64 (100)</td>
<td>44 (100)</td>
<td>26 (100)</td>
<td>176 (100)</td>
</tr>
</tbody>
</table>

Source: Primary data
Note: Figures on the parenthesis show the percentages.

228
It is clear from the table 6.23 that among the respondents, 34 per cent produce mangoes and majority of them belong to Valasareddigariipalli, more than 22 per cent grow groundnut, around 15 per cent red gram and 12.5 per cent sugarcane. The respondents who grow other crops are less in number.

6.4 IMPACT OF WATERSHED PROGRAMME

The impact of watershed programme on employment, income level, savings etc., of the respondents has been discussed below.

6.4.1 Employment

The particulars of the employment of the sample respondents before and after joining watershed are presented in table 6.24.

It is found from the table 6.24 that in the Thummachenupalli watershed project before joining watershed, 18(42.9 per cent) respondents have employment below 100 days, 7(16.7 per cent) respondents have employment between 101 and 180 days, 10 (23.8 per cent) respondents have employment between 181 and 240 days and 7(16.7 per cent) respondents have employment of 241 and above days. In the Boddireddigariipalli watershed project before joining watershed, 34(53.1 per cent) respondents have employment below 100 days, 16(25 per cent) respondents have employment between 101 and 180 days, 14(21.9 per cent) respondents have employment between 181 and 240 days.
<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Employment</th>
<th>Beneficiaries Before</th>
<th></th>
<th>Beneficiaries After</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Thumma-chenu palli</td>
<td></td>
<td>Bodireddi garipalli</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bodireddi garipalli</td>
<td></td>
<td>Mella cheruvu</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Valasa reddi garipalli</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Below 100 days</td>
<td>18 (42.9)</td>
<td>34 (53.10)</td>
<td>21 (47.7)</td>
<td>14 (53.8)</td>
</tr>
<tr>
<td>2</td>
<td>101-180 days</td>
<td>7 (16.7)</td>
<td>16 (25.0)</td>
<td>17 (38.6)</td>
<td>4 (15.4)</td>
</tr>
<tr>
<td>3</td>
<td>181-240 days</td>
<td>10 (23.8)</td>
<td>14 (21.9)</td>
<td>6 (13.6)</td>
<td>4 (15.4)</td>
</tr>
<tr>
<td>4</td>
<td>241 and above days</td>
<td>7 (16.7)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>4 (15.4)</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>42 (100)</td>
<td>64 (100)</td>
<td>44 (100)</td>
<td>26 (100)</td>
</tr>
</tbody>
</table>

Source: Primary data

Note: Figures on the parenthesis show the percentages.
In the Mellacheruvu watershed project before joining watershed, 21(47.7 per cent) respondents have employment below 100 days, 17(38.6 per cent) respondents have employment between 101 and 180 days, 6(13.6 per cent) respondents have employment between 181 and 240 days. In the Valasareddigariipalli watershed project before joining watershed, 14(53.8 per cent) respondents have employment below 100 days, 4(15.4 per cent) respondents have employment between 101 and 180 days, 4 (15.4 per cent) respondents have employment between 181 and 240 days and 4(15.4 per cent) respondents have employment of 241 and above days.

In all the four selected watershed projects 87(49.4 per cent) respondents have employment below 100 days, 44(25 per cent) respondents have employment between 101 and 180 days, 34(19.3 per cent) respondents have employment between 181 and 240 days and 11(6.3 per cent) respondents have employment of 241 days and above.

After joining watershed in the Thummachenupalli watershed project, only 3(7 per cent) respondents have employment below 100 days, 12(28.6 per cent) respondents have employment between 101 and 180 days, 11(26.2 per cent) respondents have employment between 181 and 240 days and 16(38 per cent) respondents have employment of 241 and above. After joining watershed in the Boddireddigariipalli watershed project, only 5(7.8 per cent) respondents have employment below 100 days, 30(46.9 per cent) respondents have employment between 101 and 180 days, 25(39 per cent) respondents have employment between 181 and 240 days and 4(6.3 per cent) respondents have employment of 241 and above.

After joining watershed in the Mellacheruvu watershed project, only 5(11.4 per cent) respondents have employment below 100 days, 21(47.8 per cent) respondents have employment between 101 and 180 days, 10(22.7 per cent) respondents have employment between 181 and 240 days and 8(18.2 per cent) respondents have employment of 241 and above. After joining watershed in the Valasareddigariipalli watershed project, 10(38 per cent) respondents have employment between 101 and 180 days, 9(34.6 per cent) respondents have employment between 181 and 240 days and 7(18.2 per cent) respondents have employment of 241 and above.
In all the four selected projects of RASS-NGO in Chittoor district, only 13 (7.4 per cent) respondents have below 100 days, 73(41.5 per cent) respondents have employment between 101 and 180 days, 55(31.3 per cent) respondents have employment in between 181 and 240 days and 35(19.9 per cent) respondents have employment of 241 days and above. It is concluded that in all the selected four projects of RASS-NGOs highest employment is noted in 73(41.5 per cent) who have 101 to 180 working days. It implies that watershed scheme helped the respondents to get work. The increases in the number of working days are mainly responsible for increasing annual income. Increase in annual income generally will reduce the poverty position of the respondents.

6.4.2. Income

The particulars of the income level distribution of the sample respondents before and after joining watershed projects are presented in table 6.25.

Before joining the watershed projects, in the Thummachenupalli watershed project, 3(7.10 per cent) respondents have an income of below Rs. 20000, 30(71.4 per cent) respondents have an income between Rs. 20001 and 40000, 9(21.4 per cent) respondents have the income between 40001 and 60000. In the Boddireddigaripalli watershed project, 12(18.8 per cent) respondents have an income of below Rs. 20000, 38(59.4 per cent) respondents have an income between Rs. 20001 and 40000, 14(21.9 per cent) respondents have the income between 40001 and 60000. In the Mellacheruvu watershed project, 9(20.5 per cent) respondents have an income of below Rs. 20000, 24(54.5 per cent) respondents have an income between Rs. 20001 and 40000, 7(15.9 per cent) respondents have the income between 40001 and 60000, 4(9.1 per cent) respondents have an income of Rs. 60001 and above. In the Valasareddygari palli watershed project, 3(11.5 per cent) respondents have an income of below Rs. 20000, 18(69.2 per cent) respondents have an income between Rs. 20001 and 40000 and 5(19.2 per cent) respondents have the income between Rs. 40001 and 60000.
### Table 6.25
Level of Annual Income of the Sample Respondents

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Level of Income</th>
<th>Beneficiaries Before</th>
<th>Total</th>
<th>Beneficiaries After</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Thumma chenuvalli</td>
<td>Bodireddi garipalli</td>
<td>Mella cheruvu</td>
<td>Valasa reddigari palli</td>
</tr>
<tr>
<td>1</td>
<td>Below 20000</td>
<td>3 (7.1)</td>
<td>12 (18.8)</td>
<td>9 (20.5)</td>
<td>3 (11.5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 (2.4)</td>
<td>4 (6.3)</td>
<td>0 (0.0)</td>
<td>1 (3.8)</td>
</tr>
<tr>
<td>2</td>
<td>20001 -40000</td>
<td>30 (71.4)</td>
<td>38 (59.4)</td>
<td>24 (54.5)</td>
<td>18 (69.2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 (11.9)</td>
<td>7 (10.9)</td>
<td>0 (0.0)</td>
<td>5 (19.2)</td>
</tr>
<tr>
<td>3</td>
<td>40001 - 60000</td>
<td>9 (21.4)</td>
<td>14 (21.9)</td>
<td>7 (15.9)</td>
<td>5 (19.2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>23 (54.8)</td>
<td>25 (39.1)</td>
<td>34 (77.3)</td>
<td>11 (42.3)</td>
</tr>
<tr>
<td>4</td>
<td>60001 and Above</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>4 (9.1)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13 (31.0)</td>
<td>28 (43.8)</td>
<td>10 (22.7)</td>
<td>9 (34.6)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>42 (100)</td>
<td>64 (100)</td>
<td>44 (100)</td>
<td>26 (100)</td>
</tr>
</tbody>
</table>

Source: Primary data

Note: Figures on the parenthesis show the percentages.
Out of the total respondents in project level, 27(15.3 per cent), respondents have an income of below Rs.20000, 110(62.5 per cent) respondents have an income between Rs. 20001 and 40000, 35(19.9 per cent) respondents have the income between 40001 and 60000 and 4(2.3 per cent) respondents have an income of Rs.60001 and above.

