

Chapter 7

Results and Discussion: The Empirical Study

The Watershed Development Programme is in operating in Odisha since 1995. The guidelines developed for the purpose has emphasised for the active involvement of watershed people starting from problem identification, programme development, programme implementation and evaluation. The study entitled “Impact of Watershed Development Programme on socio-economic development of the tribal people in Western Undulating Zone of Odisha” was conceded out of the consideration that there might be significant developments on social, economic and other aspects of the tribal people in the watershed area as the programme designed from the farmers’ perspective and implemented by them.

This chapter presents the results of the analysis of data that provide answers to the six research objectives framed for the study. The results and subsequent discussions are arranged as per of the research objectives. The results are interpreted by making overall generalizations and also through comparison between Kalahandi and Nuapada districts under western undulating zone in the State. This comparative analysis have been made to assess the disparities, if any, in acquiring knowledge, skills and adoption of various technologies to increase production, productivity as well as income.

The chapter begins with the discussions on the socio-economic attributes of the tribal people living in the watershed area. Section two analyses the knowledge and perception of the tribal people towards functioning of Watershed Development Programme. Extent of involvement of tribal people in the process of implementation of the Watershed Development Programme has been discussed in the third section. The fourth section deals with the role of stakeholders associated with the programme extending support towards upliftment of tribal people.

Extent of developments in terms of material possession, technological adoption, cropping pattern, income and above all socio-economic status of the people were discussed in the fifth section of the chapter. In the sixth section, constraints impeding successful implementation of the programme along with remedial measures to combat them were discussed. Suggestions based on the findings were presented in the seventh session of the chapter.

Objective – I

Personal, social and economic attributes of the respondents

Community participation is potentially an effective resource mobilisation strategy. The novelty of a community based participation approach lies in the creative interaction between watershed people and project personnel to enrich knowledge and skill competency in managing the farm activities effectively to achieve the desired results. Community driven initiatives tend to combine indigenous knowledge to develop programme which can work for system compatibility and social acceptability. The effectiveness of community based participation also lies in the recognition that most agro-ecological problems are located at a very local level that require substantial use of local resources.

The human beings are not free agents without being influenced by personal, social, psychological and economic background. These conditions are very much essential for making productivity endeavour. The infrastructural climate made to solve many of the social and economic limitations, but the socio-economic conditions are very much helpful in changing the behaviour of the people and accepting new approaches. Therefore, socio-economic attributes of the watershed people may be the detrimental factors in acquiring knowledge about the guidelines and skill competency in watershed technologies which in turn help them to involve in the watershed activities to generate income.

Attempt was therefore made in the study to analyse the socio-economic characteristics of the watershed people. The data collected in this regard have been analysed and presented in this section.

1.1 : Age

Age as a social factor is an important subject of social study used by the researchers on many situations relating to farm research. Age is significant in terms of experience, maturity of judgments, decision making capabilities and power of understanding. Many of the researchers are in view that young farmers are comparatively knowledgeable and better adopters of farm technologies. The age distribution of the respondents were analysed and presented in table 6.1.1.

Table 6.1.1: Age distribution of the respondents

| Sl. No. | Age | Nuapada district (n=96) | | Kalahandi district (n=96) | | Total (n=192) | |
|---------|----------------|-------------------------|-------|---------------------------|-------|---------------|-------|
| | | F | % | F | % | F | % |
| 1 | Up to 35 Years | 31 | 32.29 | 34 | 35.42 | 65 | 33.85 |
| 2 | 36 to 55 years | 56 | 58.33 | 57 | 59.38 | 113 | 58.85 |
| 3 | Above 55 years | 9 | 9.38 | 5 | 5.20 | 14 | 7.30 |

The data in the table revealed that majority of the respondents in both Nuapada and Kalahandi district, 55.85% were in the age category of 36 to 55 years followed by up to 35 years, 33.85%. As a whole only 7.30 % of the respondents were in the age group of above 55 years.

Young persons are now a day's not visualizing farming as the profitable vocations. The old age farmers are not much involved in farm activities as well as decision making process. Hence, it is only the middle aged people who involved much in farm activities and the findings supported the hypothesis. It is therefore concluded that middle aged farmers within the age group of 36 to 55 years were more involved in the Watershed Development Programme.

1.2 : Education

Education is linked with the mental and physical ability of an individual to understand and adopt new ideas as well as practices. It is a process of bringing desirable changes in the behavior of human beings particularly knowledge, skill and attitude. Educational status of an individual also indicates the extent of involvement in various activities. Educational status in the study has been categorised from illiterate to higher education. The results obtained from the analysis of collected data have been reflected in Table. 6.1.2.

Table 6.1.2: Educational background of the respondents

| Sl. No. | Education | Nuapada district (n=96) | | Kalahandi district (n=96) | | Total (n=192) | |
|---------|-------------------|-------------------------|-------|---------------------------|-------|---------------|-------|
| | | F | % | F | % | F | % |
| 1 | Illiterate | 18 | 18.75 | 8 | 8.33 | 26 | 13.54 |
| 2 | Primary level | 20 | 20.83 | 20 | 20.83 | 40 | 20.83 |
| 3 | Middle school | 27 | 28.13 | 20 | 20.83 | 47 | 24.48 |
| 4 | High school | 25 | 26.04 | 22 | 22.92 | 47 | 24.48 |
| 5 | College and above | 6 | 6.25 | 26 | 27.09 | 32 | 16.67 |

Mixed responses were obtained on educational background of the respondents as mentioned in the table. Only 8.30% of the respondents in Kalahandi and 18.75% in Nuapada district and average of 13.54% were found illiterate. At the same time, 6.25% respondents in Nuapada and 27.09% in Kalahandi district with average of 16.67% were found educated up to college and above level.

Highly educated people usually prefer other vocations than farming. The findings therefore conclude that majority of the respondents involved in watershed development programme were educated upto high school which will definitely facilitate in acquiring knowledge about the guidelines and objectives of the programme for better implementation.