After joining watershed in the Thummachenupalli watershed project only 1(2.4 per cent) respondents has an income of below Rs.20000, 5(11.9 per cent) respondents have an income between Rs. 20001 and 40000, 23(54.8 per cent) respondents have the income between 40001 and 60000, 13(31 per cent) respondents have an income of Rs.60001 and above. In the Bodireddigaripalli watershed project 4 (6.3 per cent) respondents have an income of below Rs.20000, 7(10.9 per cent) respondents have an income between Rs. 20001 and 40000, 25(39.1 per cent) respondents have the income between 40001 and 60000 and 28(43.8 per cent) respondents have an income of Rs.60001 and above.

In the Mellacheruvu watershed project 34(77.3 per cent) respondents have the income between 40001 and 60000, 10(22.7 per cent) respondents have an income of Rs.60001 and above. In the Valasareddigaripalli watershed project only 1(3.8 per cent) respondent has an income of below Rs.20000, 5(19.2 per cent) respondents have an income between Rs. 20001 and 40000, 11(42.3 per cent) respondents have the income between 40001 and 60000, 9(34.6 per cent) respondents have an income of Rs.60001 and above.

Out of the total respondents of RASS-NGOs only 6(3.4 per cent) respondents have an income of below Rs.20000, 17(9.7 per cent) respondents have an income between Rs. 20001 and 40000, 93(52.8 per cent) respondents have the income between 40001 and 60000 and 60(34.1 per cent) respondents have an income of Rs.60001 and above. The watershed respondents before joining the watershed earned an income which was very low compared to the income earned after joining the projects. Its found that the respondents earned more income after joining the watershed.

6.4.3. Savings of the Respondents Before and After Joining Watershed Projects

The savings of the respondents before and after joining watershed programme are presented in the table 6.26.
<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Level of Savings</th>
<th>Respondents Before</th>
<th></th>
<th>Respondents After</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Thummachennupalli</td>
<td>Bodireddigaripalli</td>
<td>Mella cheruvu</td>
<td>Valasa reddigari palli</td>
</tr>
<tr>
<td>1</td>
<td>No saving</td>
<td>4 (9.5)</td>
<td>6 (9.4)</td>
<td>7 (15.9)</td>
<td>3 (11.5)</td>
</tr>
<tr>
<td>2</td>
<td>Below 5000</td>
<td>10 (23.8)</td>
<td>20 (31.2)</td>
<td>15 (34.0)</td>
<td>9 (34.6)</td>
</tr>
<tr>
<td>3</td>
<td>5001 – 10000</td>
<td>13 (30.9)</td>
<td>29 (45.3)</td>
<td>18 (40.9)</td>
<td>5 (19.2)</td>
</tr>
<tr>
<td>4</td>
<td>10001 – 15000</td>
<td>12 (28.6)</td>
<td>5 (7.8)</td>
<td>3 (6.8)</td>
<td>5 (19.2)</td>
</tr>
<tr>
<td>5</td>
<td>15001 - 20000</td>
<td>2 (4.7)</td>
<td>3 (4.7)</td>
<td>0 (0.0)</td>
<td>4 (15.4)</td>
</tr>
<tr>
<td>6</td>
<td>20001 and Above</td>
<td>1 (2.4)</td>
<td>1 (1.6)</td>
<td>1 (2.3)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>42 (100)</td>
<td>64 (100)</td>
<td>44 (100)</td>
<td>26 (100)</td>
</tr>
</tbody>
</table>

Source: Primary data

Note: Figures on the parenthesis show the percentages.
As per the table 6.26 its clear that before joining the watershed projects, in the Thummachnenupalli watershed project, 4(9.5 per cent) respondents have no savings, 10(23.8 per cent), 13(30.9 per cent) respondents have the savings per annum range below Rs.5000 and Rs.5001 and 10000, 12(28.6 per cent) and 2(4.7 per cent) respondents have the savings of range between Rs.10001 and 15000, Rs.15001 and 20000 respectively and the remaining 1(2.4 per cent) respondents has savings per annum Rs.20001 and above per annum. In Boddireddigariipalli watershed project, 6(9.4 per cent) respondents have no savings, 20(31.2 per cent) respondents have saving range below Rs.5000, 29(45.3 per cent), 5(7.8 per cent) respondents have saving range between Rs.5001 and 10000, Rs.10001 and 15000 respectively, 3(4.7 per cent), 1(1.6 per cent) respondents have saving range between Rs.15001 and 20000, 20001 and above respectively. In Mellacheruvu watershed project, 7(15.9 per cent) respondents have no savings, 15(34 per cent), 18(40.9 per cent) respondents have the savings per annum range below Rs.5000, Rs.5001 and 10000, 3(6.8 per cent) respondents have the savings per annum range between Rs.10001 and 15000 and the remaining 1(2.3 per cent) respondents have savings per annum at Rs.20001 and above.

In Valasareddygari palli watershed project, 3(11.5 per cent) respondents have no savings, 9(34.6 per cent), 5(19.2 per cent) respondents have the savings per annum range between Rs.5000 and Rs.5001 and 10000, 5(19.2 per cent) respondents have the savings per annum range between Rs.10001 and 15000 and the remaining 4(15.4 per cent) respondents have savings per annum between Rs.15001 and 20000.

After joining watershed projects, in Thummachnenupalli watershed project, only 4(9.5 per cent) and 10(23.8 per cent) respondents have saving below Rs.5000 and range between Rs.5001 and 10000.8(19.1 per cent), 4(9.5 per cent) respondents have the savings per annum range between Rs.10001 and 15000 and Rs.15001 and 20000. The remaining 16(38 per cent) respondents have savings per annum of Rs.20001 and above. Boddireddigariipalli watershed project, 3(4.6 per cent) and 8(12.5 per cent) respondents have saving below Rs.5000 and range between Rs.5001 and 10000, 16(25 per cent), 15(23.4 per cent) respondents have the savings per annum range between below Rs.10001 and 15000, and Rs.15001 and 20000. The remaining 22(34.4 per cent) respondents have savings per annum at Rs.20001 and above.

In Mellacheruvu watershed project, 5(11.4 per cent) and 6(13.6 per cent) respondents have savings below Rs.5000 and between Rs.5001 and 10000. 6(13.6
13(29.5 per cent) respondents have the savings per annum range between Rs.10001 and 15000 and Rs.15001 and 20000. The remaining 14(31.8 per cent) respondents have savings per annum at of Rs.20001 and above. In Valasareddigari palli watershed project, 3(11.5 per cent) and 4(15.4 per cent) respondents have savings below Rs. 5000 and range between Rs.5001 and 10000. 5(19.2 per cent), 9(34.6 per cent) respondents have the savings per annum range between Rs.10001 and 15000 and Rs.15001 and 20000. The remaining 5(19.2 per cent) respondents have savings per annum of at Rs.20001 and above.

It is concluded that before joining watershed respondents a majority i.e., 65' (36.9 per cent) have savings range between Rs. 50001 and 10000 and after joining watershed respondents good number of i.e., 57(32.4 per cent) have savings of Rs.20001 and above.

6.4.4 Participation in Extension Education Activities

Much before actual initiation of the watershed programme, the RASS recruited one Agricultural Officer (graduate in agriculture science) to organize extension programmes for the beneficiaries in the watershed villages. The duties of the Agricultural Officer consisted of not only mobilization of people to participate in the watershed programmes being launched in their areas but also to organize several kinds of extension activities so that the farmers and others gain sufficient knowledge in watershed management and utilize the programme for their socio-economic development. The extensions of education activities initiated by RASS supervised by their agricultural officers are given below:

- Kissan Melas
- Field Days
- Study Tours
- Demonstrations
- Imparting Training
- Visits to Research Stations
- Group Discussions

Regional Agricultural Resource Stations or Agricultural Universities organize kisan meals every year in which agricultural officers, farmers, companies and all agricultural line departments meet at a place to exhibit high yielding varieties of seed,
new technology, and important research findings and also discuss the problems of the farmers. Field days refer to a series of exclusive agricultural activities done in a day by involving farmers. Regional Agricultural Resource Stations conduct study tours to educate the farmers. In demonstrations result-orientated and method-orientated findings and new skills will be explained to the farmers. Trainings are essential to create awareness among the farmers and provide them with necessary understanding, for effective utilization of the environment created by the watershed, farmers were frequently taken on visits to various agricultural research stations to observe the knowledge on latest techniques of managing their agriculture as well as the environment. Group discussions were organized involving the farmers, agricultural scientist and government departments involved in watershed and representatives from various NGOs in the district. Group discussions provided an opportunity to the people (farmers) to express their views and clear their doubts.