1.3 : Type of family

Each family type has their respective advantages and disadvantages. However, type of family determines the progressiveness of a family in the society. It is the common phenomenon that joint families are more progressive and relatively resource rich. Moreover; the members of the joint families are more involved in developmental activities for income generation. Distribution of the family type of the respondents were analysed over the collected data and presented in table 6.1.3.

Table 6.1.3: Distribution of family type of the respondents

| Sl. No. | Family type | Nuapada district (n=96) | | Kalahandi district (n=96) | | Total (n=192) | |
|---------|-------------|-------------------------|-------|---------------------------|-------|---------------|-------|
| | | F | % | F | % | F | % |
| 1 | Nuclear | 80 | 83.33 | 49 | 51.04 | 129 | 67.19 |
| 2 | Joint | 16 | 16.67 | 47 | 48.96 | 63 | 32.81 |

The data in the table revealed that majority of the respondents (83.33%) in Nuapada district had nuclear family system. But, both type i.e. nuclear and joint family were at par with the respondents of Kalahandi district although 51.04% belonged to nuclear family.

It is the culture of the tribal that the individuals after marriage separated from the family and stay in his own house either constructed by himself or donated by his parents. Since, Kalahandi district are more advanced than Nuapada district, the culture of separation after marriage restricted for which more respondents had joint family system in comparison to Nuapada district. However; the findings conclude that majority of the respondents in the study area had nuclear family system.

1.4 : Family size

Family size also determines the various farm activities of the people. The families having more members usually go for different vocational activities. Further, they have also accumulated knowledge and skills to strengthen their farm activities. The family size of the respondents has been categorised up to and above five members. The results obtained after analysis of data are reflected in table 6.1.4.

Table 6.1.4: Distribution of family size of the respondents

| Sl. No. | Family size | Nuapada district (n=96) | | Kalahandi district (n=96) | | Total (n=192) | |
|---------|--------------------|-------------------------|-------|---------------------------|-------|---------------|-------|
| | | F | % | F | % | F | % |
| 1 | Up to five members | 62 | 64.58 | 10 | 10.42 | 72 | 37.50 |

| | | | | | | | |
|---|------------------------|----|-------|----|-------|-----|-------|
| 2 | More than five members | 34 | 35.42 | 86 | 89.58 | 120 | 62.50 |
|---|------------------------|----|-------|----|-------|-----|-------|

Contradictory responses were received from the respondents of both the districts about their family size as observed from the table. Majority of 64.58% of the respondents in Nuapada district had family size within five members. But, majority of 89.58% of the respondents in Kalahandi district had family size more than five members. Since, majority of the respondents in Kalahandi district had joint family system; it is natural that their family size will be comparatively large. However, the findings concluded that majority of the respondents (62.50%) had family size of more than five members.

1.5 : Social participation

Farmers with more social contact are usually exposed more to latest developments in farm activities. Extent of involvement with various developmental organisations along with their participation in activities not only facilitates to acquire knowledge but develop confidence to adopt the changed practices. Social participation therefore has significant contribution in receiving information, use them in farm activities which indicate their progressiveness. Moreover, social participation includes membership as well as participation in the activities of various organisation. The data collected from the respondents on their membership status in various organisations have analysed and presented in table 6.1.5.

Table 6.1.5: Membership pattern in organisations

| Sl. no | Organization | Nuapada District | | | Kalahandi District | | |
|--------|---------------------|------------------|-------------|---------------|--------------------|-------------|---------------|
| | | Office Bearer | Member | No Member | Office Bearer | Member | No Member |
| 1 | Cooperative society | 0 (0.00) | 6 (6.30) | 90 (93.80) | 5 (5.20) | 8 (8.30) | 83 (86.50) |
| 2 | Village Panchayat | 2 (2.10) | 6 (6.30) | 88 (91.70) | 2 (2.10) | 5 (5.20) | 89 (92.70) |

| | | | | | | | |
|---|------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 3 | Cultural organisation | 5 (5.20) | 11 (11.50) | 80 (83.30) | 8 (8.30) | 14 (14.60) | 74 (77.10) |
| 4 | Religious organisation | 7 (7.30) | 16 (16.70) | 73 (76.00) | 13 (13.54) | 22 (22.92) | 61 (63.54) |
| 5 | Social organisation | 6 (6.25) | 18 (18.75) | 72 (75.00) | 24 (25.00) | 17 (17.71) | 55 (57.29) |
| 6 | Self Help Groups | 14 (14.58) | 18 (18.75) | 64 (66.67) | 12 (12.50) | 16 (16.67) | 68 (70.83) |
| 7 | School Committee | 9 (9.38) | 12 (12.50) | 75 (78.12) | 15 (15.62) | 22 (22.92) | 59 (61.46) |

(Figures in parentheses indicate percentage)

Very poor membership status in the social organisations of the respondents was observed from the analysis of data. Majority of the respondents in both the districts had stated for no membership in various social organisations mentioned in the table.

Further attempts have been made towards their participation in various social organisations covered under study. Data collected from the respondents on scale point of fully, partially and not at all participated were analysed with weightage of 2, 1 and 0 respectively. The results so obtained have been presented in table 6.1.6.

Table 6.1.6: Extent of social participation of the respondents

| Sl. No. | Participation | Nuapada district (n=96) | | Kalahandi district (n=96) | | Total (n=192) | |
|---------|-----------------------|-------------------------|---------|---------------------------|---------|---------------|---------|
| | | Mean score | Gap (%) | Mean score | Gap (%) | Mean score | Gap (%) |
| 1 | Cooperative society | 0.41 | 79.50 | 0.91 | 54.50 | 0.67 | 66.50 |
| 2 | Village Panchayat | 0.68 | 66.00 | 1.03 | 48.50 | 0.86 | 57.00 |
| 3 | Cultural organisation | 0.99 | 50.50 | 0.83 | 58.50 | 0.91 | 54.50 |

| | | | | | | | |
|---|------------------------|------|-------|------|-------|------|-------|
| 4 | Religious organisation | 1.02 | 49.00 | 0.53 | 73.50 | 0.78 | 61.00 |
| 5 | Social organisation | 1.02 | 49.00 | 0.64 | 68.00 | 0.83 | 58.50 |
| 6 | Self Help Groups | 1.05 | 47.50 | 0.94 | 53.00 | 1.00 | 50.00 |
| 7 | School Committee | 0.59 | 70.50 | 1.10 | 45.00 | 0.85 | 57.50 |

(Maximum obtainable Score – 2)

Very poor social participations were also observed from the table. Significant gaps were also observed on participation of the respondents in various social organisations. The respondents may not be the member in various social organisations, but there is no restriction for their participation. Since, the respondents are tribal and living in watershed areas, they might have limited vision which restricts them to involve in various social organisations.