No doubt that the RASS has put in great efforts to motivate the farmers and others to participate in extension activities to prepare them with sufficient knowledge to participate in the watershed programmes. The table 6.27 shows the distribution of the respondents and their extent of participation in the extension activities.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Extension Activities</th>
<th>No. of Respondents</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Regularly</td>
<td>Occasionally</td>
</tr>
<tr>
<td>1</td>
<td>Kisanmelas</td>
<td>99 (56.2)</td>
<td>65 (36.9)</td>
</tr>
<tr>
<td>2</td>
<td>Field days</td>
<td>44 (25.0)</td>
<td>93 (52.8)</td>
</tr>
<tr>
<td>3</td>
<td>Study tours</td>
<td>80 (45.4)</td>
<td>70 (39.8)</td>
</tr>
<tr>
<td>4</td>
<td>Demonstrations</td>
<td>68 (38.6)</td>
<td>74 (42.1)</td>
</tr>
<tr>
<td>5</td>
<td>Trainings</td>
<td>92 (52.3)</td>
<td>72 (40.9)</td>
</tr>
<tr>
<td>6</td>
<td>Visits to research station</td>
<td>58 (32.9)</td>
<td>32 (18.2)</td>
</tr>
<tr>
<td>7</td>
<td>Group discussions</td>
<td>105 (59.6)</td>
<td>35 (19.9)</td>
</tr>
</tbody>
</table>

Source: Primary data
Note: Figures in the parenthesis represent percentages
Most of these conjugates were initially tested at a single dose higher concentration (10 μM) in the sixty-cell line panel of the National Cancer Institute. This panel is organized into subpanels representing leukaemia, melanoma, cancers of lung, colon, kidney, ovary, breast, prostate, and central nervous system. Amongst these conjugates 3m, 3r and 3s were active in the preliminary test and progressed to the five-concentration (0.01, 0.1, 1.0, 10 and 100μM) assay. These conjugates showed potential cytotoxicity with GI₅₀ values ranging from 0.32 - 7.1 μM in most of the human cancer cell lines panel of the NCI. Among them conjugate 3r in which methoxy groups present on both indole and oxindole rings showed better activity than remaining conjugates. The detailed biological studies are actively under progress in our laboratory.

Scheme 1. Reagents & conditions: (a) substituted oxindoles, EtOH, Piperidine (catalytic), reflux, 3-4h.
1. Participation in Kisanmelas

More than 56 per cent of the farmers participated regularly in kisanmelas, 36.9 per cent occasionally and only a negligible of farmers, i.e., 6.8 per cent never participated. It indicates that a vast majority of the farmers (about more than 93 per cent) did participate in kisanmelas.

2. Participation in Field Days

Around 22 per cent of the farmers did not participate in field days, 25 per cent of the farmers participated regularly and 52.8 per cent occasionally, indicating that majority of the farmers occasionally participates at all in field days.

3. Participation in Study Tours

More than 45 per cent of the farmers participated regularly in the study tours, 39.8 per cent occasionally and 14.8 per cent never participated. It can be concluded that three fourth of the farmers participated in the study tours.

4. Participation in Demonstrations

Around 41 per cent of the farmers occasionally participated in demonstrations, 38.6 per cent regularly and 19.3 per cent never participated. However, it is clear that about 80 per cent of the farmers participated in demonstrations.

5. Participation in Training Programmes

More than 52 per cent of the farmers participated regularly in training programmes, 40.9 per cent occasionally participated and only 6.8 per cent never participated.

6. Visits to Research Stations

Around 49 per cent of the farmers did not participate in the programmes of visiting Research Stations, 32.9 per cent of the farmers participated regularly and 18.2 per cent occasionally, it leads to the conclusion that about 51 per cent of the farmers visited the research stations.

7. Participation in Group Discussions

Around 60 per cent of the farmers regularly participated in group discussions, 19.9 per cent occasionally and 20.4 per cent did not participate at all. It makes it clear that more than 79 per cent of the farmers participated in group discussions.
The analysis of the table 6.27 clearly indicates that kisanmelas seem to be popular among the farmers.

6.4.5. Knowledge on Soil and Water Conservation

The information on the extent of knowledge of the farmers on recommended soil and water conservation are furnished in the table 6.28.

Table 6.28
Farmers Extent of the Knowledge on Soil and Water Conservation

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Items</th>
<th>Respondents</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>1</td>
<td>Formation of gullies</td>
<td>151 (85.8)</td>
<td>25 (14.2)</td>
</tr>
<tr>
<td>2</td>
<td>Percolation tanks</td>
<td>150 (85.2)</td>
<td>26 (14.7)</td>
</tr>
<tr>
<td>3</td>
<td>Farm ponds</td>
<td>146 (82.9)</td>
<td>30 (17.0)</td>
</tr>
<tr>
<td>4</td>
<td>Check dams</td>
<td>165 (93.7)</td>
<td>11 (6.3)</td>
</tr>
<tr>
<td>5</td>
<td>Diversion channels</td>
<td>147 (83.6)</td>
<td>29 (16.5)</td>
</tr>
<tr>
<td>6</td>
<td>Earthen bunding</td>
<td>160 (90.1)</td>
<td>16 (9.9)</td>
</tr>
<tr>
<td>7</td>
<td>Contour cultivation</td>
<td>154 (87.5)</td>
<td>22 (12.5)</td>
</tr>
<tr>
<td>8</td>
<td>Opening dead furrow</td>
<td>135 (76.7)</td>
<td>41 (23.3)</td>
</tr>
<tr>
<td>9</td>
<td>Over seeding</td>
<td>148 (84.1)</td>
<td>28 (15.9)</td>
</tr>
<tr>
<td>10</td>
<td>Fodder and fields crops</td>
<td>140 (79.5)</td>
<td>36 (20.5)</td>
</tr>
<tr>
<td>11</td>
<td>Vegetative bunds</td>
<td>140 (79.5)</td>
<td>36 (20.5)</td>
</tr>
<tr>
<td>12</td>
<td>Graded bunds</td>
<td>143 (81.2)</td>
<td>33 (18.8)</td>
</tr>
<tr>
<td>13</td>
<td>Ridges and furrows</td>
<td>138 (78.4)</td>
<td>38 (21.6)</td>
</tr>
<tr>
<td>14</td>
<td>Nalabund</td>
<td>149 (84.6)</td>
<td>27 (15.3)</td>
</tr>
</tbody>
</table>

Source: Primary data
Note: Figures in the parenthesis represent percentages

Soil and water conservation are important aspects water resources management prudently. The information on whether the respondents have knowledge on soil and water conservation.
A cursory glance at the table 6.28 reveals that more than 80 per cent of the watershed farmers have knowledge of ten items of the soil and water conservation aspects vi., check dams, earthen bunding, contour cultivation, over seeding, formation of gullies, farm ponds, graded bunds, Nalabund, percolation tanks and diversion channels while knowledge of the farmers is around 70 to 80 per cent in the case of fodder and fields crops, ridges and furrows, vegetative bunds and opening dead furrow.

It leads to the conclusion that an overwhelming majority of the farmers i.e., more than 80 per cent have knowledge on soil and water conservation.

6.4.6 Adoption (Practice) of Knowledge on Soil and Water Conservation

Adoption of soil and water conservation knowledge by the farmers is given in the table 6.29.

Table 6.29
Adoption of Knowledge on Soil and Water Conservation

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Items</th>
<th>No. of Respondents</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>FP</td>
<td>PP</td>
</tr>
<tr>
<td>1</td>
<td>Formation of gullies</td>
<td>92 (52.3)</td>
<td>57</td>
</tr>
<tr>
<td>2</td>
<td>Percolation tanks</td>
<td>94 (53.4)</td>
<td>52</td>
</tr>
<tr>
<td>3</td>
<td>Farm ponds</td>
<td>35 (19.9)</td>
<td>104</td>
</tr>
<tr>
<td>4</td>
<td>Check dams</td>
<td>113 (64.2)</td>
<td>51</td>
</tr>
<tr>
<td>5</td>
<td>Diversion channels</td>
<td>22 (12.5)</td>
<td>123</td>
</tr>
<tr>
<td>6</td>
<td>Earthen bunding</td>
<td>36 (20.5)</td>
<td>118</td>
</tr>
<tr>
<td>7</td>
<td>Contour cultivation</td>
<td>88 (50.0)</td>
<td>65</td>
</tr>
<tr>
<td>8</td>
<td>Opening dead furrow</td>
<td>45 (25.6)</td>
<td>86</td>
</tr>
<tr>
<td>9</td>
<td>Over seeding</td>
<td>56 (31.8)</td>
<td>90</td>
</tr>
<tr>
<td>10</td>
<td>Fodder and fields crops</td>
<td>34 (19.3)</td>
<td>105</td>
</tr>
<tr>
<td>11</td>
<td>Vegetative bunds</td>
<td>51 (29.0)</td>
<td>85</td>
</tr>
<tr>
<td>12</td>
<td>Graded bunds</td>
<td>27 (15.3)</td>
<td>113</td>
</tr>
<tr>
<td>13</td>
<td>Ridges and furrows</td>
<td>29 (16.5)</td>
<td>107</td>
</tr>
<tr>
<td>14</td>
<td>Nalabund</td>
<td>55 (31.2)</td>
<td>85</td>
</tr>
</tbody>
</table>

Source: Primary data; Note: Figures in the parenthesis represent percentages;
Note: FA- Fully Adoption, PA- Partial Adoption, NA- Non-Adoption
1. Adoption of Formation of Gullies

From the above table 6.29 it is clear that 52.3 per cent of the farmers have fully adopted the knowledge of formation of gullies, 32.4 per cent partially adopted and 15.3 per cent did not adopt any. It is concluded that around 85 per cent of the farmers are using the knowledge of formation of gullies.

2. Adoption of Percolation Tanks

More than 53 per cent of the farmers have fully adopted the knowledge of formation of gullies, 29.5 per cent partially adopted and 17 per cent did not adopt. It leads to the conclusion that around 83 per cent of the farmers are using the knowledge of percolation tanks.

3. Adoption of Farm Ponds

More than 59 per cent of the farmers have partially adopted the knowledge of farm ponds, 19.9 per cent of the farmers fully adopted and 21 per cent did not adopt. It leads to conclusion that around 79 per cent of the farmers are using the knowledge of farm ponds.

4. Adoption of Check Dams

More than 64 per cent of the farmers have fully adopted the knowledge of check dams, 29 per cent of the farmers have partially adopted and 6.8 per cent did not adopt. It leads to the conclusion that around 93 per cent of the farmers are using the knowledge of check dams.

5. Adoption of Diversion Channels

Around 70 per cent of the farmers have partially adopted the knowledge of farm ponds, 12.5 per cent of the farmers fully adopted and 17.6 per cent did not adopt. It leads to conclusion that around 82 per cent of the farmers are using the knowledge of diversion channels.

6. Adoption of Earthen Bunding

About 67 per cent of the farmers have partially adopted the knowledge of farm ponds, 20.6 per cent of the farmers fully adopted and 12.5 per cent did not adopt. It leads to conclusion that around 87 per cent of the farmers are using the knowledge of earthen bunding.
7. Adoption of Contour Cultivation

Exactly 50 per cent of the farmers have fully adopted the knowledge of check dams, 36.9 per cent of the farmers have partially adopted and 13.1 per cent did not adopt any knowledge. It leads to the conclusion that around 87 per cent of the farmers are using the knowledge of contour cultivation.

8. Adoption of Opening Dead Furrows

Around 49 per cent of the farmers have partially adopted the knowledge of farm ponds, 25.6 per cent of the farmers fully adopted and 25.6 per cent did not adopt. It leads to the conclusion that around 75 per cent of the farmers are using the knowledge of opening dead furrows.

9. Adoption of Over Seeding

More than 51 per cent of the farmers have partially adopted the knowledge of farm ponds, 31.8 per cent of the farmers fully adopted and 17 per cent did not adopt. It leads to the conclusion that around 83 per cent of the farmers are using the knowledge of over seeding.

10. Adoption of Fodder and Field Crops

Around 60 per cent of the farmers have partially adopted the knowledge of farm ponds, 19.3 per cent of the farmers fully adopted and 21 per cent did not adopt. It leads to the conclusion that around 79 per cent of the farmers are using the knowledge of fodder and field crops.

11. Adoption of Vegetative Bunds

More than 48 per cent of the farmers have partially adopted the knowledge of farm ponds, 29 per cent of the farmers fully adopted and 22.7 per cent did not adopt. It leads to the conclusion that around 77 per cent of the farmers are using the knowledge of vegetative bunds.

12. Adoption of Graded Bunds

More than 64 per cent of the farmers have partially adopted the knowledge of farm ponds, 15.3 per cent of the farmers fully adopted and 20.5 per cent did not adopt. It leads to the conclusion that around 80 per cent of the farmers are using the knowledge of graded bunds.
13. Adoption of Ridges and Furrows

Around 64.8 per cent of the farmers have partially adopted the knowledge of farm ponds, 16.5 per cent of the farmers fully adopted and 22.7 per cent did not adopt. It leads to the conclusion that around 77 per cent of the farmers are using the knowledge of ridges and furrows.

14. Adoption of Nalabund

More than 48 per cent of the farmers have partially adopted the knowledge of farm ponds, 31.2 per cent of the farmers fully adopted and 20.5 per cent did not adopt. It leads to the conclusion that around 80 per cent of the farmers are using the knowledge of Nalabund.

6.4.7 Farmers Knowledge on Crop Production Practices

The crop production practices of the farmers have been elicited and the particulars have been presented in the table 6.30

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Status</th>
<th>No. of Respondents</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Yes (No)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Seed treatment</td>
<td>165 (11)</td>
<td>176 (100)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(93.7) (6.3)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Seed pest</td>
<td>168 (8)</td>
<td>176 (100)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(95.5) (4.5)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Fertilizer</td>
<td>169 (.7)</td>
<td>176 (100)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(96.0) (4.0)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Weeding</td>
<td>155 (21)</td>
<td>176 (100)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(88.1) (11.9)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Seed of rain fed crops</td>
<td>150 (26)</td>
<td>176 (100)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(85.2) (14.8)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Pest of rain fed crops</td>
<td>148 (28)</td>
<td>176 (100)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(84.1) (15.9)</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Management of rain fed crops</td>
<td>157 (19)</td>
<td>176 (100)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(89.2) (10.8)</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Sowing across the slopes</td>
<td>150 (26)</td>
<td>176 (100)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(85.2) (14.8)</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Inter cropping</td>
<td>167 (9)</td>
<td>176 (100)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(94.9) (5.1)</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Plant protection</td>
<td>160 (16)</td>
<td>176 (100)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(90.9) (9.1)</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Recharge of bore wells</td>
<td>165 (11)</td>
<td>176 (100)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(93.7) (6.3)</td>
<td></td>
</tr>
</tbody>
</table>

Source: Primary data
Note: Figures in the parenthesis represent percentages
It could be seen from the table 6.30 that out of the 11 items, in five production practices of seed treatment, seed pest, fertilizer, inter cropping, recharge of bore wells and plant protection 90 per cent of the farmers have the knowledge while 80 percent of the farmers have knowledge in the weeding, seed of rain fed crops, pest of rain fed crops, management of rain fed crops and sowing across the slops.

6.4.8 Adoption of Knowledge on Crop Production Practices

Adoption of crop production practices by the farmers is given in the table 6.31.