It is therefore suggested that the watershed project personnel have to appraise in details about the benefits of social participation so that the respondents could able to realise the importance and participate to enrich their knowledge and expand their outlook.

1.6 : Cosmopolitaness

Cosmopolitaness is the degree to which an individual is oriented to outside of his immediate social system. It also otherwise indicates the frequency of visit made by the individuals to nearby towns or urban areas to accelerate their exposure and develop competency in managing their farm activities. The cosmopolite behaviour of the respondents have been collected on scale point of regularly, occasionally and never which were analysed with weightage of 2, 1 and 0 respectively. The results obtained from the analysis of data have been presented in table 6.1.7.

Table 6.1.7: Cosmopolite behaviour of the respondents

| Sl. No. | Organisation | Nuapada district (n=96) | | Kalahandi district (n=96) | | Total (n=192) | |
|---------|--------------|-------------------------|---------|---------------------------|---------|---------------|---------|
| | | Mean score | Gap (%) | Mean score | Gap (%) | Mean score | Gap (%) |

| | | | | | | | |
|----|-----------------------|------|-------|------|-------|------|-------|
| 1 | Post Office | 1.07 | 46.50 | 0.81 | 59.50 | 0.94 | 53.00 |
| 2 | Primary health centre | 1.31 | 34.50 | 1.69 | 15.50 | 1.50 | 25.00 |
| 3 | Rural bank | 1.02 | 49.00 | 0.93 | 53.50 | 0.98 | 51.00 |
| 4 | Nationalized bank | 1.10 | 45.00 | 1.17 | 41.50 | 1.14 | 43.00 |
| 5 | Block office | 1.35 | 32.50 | 1.27 | 36.50 | 1.30 | 34.50 |
| 6 | Panchayat office | 1.46 | 27.00 | 1.56 | 22.00 | 1.51 | 24.50 |
| 7 | District head quarter | 0.88 | 56.00 | 1.01 | 49.50 | 0.95 | 52.50 |
| 8 | Krishi Vigyan Kendra | 0.72 | 64.00 | 0.64 | 68.00 | 0.68 | 66.00 |
| 9 | Nearest city/town | 0.98 | 51.00 | 0.91 | 54.50 | 0.95 | 52.50 |
| 10 | Regulated market | 0.51 | 74.50 | 0.10 | 95.00 | 0.31 | 84.50 |

(Maximum obtainable Score – 2)

The data in the table revealed that the respondents of both Nuapada and Kalahandi district had limited cosmopolite behaviour. The respondents had poor visit to Krishi Vigyan Kendras, regulated market, nearest city/town, district headquarter, nationalised bank, rural bank and post office in comparison to visit to the panchayat office, block office and primary health centre. The respondents of Kalahandi district had higher level of visit to the primary health centre, panchayat office and block office than the respondents of Nuapada district. The pooled data also revealed in the same manner where higher visits were observed to the primary health centre, panchayat and block office than other organisations mentioned in the table.

Analysis of data therefore inferred that the respondents had limited cosmopolite behaviour indicating the resourcepoorness of the respondents. Hence, watershed development programme is definitely a boon for upliftment of the tribal in the study district.

1.7: Use of communication materials

Sources of information are important criteria that determine the literacy level, exposure to latest developments and use of the acquired information in day-to-day activities. Attempt was therefore made in the study to assess the extent of use of the communication materials. The data collected on scale point of very often, often, some times and never have been used with weightage of 3, 2, 1 and 0 respectively (Trivedi, 1963). The results so obtained have been reflected in table 6.1.8.

Table 6.1.8: Extent of use of communication materials

| Sl. No. | Communication material | Nuapada district (n=96) | | Kalahandi district (n=96) | | Total (n=192) | |
|---------|------------------------|-------------------------|---------|---------------------------|---------|---------------|---------|
| | | Mean score | Gap (%) | Mean score | Gap (%) | Mean score | Gap (%) |
| 1 | Radio | 2.17 | 27.67 | 0.81 | 39.67 | 1.99 | 33.67 |
| 2 | Television | 2.17 | 37.67 | 2.10 | 30.00 | 2.14 | 28.67 |
| 3 | Farm literature | 0.58 | 80.67 | 0.71 | 76.33 | 0.65 | 78.33 |
| 4 | Personal contact | 0.90 | 70.00 | 1.25 | 58.33 | 1.08 | 64.00 |
| 5 | Seminar/Workshop | 0.19 | 93.67 | 0.53 | 82.33 | 0.36 | 88.00 |
| 6 | Exhibition | 0.28 | 90.67 | 0.45 | 85.00 | 0.37 | 87.67 |

(Maximum obtainable Score – 3)

As observed from the table, the respondents of both Nuapada and Kalahandi district had very poor use of communication materials. The respondents of both the district had not participated in seminars, workshops and exhibitions. Very poor use of farm literature and personal contact with extension functionaries were also observed. Better use of radio and television may be apprehended for entertainment purpose and not for getting technical information.

The findings therefore suggested that the field functionaries working in the study area have to expose the respondents for the advantages of using various communication materials to update their knowledge and use in their farm activities to increase production and productivity.

1.8: Extension contact

Easy access to information always helped the individuals to keep abreast with latest technological developments. Good extension contact facilitates in solving the problems of the farmers in time. Therefore, watershed beneficiaries have to keep close contact with the field level extension functionaries and project personnel for regular information flow. The watershed guideline also laid emphasis on strong extension networks where the extension functionaries regularly visit and advice on farm activities. Attempt was therefore made to assess the extent of contact made with extension functionaries. The data collected on scale point of very frequently, frequently, some times and never was used with weightage of 3, 2, 1 and 0 respectively, Trivedi (1963). The results obtained from the analysis of data are appeared in table 6.1.9.