Table 6.31
Adoption of Knowledge on Crop Production Practices

<table>
<thead>
<tr>
<th>S. No</th>
<th>Items</th>
<th>No. of Respondents</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>FA</td>
<td>PA</td>
</tr>
<tr>
<td>1</td>
<td>Seed treatment</td>
<td>85</td>
<td>76</td>
</tr>
<tr>
<td>2</td>
<td>Seed pest</td>
<td>83</td>
<td>83</td>
</tr>
<tr>
<td>3</td>
<td>Fertilizer(Kg/ac)</td>
<td>87</td>
<td>79</td>
</tr>
<tr>
<td>4</td>
<td>Weeding</td>
<td>76</td>
<td>75</td>
</tr>
<tr>
<td>5</td>
<td>Seed of rain fed crops</td>
<td>74</td>
<td>72</td>
</tr>
<tr>
<td>6</td>
<td>Pest of rain fed crops</td>
<td>73</td>
<td>73</td>
</tr>
<tr>
<td>7</td>
<td>Management of rain fed crops</td>
<td>88</td>
<td>65</td>
</tr>
<tr>
<td>8</td>
<td>Sowing across the slops</td>
<td>78</td>
<td>67</td>
</tr>
<tr>
<td>9</td>
<td>Inter- cropping</td>
<td>85</td>
<td>80</td>
</tr>
<tr>
<td>10</td>
<td>Plant protection</td>
<td>81</td>
<td>76</td>
</tr>
<tr>
<td>11</td>
<td>Recharge of bore wells</td>
<td>116</td>
<td>45</td>
</tr>
</tbody>
</table>

Source: Primary data
Note: Figures in the parenthesis represent percentages
FA- Fully Adoption; PA- Partial Adoption; NA- Non-Adoption
1. Adoption of Seed Treatment

More than 48 per cent of the farmers have fully adopted the knowledge of seed treatment, 43.2 per cent of the farmers have partially adopted and 8.5 per cent have not adopted. It leads to the conclusion that more than 91 per cent of the farmers are using the knowledge of seed treatment.

2. Adoption of Seed Pests

More than 47 per cent of the farmers have fully adopted the knowledge of seed pests, 47.1 per cent of the farmers have partially adopted and 5.7 per cent have not adopted. It leads to the conclusion that more than 94 per cent of the farmers are using the knowledge of seed pests.

3. Adoption of Fertilizer (Kg/ac)

More than 49 per cent of the farmers have fully adopted the knowledge of fertilizer usage, 44.9 per cent of the farmers have partially adopted and 5.7 per cent have not adopted. It leads to the conclusion that more than 94 per cent of the farmers are using the knowledge of fertilizer usage.

4. Adoption of Weeding

More than 43 per cent of the farmers have fully adopted the knowledge of weeding, 42.6 per cent of the farmers have partially adopted and 14.2 per cent have not adopted. It leads to the conclusion that more than 91 per cent of the farmers are using the knowledge of weeding.

5. Adoption of Seed of Rain Fed Crops

Around 42 per cent of the farmers have fully adopted the knowledge of seed of rain fed crops, 40.9 per cent of the farmers have partially adopted and 17 per cent have not adopted. It leads to the conclusion that more than 83 per cent of the farmers are using the knowledge of seed of rain fed crops.

6. Adoption of Pest Control of Rain Fed Crop

More than 41 per cent of the farmers have fully adopted the knowledge of pest control of rain fed crop, 41.5 per cent of the farmers have partially adopted and 17 per cent have not adopted. It leads to the conclusion that more than 83 per cent of the farmers are using the knowledge of pest control of rain fed crop.
7. Adoption of Management of Rain Fed Crop

Around 50 per cent of the farmers have fully adopted the knowledge of management of rain fed crop, 36.9 per cent of the farmers have partially adopted and 13 per cent have not adopted. It leads to the conclusion that more than 86 per cent of the farmers are using the knowledge of management of rain fed crop.

8. Adoption of Sowing Across the Slopes

Regarding sowing across the slopes, 44 per cent of the farmers have fully adopted the knowledge of sowing across the slopes, 38 per cent of the farmers have partially adopted and 17.6 per cent have not adopted. It leads to the conclusion that more than 82 per cent of the farmers are using the knowledge of sowing across the slopes.

9. Adoption of Inter – Cropping

More than 48 per cent of the farmers have fully adopted the knowledge of inter cropping, 45.5 per cent of the farmers have partially adopted and 6.2 per cent have not adopted. It leads to the conclusion that more than 89 per cent of the farmers are using knowledge of inter cropping.

10. Adoption of Plant Protection

Forty six per cent of the farmers have fully adopted the knowledge of plant protection, 43.2 per cent of the farmers have partially adopted and 10.8 per cent have not adopted. It leads to the conclusion that more than 83 per cent of the farmers are using the knowledge of plant protection.

11. Adoption of Recharge of Bore Wells

Around 66 per cent of the farmers have fully adopted the knowledge of recharge of bore wells, 25.6 per cent of the farmers have partially adopted and 8.5 per cent have not adopted. It leads to the conclusion that more than 91 per cent of the farmers are using the knowledge of recharge of bore wells.

6.4.9 Farmers Knowledge on Land Use Pattern

The information on the knowledge of the respondents on land use pattern has been gathered and presented in the table 6.32.
Table 6.32
Farmers Knowledge on Land Use Pattern

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Particulars</th>
<th>Respondents</th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Land smoothening/leveling</td>
<td>167 (94.8)</td>
<td>9</td>
<td>176 (100.0)</td>
</tr>
<tr>
<td>2</td>
<td>Use of improved implements</td>
<td>146 (83.0)</td>
<td>30</td>
<td>176 (100)</td>
</tr>
<tr>
<td>3</td>
<td>Fall ploughing</td>
<td>169 (96.0)</td>
<td>7</td>
<td>176 (100)</td>
</tr>
<tr>
<td>4</td>
<td>Land reclamation</td>
<td>167 (94.9)</td>
<td>9</td>
<td>176 (100)</td>
</tr>
<tr>
<td>5</td>
<td>Maximum land usage</td>
<td>157 (89.2)</td>
<td>19</td>
<td>176 (100)</td>
</tr>
<tr>
<td>6</td>
<td>Afforestation of land</td>
<td>140 (79.5)</td>
<td>36</td>
<td>176 (100)</td>
</tr>
</tbody>
</table>

Source: Primary data
Note: Figures in the parenthesis represent percentages

From the table 6.32 it is clear that more than 90 per cent of the farmers have knowledge on land smoothing or leveling, fall plugging and land reclamation, more than 80 per cent of the farmers have knowledge on use of improved implements, maximum land usage and afforestation of land. It indicates that more than 80 per cent of the beneficiary farmers have knowledge of land use pattern.

6.4.10 Adoption of Knowledge on Land Use Pattern

The information on whether the respondents adopted any land use pattern or not has been elicited and the results are presented in the table 6.33.

Table 6.33
Adoption of Knowledge on Land Use Pattern

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Items</th>
<th>No. of Respondents</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>FA</td>
<td>PA</td>
<td>NA</td>
</tr>
<tr>
<td>1</td>
<td>Land smoothening/leveling</td>
<td>85 (48.3)</td>
<td>79 (44.9)</td>
<td>12 (6.8)</td>
</tr>
<tr>
<td>2</td>
<td>Use of improved implements</td>
<td>75 (42.6)</td>
<td>66 (37.5)</td>
<td>35 (19.9)</td>
</tr>
<tr>
<td>3</td>
<td>Fall ploughing</td>
<td>82 (46.6)</td>
<td>85 (48.3)</td>
<td>9 (5.1)</td>
</tr>
<tr>
<td>4</td>
<td>Land reclamation</td>
<td>90 (51.1)</td>
<td>75 (42.6)</td>
<td>11 (6.3)</td>
</tr>
<tr>
<td>5</td>
<td>Maximum land usage</td>
<td>72 (40.9)</td>
<td>74 (42.0)</td>
<td>30 (17.0)</td>
</tr>
<tr>
<td>6</td>
<td>Afforestation of land</td>
<td>65 (36.9)</td>
<td>72 (40.9)</td>
<td>39 (22.1)</td>
</tr>
</tbody>
</table>

Source: Primary data; Note: Figures in the parenthesis represent percentages
FA- Fully Adoption; PA- Partial Adoption; NA- Non-Adoption
Active conjugates
1. Adoption of Land Smoothing/Leveling

More than 48 per cent of the farmers have fully adopted the knowledge of land smoothing/leveling, 44.9 per cent of the farmers have partially adopted and 6.8 per cent did not adopt. It leads to the conclusion that more than 93 per cent of the farmers are using the knowledge of land smoothing/leveling.