Table 6.1.9: Extension contact made by the respondents

| Sl. No. | Extension agent | Nuapada district (n=96) | | Kalahandi district (n=96) | | Total (n=192) | |
|---------|------------------------------|-------------------------|---------|---------------------------|---------|---------------|---------|
| | | Mean score | Gap (%) | Mean score | Gap (%) | Mean score | Gap (%) |
| 1 | Field level officials | 1.55 | 48.33 | 1.58 | 47.33 | 1.57 | 47.67 |
| 2 | Panchayat level officials | 1.46 | 51.33 | 1.45 | 51.67 | 1.45 | 51.67 |
| 3 | Block level officials | 1.21 | 59.67 | 1.02 | 66.00 | 1.12 | 62.67 |
| 4 | Sub-division level officials | 0.56 | 81.33 | 0.25 | 91.67 | 0.41 | 86.33 |
| 5 | District level officials | 0.39 | 87.00 | 0.38 | 87.33 | 0.38 | 87.33 |
| 6 | State level officials | 0.27 | 91.00 | 0.10 | 96.67 | 0.19 | 93.67 |

(Maximum obtainable Score – 3)

The data in the table revealed that the respondents of both Nuapada and Kalahandi district were almost of similar opinion towards their contact

with extension agencies. Significant gaps were observed on their contact with extension agents starting from field level to state level. Significant gap of 46.67% with field level officials clearly indicated that the respondents had very poor contact with extension agents.

Watershed people particularly tribal require continuous flow of information to update their knowledge on farm activities. When they had poor contact, adoptions of improved practices may be doubtful. It is therefore suggested that the extension functionaries working in the study area should have regular contact and transmit technical guidance and expertise in time for increasing production and productivity by the tribal people.

1.8 : Type of house

Type of residential house indicates the status of an individual in the society. The persons having more income usually stay in a better house. The housing patterns of the respondents have been presented in table 6.1.10 after analysis of the collected data.

Table 6.1.10: Distribution of type of house of the respondents

| Sl. No. | Housing pattern | Nuapada district (n=96) | | Kalahandi district (n=96) | | Total (n=192) | |
|---------|-----------------|-------------------------|-------|---------------------------|-------|---------------|-------|
| | | F | % | F | % | F | % |
| 1 | Hut | 9 | 9.38 | 5 | 5.21 | 14 | 7.30 |
| 2 | Thatched | 48 | 50.00 | 29 | 30.21 | 77 | 40.10 |
| 3 | Semipucca | 28 | 29.17 | 44 | 45.83 | 72 | 37.50 |
| 4 | Pucca | 11 | 11.45 | 18 | 18.75 | 29 | 15.10 |

It is observed from the table that very few respondents in both Nuapada and Kalahandi district had pucca houses. Few respondents were living in huts. Majority of the respondents in both the districts were residing in thatched to semipucca houses. The findings lead to conclude that the respondents had poor economic status. The Watershed Development Programme will definitely advantageous for their economic upliftment.

19 : Size of holding

The holding size indicates the extent of possession of landed properties by the individuals. It is another important factor for determining the social status of farmers and involvement in farming. The data collected from the respondents on holding size have been analysed and presented in table-6.1.11.

Table 6.1.11: Distribution of holding size of the respondents

| Sl. No. | Holding size | Nuapada district (n=96) | | Kalahandi district (n=96) | | Total (n=192) | |
|---------|-----------------------------------|-------------------------|-------|---------------------------|-------|---------------|-------|
| | | F | % | F | % | F | % |
| 1 | Landless | 20 | 20.83 | 6 | 6.25 | 26 | 13.54 |
| 2 | Marginal farmer (Up to 1.0 ha) | 41 | 42.71 | 28 | 29.17 | 69 | 35.94 |
| 3 | Small farmer (1.1 to 2.0 ha) | 20 | 20.83 | 30 | 31.25 | 50 | 26.04 |
| 4 | Semi-medium farmer (2.1 to 10 ha) | 15 | 15.63 | 31 | 32.29 | 46 | 23.96 |
| 5 | Big farmer (Above 10.0 ha) | 0 | 0.00 | 1 | 1.04 | 1 | 0.52 |

The data in the table revealed that not a single respondent in Nuapada and only 1.04% in Kalahandi district had more than 10.0 ha of land. Similarly, 20.83% of the respondents in Nuapada and 6.25% in Kalahandi district with average of 13.54% were landless. Other respondents in Nuapada district were more of marginal farmer (42.71%) followed by small (20.83%) and semi-medium farmer (15.63%). The proportion of marginal, small and semi-medium farmers in Kalahandi district were almost at par. The data in the table as a whole revealed that majority of the respondents in the study area were marginal to semi-medium farmers. Hence; Watershed Development Programme with the principal objective of conservation of soil and moisture will definitely helpful in increasing their farm production and income.

1.11: Source of irrigation

Water management play a pivotal role in Agriculture. The State Government through different developmental programmes has established various irrigation sources. Irrigation is also essential for raising crops during Rabi and Summer season as well as saving Kharif crops from drought which is the usual phenomena in the study district. Information collected from the respondents on sources of irrigation have been analysed and presented in table 6.1.12.

Table 6.1.12: Sources of irrigation of the respondents

| Sl. No. | Source | Nuapada district (n=96) | | Kalahandi district (n=96) | | Total (n=192) | |
|---------|-----------------|-------------------------|-------|---------------------------|-------|---------------|-------|
| | | F | % | F | % | F | % |
| 1 | Open well | 15 | 15.63 | 4 | 4.17 | 19 | 9.90 |
| 2 | Dug well | 12 | 12.50 | 20 | 20.83 | 32 | 16.67 |
| 3 | Natural stream | 6 | 6.25 | 10 | 10.42 | 16 | 8.83 |
| 4 | Reservoir | 14 | 14.58 | 42 | 43.75 | 56 | 29.17 |
| 5 | Lift irrigation | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |

The data in the table revealed that limited percentage of the respondents had different sources of irrigation facilities particularly open well, dug well, natural stream and reservoir. None of the respondents had other sources of irrigation as appraised during data collection. It indicates that the respondents were mostly practising monocropping and raising crops mainly during Kharif season.