2. Adoption of Improved Implements

About 43 per cent of the farmers have fully adopted the knowledge of improved implements, 37.5 per cent of the farmers have partially adopted and 19.9 per cent did not adopt. It leads to the conclusion that more than 80 per cent of the farmers are using the knowledge of improved implements.

3. Adoption of Fall Ploughing

More than 48 per cent of the farmers have partially the knowledge of fall ploughing, 46.6 per cent of the farmers have fully adopted and 5.1 per cent did not adopt. It leads to the conclusion that 94 per cent of the farmers are using the knowledge of fall ploughing.

4. Adoption of Land Reclamation

More than 51 per cent of the farmers have fully adopted the knowledge of land reclamation, 42.6 per cent of the farmers have partially adopted and 6.3 per cent did not adopt. It leads to the conclusion that more than 93 per cent of the farmers are using the knowledge of land reclamation.

5. Adoption of Maximum Land Usage

Forty two per cent of the farmers have partially the knowledge of maximum land usage, 40.9 per cent of the farmers have fully adopted and 17 per cent did not adopt. It leads to the conclusion that 83 per cent of the farmers are using the knowledge of maximum land usage.

6. Adoption of Afforestation

Around 40 per cent of the farmers have partially the knowledge of afforestation of land, 36.9 per cent of the farmers have fully adopted and 22.1 per cent did not adopt. It leads to the conclusion that more than 73 per cent of the farmers are using the knowledge of afforestation.
6.4.11 Farmers Knowledge on Alternative Practices

The information on the knowledge of farmers on alternative practices of farming has been elicited and the results are presented in the table 6.34.

**Table 6.34**  
Farmers Knowledge on Alternative Practices

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Particulars</th>
<th>Respondents</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>1</td>
<td>Farm forestry (in fallow lands)</td>
<td>137 (77.8)</td>
<td>39 (22.1)</td>
</tr>
<tr>
<td>2</td>
<td>Agro-forestry</td>
<td>150 (85.2)</td>
<td>26 (14.8)</td>
</tr>
<tr>
<td>3</td>
<td>Social forestry</td>
<td>147 (83.5)</td>
<td>29 (16.5)</td>
</tr>
<tr>
<td>4</td>
<td>Alley cropping</td>
<td>148 (84.1)</td>
<td>28 (15.9)</td>
</tr>
<tr>
<td>5</td>
<td>Silvi pasture system</td>
<td>152 (86.4)</td>
<td>24 (13.6)</td>
</tr>
<tr>
<td>6</td>
<td>Silvi- horti -system</td>
<td>164 (93.2)</td>
<td>12 (6.8)</td>
</tr>
<tr>
<td>7</td>
<td>Agri- horti- system</td>
<td>125 (71.1)</td>
<td>51 (28.9)</td>
</tr>
<tr>
<td>8</td>
<td>Timber- fiber system</td>
<td>135 (76.7)</td>
<td>41 (23.3)</td>
</tr>
</tbody>
</table>

**Source:** Primary data  
**Note:** Figures in the parenthesis represent percentages

Farmers' knowledge on alternative agricultural practices is essential in the event of crop failure and low yield. The information on whether the respondents have knowledge on alternative practices for livelihood.

It is noticed from the table 6.34 that relatively high awareness (80 per cent) is noticed in the cast of agro-forestry, social forestry, alley cropping, silvi pasture system and silvi-horti-system. While in the case of the remaining three practices 71 per cent of the farmers are aware of farm forestry, agri-horti-system and timber-fiber system.

6.4.12 Adoption of Knowledge on Alternative Practices.

The information on whether the respondents adopted alternative practices of farming has been elicited and the details are presented in the table 6.35.
Table 6.35
Adoption of Knowledge on Alternative Practices

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Items</th>
<th>No. of Respondents</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>FA</td>
<td>PA</td>
</tr>
<tr>
<td>1</td>
<td>Farm forestry (in fallow lands)</td>
<td>79</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(44.9)</td>
<td>(31.3)</td>
</tr>
<tr>
<td>2</td>
<td>Agro-forestry</td>
<td>74</td>
<td>72</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(42.0)</td>
<td>(40.9)</td>
</tr>
<tr>
<td>3</td>
<td>Social forestry</td>
<td>72</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(40.9)</td>
<td>(40.3)</td>
</tr>
<tr>
<td>4</td>
<td>Alley cropping</td>
<td>79</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(44.9)</td>
<td>(38.6)</td>
</tr>
<tr>
<td>5</td>
<td>Silvi pasture system</td>
<td>83</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(47.2)</td>
<td>(38.0)</td>
</tr>
<tr>
<td>6</td>
<td>Silvi-horti-system</td>
<td>90</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(51.1)</td>
<td>(40.3)</td>
</tr>
<tr>
<td>7</td>
<td>Agri-horti-system</td>
<td>70</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(39.8)</td>
<td>(29.0)</td>
</tr>
<tr>
<td>8</td>
<td>Timber-fibre system</td>
<td>52</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(29.5)</td>
<td>(45.5)</td>
</tr>
</tbody>
</table>

Source: Primary data
Note: Figures in the parenthesis represent percentages
FA- Fully Adoption; PA- Partial Adoption; NA- Non-Adoption

1. Adoption of Farm Forestry (in fallow lands)

Around 45 per cent of the farmers have fully adopted the knowledge of farm forestry, 31.3 per cent of the farmers have partially adopted and 23.9 per cent did not adopt. It leads to the conclusion that more than 76 per cent of the farmers are using the knowledge of farm forestry.

2. Adoption of Agro-Forestry

Forty two per cent of the farmers have fully adopted the knowledge of agro-forestry, 40.9 per cent of the farmers have partially adopted and 17 per cent did not adopt. It leads to the conclusion that more than 83 per cent of the farmers are using the knowledge of agro-forestry.

3. Adoption Social Forestry

Around 41 per cent of the farmers have fully adopted the knowledge of social forestry, 40.3 per cent of the farmers have partially adopted and 18.8 per cent did not adopt. It leads to the conclusion that more than 81 per cent of the farmers are using the knowledge of social forestry.
4. Adoption of Alley Cropping

Around 45 per cent of the farmers have fully adopted the knowledge of alley cropping, 38.6 per cent of the farmers have partially adopted and 16.5 per cent did not adopt. It is concluded that more than 83 per cent of the farmers are using the knowledge of alley cropping.

5. Adoption of Silvi Pasture System

More than 47 per cent of the farmers have fully adopted the knowledge of Silvi pasture system, 38 per cent of the farmers have partially adopted and 14.8 per cent did not adopt. It is concluded that more than 85 per cent of the farmers are using the knowledge of Silvi pasture system.

6. Adoption of Silvi-Horti-System

More than 51 per cent of the farmers have fully adopted the knowledge of Silvi-horti-system, 40.3 per cent of the farmers have partially adopted and 8.5 per cent did not adopt. It leads to the conclusion that more than 91 per cent of the farmers are using the knowledge of Silvi-horti-system.

7. Adoption of Agri-Horti-System

Around 40 per cent of the farmers have fully adopted the knowledge of Agri-horti-system, 29 per cent of the farmers have partially adopted and 31.2 per cent did not adopt. It leads to the conclusion that more than 68 per cent of the farmers are using the knowledge of Agri-horti-system.

8. Adoption of Timber-Fiber-System

Around 46 per cent of the farmers have partially adopted the knowledge of timber-fibre-system, 29.5 per cent of the farmers have fully adopted and 25 per cent did not adopt. It leads to the conclusion that 75 per cent of the farmers are using the knowledge of timber-fibre-system.

6.4.13 People Participation in Watershed

The information on the respondents participation in the various stages of watershed programme has been elicited and the details are presented in the table 6.36.
Table 6.36
People Participation in Watershed

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Items</th>
<th>FP</th>
<th>PP</th>
<th>NP</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Pre-Project Stage</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Pre-Project stage participation by attempting to gain information about objectives of the programme</td>
<td>20 (11.4)</td>
<td>113 (64.2)</td>
<td>43 (24.4)</td>
<td>176 (100.0)</td>
</tr>
<tr>
<td>2</td>
<td>Participation in training programmes conducted by NGOs</td>
<td>63 (35.8)</td>
<td>27 (15.3)</td>
<td>86 (48.9)</td>
<td>176 (100.0)</td>
</tr>
<tr>
<td>3</td>
<td>Participation in formal and informal meetings to discuss about village problems</td>
<td>18 (10.2)</td>
<td>122 (69.3)</td>
<td>36 (20.5)</td>
<td>176 (100.0)</td>
</tr>
<tr>
<td>4</td>
<td>Participation in PRA techniques like resources mapping, social mapping, transect walks etc</td>
<td>17 (9.7)</td>
<td>124 (70.5)</td>
<td>35 (19.9)</td>
<td>176 (100.0)</td>
</tr>
<tr>
<td>5</td>
<td>Participation in preparation of bench mark survey report</td>
<td>17 (9.7)</td>
<td>126 (71.6)</td>
<td>33 (18.8)</td>
<td>176 (100.0)</td>
</tr>
<tr>
<td>6</td>
<td>Participation in deciding the demarcation of watershed boundary</td>
<td>51 (29.0)</td>
<td>112 (63.6)</td>
<td>13 (7.4)</td>
<td>176 (100.0)</td>
</tr>
<tr>
<td>7</td>
<td>Participation by co-operating with the officials in formulating watershed associations/sanghs/societies</td>
<td>17 (9.7)</td>
<td>129 (73.3)</td>
<td>30 (17.0)</td>
<td>176 (100.0)</td>
</tr>
<tr>
<td>8</td>
<td>Participation in decision making for contribution of resources like land, labour, money, animals, etc</td>
<td>19 (10.8)</td>
<td>133 (75.6)</td>
<td>24 (13.6)</td>
<td>176 (100.0)</td>
</tr>
<tr>
<td></td>
<td><strong>Planning Stage</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Participation in discussion to identify the production problems of village and technological</td>
<td>50 (28.4)</td>
<td>113 (64.2)</td>
<td>13 (7.4)</td>
<td>176 (100.0)</td>
</tr>
<tr>
<td>10</td>
<td>Participation in formal and informal meetings to approve the proposals for activities in work plan</td>
<td>21 (11.9)</td>
<td>115 (65.3)</td>
<td>40 (22.7)</td>
<td>176 (100.0)</td>
</tr>
<tr>
<td>11</td>
<td>Participation in deciding the location and design of proposed soil and water conservation structures/measures like bunds, waterways, farm ponds, nala bund check dam, gully checks etc</td>
<td>17 (9.7)</td>
<td>123 (69.9)</td>
<td>36 (20.5)</td>
<td>176 (100.0)</td>
</tr>
<tr>
<td>12</td>
<td>Participation in deciding the choice of species for forest, fodder, horti silvi plantations, pasture, nursery development, etc</td>
<td>17 (9.7)</td>
<td>122 (69.3)</td>
<td>37 (21.0)</td>
<td>176 (100.0)</td>
</tr>
<tr>
<td>13</td>
<td>Participation in discussion for setting of norms for distribution/sharing of benefits among people coming from community lands</td>
<td>16 (9.1)</td>
<td>130 (73.9)</td>
<td>30 (17.0)</td>
<td>176 (100.0)</td>
</tr>
<tr>
<td></td>
<td><strong>Implementation Stage</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Participation by contributing resources like land, labour, money, animal etc</td>
<td>14 (8.0)</td>
<td>129 (73.3)</td>
<td>33 (18.8)</td>
<td>176 (100.0)</td>
</tr>
<tr>
<td>15</td>
<td>Participation by attending meetings to review the progress of works/activities</td>
<td>46 (26.1)</td>
<td>101 (57.4)</td>
<td>29 (16.5)</td>
<td>176 (100.0)</td>
</tr>
<tr>
<td></td>
<td>Participation by supervising on-going activities/works undertakes in the fields and community lands.</td>
<td>44 (25.0)</td>
<td>97 (55.1)</td>
<td>35 (19.9)</td>
<td>176 (100.0)</td>
</tr>
<tr>
<td>---</td>
<td>-----------------------------------------------------------------------------------------------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>------------</td>
</tr>
<tr>
<td>17</td>
<td>Participation by adopting graded, contour bunds, gully checks, farm ponds, check dams, diversion channels, etc. in the field</td>
<td>21 (11.9)</td>
<td>117 (66.5)</td>
<td>38 (21.6)</td>
<td>176 (100.0)</td>
</tr>
<tr>
<td>18</td>
<td>Participation while planting forestry species in community lands</td>
<td>23 (13.1)</td>
<td>123 (69.9)</td>
<td>30 (17.0)</td>
<td>176 (100.0)</td>
</tr>
<tr>
<td>19</td>
<td>Participation by adoption crop production and other improved practices recommended by watershed development officials</td>
<td>50 (28.4)</td>
<td>114 (64.8)</td>
<td>12 (6.8)</td>
<td>176 (100.0)</td>
</tr>
<tr>
<td>20</td>
<td>Participation in income generation, thrift and credit and other related activities of programme</td>
<td>28 (15.9)</td>
<td>103 (58.5)</td>
<td>45 (25.6)</td>
<td>176 (100.0)</td>
</tr>
<tr>
<td>21</td>
<td>Participation in extension activities like crop demonstrations, melas, exhibitions, fields visits, training, etc.,</td>
<td>22 (12.5)</td>
<td>109 (61.9)</td>
<td>45 (25.6)</td>
<td>176 (100.0)</td>
</tr>
<tr>
<td>22</td>
<td>Participation by helping officials during implementation of watershed activities</td>
<td>21 (11.9)</td>
<td>111 (63.1)</td>
<td>44 (25.0)</td>
<td>176 (100.0)</td>
</tr>
<tr>
<td>23</td>
<td>Participation by actual utilization/sharing of benefits under programme</td>
<td>22 (12.5)</td>
<td>118 (67.0)</td>
<td>36 (20.5)</td>
<td>176 (100.0)</td>
</tr>
</tbody>
</table>

**Maintenance Stage**

<table>
<thead>
<tr>
<th></th>
<th>Participation by popularizing the importance of maintenance of assets developed under programme</th>
<th>21 (11.9)</th>
<th>119 (67.6)</th>
<th>36 (20.5)</th>
<th>176 (100.0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Participation by fixing responsibility among user groups to maintain the works/activities taken up under programme</td>
<td>59 (33.5)</td>
<td>103 (58.5)</td>
<td>14 (8.0)</td>
<td>(176 (100.0)</td>
</tr>
<tr>
<td>26</td>
<td>Participation in maintaining soil and water conservation works/structures taken up under programme</td>
<td>59 (33.5)</td>
<td>104 (59.1)</td>
<td>13 (7.4)</td>
<td>(176 (100.0)</td>
</tr>
<tr>
<td>27</td>
<td>Participation by protecting the trees in the developed forest plots</td>
<td>14 (8.0)</td>
<td>95 (54.0)</td>
<td>67 (38.1)</td>
<td>(176 (100.0)</td>
</tr>
</tbody>
</table>

**Evaluation Stage**

<table>
<thead>
<tr>
<th></th>
<th>Participation in determining the success of programme by supplying information on the benefits received from the programme</th>
<th>34 (19.3)</th>
<th>112 (63.6)</th>
<th>30 (17.0)</th>
<th>(176 (100.0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>29</td>
<td>Participation by expressing problems encountered in the programme to officials</td>
<td>18 (10.2)</td>
<td>123 (69.9)</td>
<td>35 (19.9)</td>
<td>(176 (100.0)</td>
</tr>
<tr>
<td>30</td>
<td>Participation by assisting the officials in collection of feedback</td>
<td>20 (11.4)</td>
<td>123 (69.9)</td>
<td>33 (18.8)</td>
<td>(176 (100.0)</td>
</tr>
<tr>
<td>31</td>
<td>Participation by suggesting suitable modifications for future programme implementation</td>
<td>16 (9.1)</td>
<td>121 (68.8)</td>
<td>39 (22.2)</td>
<td>(176 (100.0)</td>
</tr>
</tbody>
</table>