It is therefore suggested that the watershed project personnel should critically examine and develop water sources on priority enabling the respondents to go for double or triple cropping instead of traditional monocropping.

1.12: Possession of agricultural implements

Agriculture in the present context demand mechanization due to scarcity of labourer and high wages. Possession of farm implements and machineries also indicate the progressiveness of a farm family and

involvement in improved farming. The State Government is also providing adequate incentives as well as motivating farmers to purchase implements and machineries. Data collected from the respondents on possession of agricultural implements have been presented in table 6.1.13 after analysis.

Table 6.1.13: Extent of possession of agricultural implements

| Sl. No. | Implements | Nuapada district (n=96) | | Kalahandi district (n=96) | | Total (n=192) | |
|---------|----------------|-------------------------|--------|---------------------------|--------|---------------|--------|
| | | F | % | F | % | F | % |
| 1 | Spade | 96 | 100.00 | 96 | 100.00 | 96 | 100.00 |
| 2 | Country plough | 95 | 98.96 | 96 | 100.00 | 191 | 99.48 |
| 3 | Iron plough | 84 | 87.50 | 93 | 96.88 | 177 | 92.19 |
| 4 | M.B. plough | 7 | 7.29 | 9 | 9.38 | 16 | 8.33 |
| 5 | Thresher | 21 | 21.88 | 27 | 28.13 | 48 | 25.00 |
| 6 | Cultivator | 3 | 3.13 | 2 | 2.08 | 5 | 2.60 |
| 7 | Sprayer | 35 | 36.46 | 63 | 65.63 | 98 | 51.04 |
| 8 | Winnower | 11 | 11.46 | 11 | 11.46 | 22 | 11.46 |
| 9 | Pump set | 20 | 20.83 | 30 | 31.25 | 50 | 26.04 |
| 10 | Weeder | 1 | 1.04 | 1 | 1.04 | 2 | 1.04 |
| 11 | Power tiller | 5 | 5.21 | 2 | 2.08 | 7 | 3.65 |
| 12 | Tractor | 1 | 1.04 | 2 | 2.08 | 3 | 1.56 |

As observed from the table, almost all the respondents in both Nuapada and Kalahandi district had spade and country plough. Majority of the respondents (92.19%) had iron plough. Majority of 65.63% of the respondents in Kalahandi district had sprayer. Possession of other implements as mentioned in the table was not encouraging. Moreover, the respondents had no other implements as observed during data collection.

The data in the table as a whole revealed that farm mechanisation status of the respondents were not at all satisfactory. It indicates that the respondents were still in their traditional agriculture. Limited irrigation facilities as observed may restrict for the use of improved farm implements and machineries. Use of farm implements and machineries are not only

cost effective but saves time and enabling timely operation. The respondents might have not realising the benefits of using farm implements and machineries for which sufficient exposure through training and demonstration suggested.

1.13: Possession of livestock

Animal Husbandry is another important vocation for the tribal people particularly resource poor and landless families. The guideline of the Watershed Development Programme has also emphasised for the animal production activities especially up gradation of existing breed, health care and fodder cultivation in government land etc. The data collected from the respondents on possession of livestock are appeared in table 6.1.14.

Table 6.1.14: Extent of possession of livestock

| Sl. No. | Livestock | Nuapada district (n=96) | | Kalahandi district (n=96) | | Total (n=192) | |
|---------|----------------|-------------------------|-------|---------------------------|-------|---------------|-------|
| | | F | % | F | % | F | % |
| 1 | Milch animal | 23 | 23.96 | 55 | 57.29 | 78 | 40.63 |
| 2 | Drought animal | 64 | 64.67 | 87 | 90.63 | 151 | 78.65 |
| 3 | Poultry | 73 | 76.04 | 58 | 60.42 | 131 | 68.23 |
| 4 | Duckery | 4 | 4.17 | 6 | 6.25 | 10 | 5.21 |
| 5 | Goatery | 69 | 71.88 | 36 | 37.50 | 105 | 54.69 |
| 6 | Fish farming | 2 | 2.08 | 10 | 10.42 | 12 | 6.25 |

As depicted from the table, majority of the respondents in both the districts had drought animals, poultry and goatery. Majority of the respondents (57.29%) in Kalahandi district had milch animals i.e. cow and buffaloes. Very limited respondents had other animal components as mentioned in the table.

Since; the respondents had traditional implements; naturally they keep bullocks and buffaloes for land preparation. The tribal people prefer poultry and goatery for subsidiary income. It is therefore suggested that the watershed project personnel have to develop the knowledge and skill competency of the tribal people in keeping better breed, health care and feeding.

1.14: Occupation

Occupation is also another important criterion indicating the status of a family. Occupational background is greatly influenced for the involvement of an individual in various activities. It also indicates the status of an individual. The data collected from the respondents are reflected in table 6.1.15 after analysis.

Table 6.1.15: Occupational background of the respondents

| Sl. No. | Occupation | Nuapada district (n=96) | | Kalahandi district (n=96) | | Total (n=192) | |
|---------|---|-------------------------|-------|---------------------------|-------|---------------|-------|
| | | F | % | F | % | F | % |
| 1 | Only farming | 56 | 58.33 | 60 | 62.50 | 116 | 60.42 |
| 2 | Wage earning with livestock | 20 | 20.83 | 6 | 6.25 | 26 | 13.54 |
| 3 | Farming with livestock | 19 | 19.80 | 27 | 28.13 | 46 | 23.96 |
| 4 | Farming with livestock and small business | 1 | 1.04 | 3 | 3.12 | 4 | 2.08 |

It is observed from the table that majority of the respondents in both Nuapada and Kalahandi district had farming as the major occupation although some families were keeping poultry, goat and milch animals in a limited scale. The landless families had the major occupation of wage earning with livestock. Since the farm families in the study area were mainly growing crops in Kharif season, they were keeping livestock as livelihood support. Therefore, the data in the table as a whole revealed that farming and livestock were the major livelihood support of the respondents. The project personnel working in the area have to develop feasible programmes for the improvement in farming as well as animal resource management for their upliftment.