**Source:** Primary data

**Note:** Figures in the parenthesis represent percentages

FA - Fully Adoption; PA - Partial Adoption; NA - Non-Adoption
1. Pre-Project Stage

Regarding the participation of the farmers to understand the objectives of the programme, more than half of the farmers (64.2 per cent) partly participated in the watershed programme, 11.4 per cent participated fully while only 24.4 percent of the farmers did not participate. Around 49 per cent of the farmers did not participate in the training programmes conducted by the RASS, while 35.8 per cent of the farmers fully participated. Only 15.3 per cent of the farmers partly participated in the training programmes. Majority of the farmers of about 69.3 per cent partly participated in the formal and informal meetings to discuss the problems of their village. 10.2 per cent participated fully in these meetings while 20.5 per cent of the farmers did not participate at all. Majority of the farmers of about 70.5 per cent partly participated in Participation in Participatory Rural Appraisal (PRA) techniques while 19.9 per cent did not participate. Only 9.7 per cent farmers fully participated in PRA techniques. About 71.6 per cent of the farmers partly participated in the preparation of benchmark survey report while 9.7 per cent of the farmers fully participated. Only 18.8 per cent of the farmers did not participate in the programme. Around 64 per cent of the farmers partly participated in deciding the demarcation of watershed boundary while 29.00 per cent of the farmers fully participated. Only 7.4 per cent of the farmers did not participate in the programme. Above 73 per cent of the farmers partly participated in formulating watershed associations/sanghs/societies, while 9.7 per cent of the farmers fully participated. Only 17.00 per cent of the farmers did not participate in the programme. Around 76 per cent of the farmers partly participated in decision making for contribution of resources like land, labour, money, animals etc, while 10.8 per cent of the farmers fully participated. Only 13.6 per cent of the farmers did not participate in the decision making process.

2. Planning Stage

Majority of the farmers i.e., 64.2 per cent partly participated in discussions to identify the production and technological problems, while 28.4 per cent of the farmers fully participated. Only 7.4 per cent of the farmers did not participate in the discussions. More than 65 per cent of the farmers partly participated in formal and informal meetings to approve the proposals for activities in working plan, while 11.9 per cent of the farmers fully participated. Only 22.7 per cent of the farmers did not
participate in the meetings. About 21 per cent of the farmers partly participated in
deciding the location and design of proposed soil and water conservation structures/
measures like bunds, waterway, farm ponds, nala bund, check dam, gully checks etc,
while 9.7 per cent of the farmers did not participate. Remaining 69.9 percent of the
farmers fully participated in this activity. Above 69 per cent of the farmers partly
participated in deciding the choice of species for forest, fodder, horti-silvi plantations,
pastures, nursery development, etc, while 21.0 per cent of the farmers fully participated.
Only 9.7 per cent of the farmers did not participate in the programme. Around 74 per cent of the farmers partly participated in the discussions for setting
norms for distribution/sharing of benefits among people from community lands, while
17.0 per cent of the farmers fully participated. Only 9.1 per cent of the farmers did not
participate in the programme.

3. Implementation Stage

Regarding the participation by contributing resources like Land, Labour,
Money, Animal, etc., more than 73 percent of the farmers partly contributed while
18.8 per cent of the farmers fully contributed. Only 8.0 per cent of the farmers did not
contribute. More than 57 per cent of the farmers partly participated in meetings to
review the progress of works/activities, while 26.1 percent of the farmers fully participated.
Only 16.5 per cent of the farmers did not participate. More than 55 per
cent of the farmers partly participated in supervising on-going activities/works
undertaken in the fields and community lands, while 25.0 per cent of the farmers fully
participated. Only 19.9 per cent of the farmers did not participate. About 67 per cent
of the farmers partly participated in adopting graded, contour bunds, gully checks,
farm ponds, check dams, diversion channels, etc, in the field, while 21.6 per cent of
the farmers did not participate, Only 11.9 per cent of the farmers fully participated in
the programme.

Around 70 per cent of the farmers partly participated in planting forestry
species in community lands, while 13.1 per cent of the farmers did not participate.
Only 17.0 per cent of the farmers fully participated in the programme. About 65 per
cent of the farmers partly participated in adoption of crop production and other
improved practices recommended by watershed development officials, while 28.4 per
cent of the farmers fully participated. Only 6.8 per cent of the farmers did not
participate in the programme. Around 59 per cent of the farmers partly participated in income generation, thrift and credit and other related activities, while 15.9 per cent of the farmers did not participate. Only 25.6 per cent of the farmers fully participated in the programme. Around 62 per cent of the farmers partly participated in extension activities like crop demonstrations, melas, exhibitions, field visits, training etc, while 25.6 per cent of the farmers fully participated. Only 12.5 per cent of the farmers did not participate in the programme. More than 63 per cent of the farmers partly participated in helping officials during the implementation of watershed activities, while 11.9 per cent of the farmers did not participate. Only 25.0 per cent of the farmers fully participated. 60 per cent of the farmers partly participated in actual utilization/sharing of benefits under programme, while 20.5 per cent of the farmers fully participated. Only 12.5 per cent of the farmers did not participate in the programme.

4. Maintenance Stage

Around 68 per cent of the farmers partly participated in popularizing the importance of maintenance of assets developed under the programme, while 20.5 per cent of the farmers fully participated. Only 11.9 per cent of the farmers did not participate in this activity. 58.5 per cent of the farmers partly participated in fixing the responsibility among user groups to maintain the works/activities taken up under the programme, while 8.0 per cent of the farmers did not participate. Only 33.5 per cent of the farmers fully participated in the programme. 59.1 per cent of the farmers partly participated in maintaining soil and water conservation works/structures taken up under the programme, while 33.5 per cent of the farmers fully participated. Only 7.4 per cent of the farmers partly participated in protecting the trees in the developed forest plots, while 38.1 per cent of the farmers fully participated, only 8.0 per cent of the farmers did not participate.

5. Evaluation stage

Around 64 per cent of the farmers partly participated in determining the success of the programme by supplying information on the benefits received from the programme while 17.0 per cent of the farmers did not participate. Only 19.3 per cent of the farmers fully participated. About 20 per cent of the farmers partly participated
in expressing problems encountered in the programme to officials, while 10.2 per cent of the farmers did not participate. Only 69.9 per cent of the farmers fully participated in the programme. Around 70 per cent of the farmers partly participated in assisting the officials in the feedback, while 18.8 per cent of the farmers fully participated. Only 11.4 per cent of the farmers did not participate.

Around 69 per cent of the farmers partly participated in suggesting suitable modifications for future programme implementation, while 22.2 per cent of the farmers fully participated. Only 9.1 per cent of the farmers did not participate in the programme.

SOCIAL AND POLITICAL PARTICIPATION

There is no doubt that the main impact of watershed development on the farmers is mainly economic, due to the improvement in agriculture. But as seen from the activities of the RASS-NGO consisting of entry point programmes and mobilization efforts through the programmes of awareness, the inevitability of impact on other socio-political activities of the farmers cannot be ruled out. Hence an effort was made to understand the socio-political impact on the samples after they joined watershed programme.

6.4.14 Social and Political Participation Before and After NGOs Involvement

The table 6.37 shows the social and political participation of respondents before and after the involvement of NGO.

The table 6.37 portrays that the membership of respondents increased 6 per cent in social and political participation before and after the involvement of NGO. But it is not at significant level. Voting in the state legislative election and local bodies increased at 17.6 per cent and is significant at 1%. Contesting in village panchayats increased at 64.2 per cent and is significant at 1%. Similarly participation in gram sabha also increased around 65 per cent and is significant at 1 per cent. So also the participation in school education committees also increased by 50.6 per cent, in watershed committees 28.4 per cent, in awareness programmes like AIDS and sanitation 38.1 per cent, interaction with Govt. Officials 26.7 per cent, opening of bank account 22.7 per cent and reading newspapers 24.4 per cent.