1.15: Annual income

Income of a family greatly influences the decision making of the individuals and family as a whole. The goal and aspirations are more or less regulated by the income. It is very difficult to assess the average annual income as the respondents neither keeping any record nor recollect from memory. The researcher therefore made sufficient probing to get the approximate income generated by the respondents from different activities and assess the annual income accordingly. The data so gathered have been reflected in table 6.1.16.

Table 6.1.16: Average annual family income of the respondents

| Sl. No. | Annual income | Nuapada district (n=96) | | Kalahandi district (n=96) | | Total (n=192) | |
|---------|--------------------------|-------------------------|-------|---------------------------|-------|---------------|-------|
| | | F | % | F | % | F | % |
| 1 | Up to Rs.25,000/- | 45 | 46.88 | 25 | 26.04 | 70 | 36.46 |
| 2 | Rs.25,001 to Rs.50,000/- | 36 | 37.50 | 44 | 45.83 | 80 | 41.67 |
| 3 | Rs.50,001 to Rs.75,000/- | 11 | 11.46 | 9 | 9.38 | 20 | 10.42 |
| 4 | Rs.75,001 to Rs.1.0 lakh | 2 | 2.08 | 12 | 12.50 | 14 | 7.29 |
| 5 | Above Rs.1.0 lakh | 2 | 2.08 | 6 | 6.25 | 8 | 4.16 |

As observed from the table, only 15.62% of the respondents in Nuapada and 28.13% in Kalahandi district with average of 21.87% had family income of more than Rs.50,000.00 per year out of which only 4.16% had annual income above to 1.0 lakh. Majority of the respondents had annual family income within Rs.50, 000.00. Moreover, 36.46% of the respondents had annual family income within Rs.25, 000.00.

Tribal people living in the watershed area have complex diverse and risk prone farming situations. Monocropping is the usual cropping pattern of the majority of the respondents due to scarcity of irrigation. Farm mechanization status being very low indicates their traditional farming. All

these might have contributed for low level of income. Hence, the data in the table as a whole revealed that the respondents were relatively resource poor. Watershed Development Programme with conservation of soil and water can able to change the agriculture scenario in the study area, if properly implemented.

1.16: Social aptitude

Farmers usually depend on each other for sharing of farm information and develop confidence on use of the improved technology. Social traits like leadership quality, consciousness, changeproneness etc. very often motivate farmers for improved farming. The study therefore made attempt to locate the social character of the tribal farmers. Data collected from the respondents on scale point of very often, often, some times and never (Hardikar, 1998) were analysed with weightage of 3, 2, 1 and 0 respectively. The results obtained from the analysis of data have been reflected in table 6.1.17.

Table 6.1.17: Perception of the respondents towards social aptitude

| Sl. No | Aptitude | Mean Score | | Pooled mean score | Gap (%) |
|--------|-------------------------------------|-------------------------|---------------------------|-------------------|---------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | | |
| 1 | Leadership role | 1.30 | 1.66 | 1.48 | 50.67 |
| 2 | Change proneness | 1.45 | 1.82 | 1.64 | 45.33 |
| 3 | Maintaining social relations | 1.63 | 2.33 | 1.98 | 34.00 |
| 4 | Attempting scientific agriculture | 1.21 | 1.25 | 1.23 | 59.00 |
| 5 | Membership in various organisations | 1.21 | 1.25 | 1.23 | 59.00 |
| 6 | Contract/visit to outside | 1.42 | 1.68 | 1.55 | 48.33 |
| 7 | Adhering to social norms | 1.52 | 2.21 | 1.87 | 37.67 |

(Maximum Obtainable Score – 3)

Perceptions of the respondents towards their social aptitude as observed from the table were not encouraging. Significant percentage of gaps was observed on all the aspects of social aptitude as mentioned in the table. The respondents of Kalahandi district had little better aptitude on maintaining social relations and adhering to social norms in comparison to the respondents of Nuapada district.

Since, the respondents were relatively resource poor and living in watershed areas having complex diverse and risk prone situations with traditional agriculture, they may not have wider vision and outlook. These might be the contributing factors for their low perception towards social aptitude. Sufficient exposure through capacity building programme are essentially required to change their mind set and develop consciousness so that the respondents will expand their vision and develop social aptitude for their betterment. However; the respondents had better aptitude on maintaining social relations and adhering to social norms than other aptitudes as mentioned in the table.

1.17: Economic aptitude

Financial soundness is the indicator of empowerment and adoption of improved technologies. Financial status enables the tribal farmers for progressive thinking and searched for better technologies to increase income further. The respondents were therefore asked to opine their economic aptitudes on the scale point of very often, often, some times and never (Hardikar, 1998) over the framed statements. Analysis made with score value of 3, 2, 1 and 0 respectively have been presented in table 6.1.18.

Table 6.1.18: Perception of the respondents towards economic aptitude

| Sl. No. | Aptitude | Mean Score | | Pooled mean score | Gap (%) |
|---------|--|-------------------------|---------------------------|-------------------|---------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | | |
| 1 | Availing credit | 0.81 | 0.81 | 0.81 | 73.00 |
| 2 | Investment in entrepreneurial activity | 1.33 | 1.92 | 1.63 | 45.67 |

| | | | | | |
|---|-------------------------------------|------|------|------|-------|
| 3 | Like to spend in children education | 2.10 | 2.10 | 2.10 | 30.00 |
| 4 | Aspiration for improved livelihood | 1.78 | 1.51 | 1.65 | 45.00 |
| 5 | Control over family resources | 1.74 | 1.51 | 1.63 | 45.67 |
| 6 | Ownership of family resources | 1.52 | 1.49 | 1.51 | 49.67 |
| 7 | Savings in credit institutions | 1.55 | 1.56 | 1.56 | 48.00 |

(Maximum Obtainable Score – 3)

Poor perceptions towards economic aptitude of the respondents were also observed from the analysis of data in the table. Maximum gap of 73.00% were observed on their perception in availing credit. As the respondents were resource poor and having no mentality for availing credit, upliftment through farm activities cannot be expected. Significant gaps observed on investment in entrepreneurial activities; saving habits, control and ownership over family resources and aspiration for improved livelihood indicate the traditional mind set of the respondents to maintain their status quo. However, likingness to spend in children education is definitely a developmental aptitude of the respondents.

The data in the table as a whole revealed that the respondents had poor economical aptitude. With this background, upliftment of tribal cannot be expected through various developmental programmes. It is very much essential to change the traditional thinking of the respondents through various extension approaches to change their mind set and develop courage to increase risk bearing abilities towards scientific agriculture for their livelihood support.

1.18: Scientific aptitude

Farmers having interest in farming usually search for advanced technology. Unless the farmers have scientific aspiration, they cannot develop interest for new technologies and adopt. Attempt was therefore made in the study to assess the scientific aspiration of the respondents. Data collected from the respondents on scale point of very often, often, some times and never,

Hardikar (1998) were analysed with weightage of 3, 2, 1 and 0 respectively. The results so obtained have been presented in table 6.1.19.

Table 6.1.19: Perception of the respondents towards scientific aptitude

| Sl. No. | Aptitude | Mean Score | | Pooled mean score | Gap (%) |
|---------|---|------------------------|--------------------------|-------------------|---------|
| | | Nuapada distrit (n=96) | Kalahandi distict (n=96) | | |
| 1 | Search for adoption of new technologies | 1.88 | 1.97 | 1.92 | 36.00 |
| 2 | Follow scientific cultivation | 1.74 | 1.78 | 1.76 | 41.33 |
| 3 | Testing of new technology | 1.38 | 0.97 | 1.17 | 61.00 |
| 4 | Farm mechanization | 1.12 | 0.57 | 0.84 | 72.00 |
| 5 | Integrated farming approach | 0.94 | 0.57 | 0.76 | 74.67 |
| 6 | Cooperative farming | 0.67 | 0.34 | 0.51 | 83.00 |

(Maximum Obtainable Score – 3)

The data in the table indicated that the respondents of both Nuapada and Kalahandi district had not much of scientific aptitude. Very poor responses were observed on their opinions towards cooperative farming, integrated farming approach and farm mechanisation. Significant gaps were also observed on testing of new technologies, following scientific cultivation and searching for new technologies. All these factors are the indicators of the production and income enhancements. Poor response of the respondents in this regards indicate the traditional mind set of the respondents.

It is therefore suggested that the watershed officials working in the area have to sensitise the people through appropriate extension approaches to change their traditional thinking and make them conscious towards improved farming for their upliftment.

Further attempt have been made to categorise the respondents into high, medium and low socio-economic status. Analysis made with mean and standard deviation has been reflected in table below.

Table 6.1.20: Categorization of socio-economic status

| Sl. No. | Status | Nuapada district (n=96) | | Kalahandi district (n=96) | | Total (n=192) | |
|---------|--------|-------------------------|-------|---------------------------|-------|---------------|-------|
| | | F | % | F | % | F | % |
| 1 | High | 14 | 14.58 | 14 | 14.58 | 31 | 16.14 |
| 2 | Medium | 65 | 67.71 | 64 | 66.67 | 127 | 66.15 |
| 3 | Low | 17 | 17.71 | 18 | 18.75 | 34 | 17.71 |

(Mean = 52.18, Standard Deviation = 14.37)

(High \geq 66.55, Medium = 37.82-66.54, Low \leq 37.81)

The data in the table revealed that majority of the respondents in both Nuapada and Kalahandi district were of medium socio-economic status. Almost equal percentages of respondents in both the districts were of low and medium status.

The findings of the study therefore conclude that the tribal people in the watershed area were comparatively medium status group. Moreover, the respondents were mostly of homogenous category and findings of the study will be of more useful for their upliftment

Further attempt was also made to assess the extent of consistency of socio-economic attributes of the respondents. The results obtained from the co-variance analysis have been presented in the table 6.1.21.

Table 6.1.21: Extent of consistency of the socio-economic status

| Variable | Nuapada district (n=96) | | | Kalahandi district (n=96) | | | Total (n=192) | | |
|---------------------|-------------------------|------|-------|---------------------------|------|-------|---------------|------|-------|
| | Mean | SD | CV% | Mean | SD | CV% | Mean | SD | CV% |
| Age (X_1) | 2.229 | 0.60 | 27.21 | 2.302 | 0.56 | 24.50 | 2.266 | 0.58 | 25.83 |
| Education (X_2) | 2.802 | 1.20 | 42.89 | 3.396 | 1.31 | 38.56 | 3.099 | 1.28 | 41.57 |

| | | | | | | | | | |
|---|------------|-----------|------------|--------|-----------|------------|------------|-----------|------------|
| Family type (X ₃) | 1.167 | 0.37 5 | 32.11 2 | 1.490 | 0.50 3 | 33.73 5 | 1.328 | 0.47 1 | 35.44 5 |
| Family size (X ₄) | 1.354 | 0.48 1 | 35.50 3 | 1.896 | 0.30 7 | 16.19 8 | 1.625 | 0.48 5 | 29.87 0 |
| Social participation (X ₅) | 5.760 | 2.23 3 | 38.75 6 | 6.010 | 1.82 1 | 30.29 6 | 5.885 | 2.03 6 | 34.58 8 |
| Cosmo politeness (X ₆) | 10.30 2 | 4.25 8 | 41.32 9 | 10.063 | 2.27 0 | 22.56 1 | 10.18 2 | 3.40 5 | 33.44 2 |
| Communication materials used (X ₇) | 6.354 | 2.94 9 | 46.40 4 | 6.854 | 3.46 1 | 50.49 5 | 6.604 | 3.21 6 | 48.70 2 |
| Extension contact (X ₈) | 4.500 | 3.06 8 | 68.17 0 | 4.781 | 2.68 0 | 56.05 6 | 4.641 | 2.87 6 | 61.98 2 |
| Type of house (X ₉) | 2.417 | 0.82 9 | 34.31 5 | 2.781 | 0.81 0 | 29.14 2 | 2.599 | 0.83 8 | 32.24 3 |
| Possession of farm implements (X ₁₀) | 6.719 | 3.89 5 | 57.97 5 | 7.802 | 4.03 8 | 51.75 9 | 7.260 | 3.99 4 | 55.01 2 |
| Holding size (X ₁₁) | 2.313 | 0.97 7 | 42.23 6 | 2.927 | 0.95 4 | 32.59 8 | 2.620 | 1.01 1 | 38.59 3 |
| Occupation (X ₁₂) | 1.427 | 0.51 8 | 36.29 7 | 1.750 | 0.50 3 | 28.72 1 | 1.589 | 0.53 4 | 33.62 5 |
| Annual income (X ₁₃) | 1.750 | 0.89 4 | 51.11 0 | 2.271 | 1.16 5 | 51.30 7 | 2.010 | 1.06 8 | 53.13 8 |

The data in the table indicated that there was no consistency in any of the socio-economic attributes of the respondents in both Nuapada and Kalahandi district. It indicates that the respondents of both the districts were varied in their socio-economic attributes. The findings lead to conclude that though majority of the respondents were of relatively under medium socio-economic status, variability were observed in the socio-economic attributes. Greater variability were observed on extension

contact, scientific aptitude, possession of agricultural implements, annual income, use of communication materials and education in comparison to others.

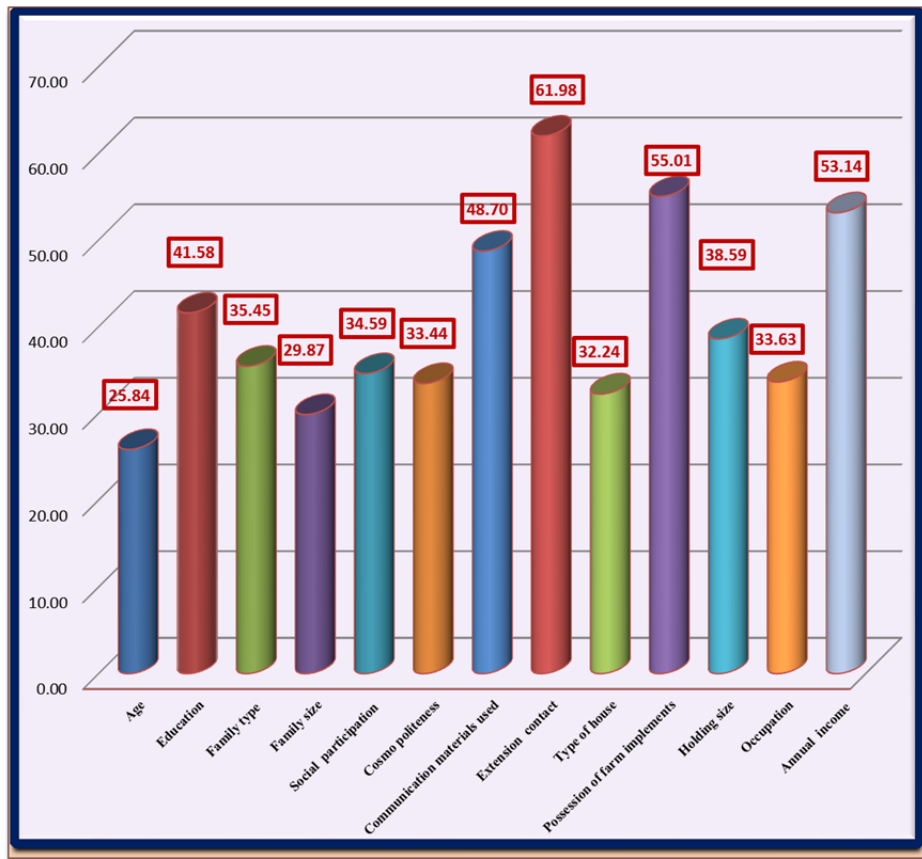


Fig. 10: Extent of Variability in Socio-Economic Status (CV %)

Acquiring knowledge and adoption of technologies are the multiple functions of personal, social, psychological and economic attributes associated with the individuals. These attributes either alone or in combination attributed for the desire, conviction and action towards adoption of improved practices. Attempt was therefore made in the study to analyse the interrelationship among some selected variables covered under study. The results so obtained have been presented in table 6.1.22.

Table 6.1.22: Extent of association among socio-economic variables (n=192)

| Variable | Correlation value (r) | | | | | | | | | | | | |
|-----------------------------------|-----------------------|--------|--------|--------|--------|--------|--------|-------|----|-----|-----|-----|-----|
| | X1 | X2 | X3 | X4 | X5 | X6 | X7 | X8 | X9 | X10 | X11 | X12 | X13 |
| Age (X1) | 1.000 | | | | | | | | | | | | |
| Education (X2) | 0.291* | 1.000 | | | | | | | | | | | |
| Family type (X3) | 0.062 | -0.037 | 1.000 | | | | | | | | | | |
| Family size (X4) | -0.071 | 0.093 | 0.404* | 1.000 | | | | | | | | | |
| Social participation (X5) | 0.219* | 0.334* | -0.010 | 0.105 | 1.000 | | | | | | | | |
| Cosmopolitaness (X6) | 0.115 | 0.331* | -0.129 | -0.066 | 0.255* | 1.000 | | | | | | | |
| Communication materials used (X7) | 0.159 | 0.654* | -0.152 | 0.099 | 0.372* | 0.452* | 1.000 | | | | | | |
| Extension contact (X8) | 0.060 | 0.514* | -0.032 | 0.120 | 0.237* | 0.439* | 0.600* | 1.000 | | | | | |

| | | | | | | | | | | | | | |
|-------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|
| Type of house (X9) | 0.080 | 0.275* | 0.150 | 0.208* | 0.120 | 0.362* | 0.343* | 0.324* | 1.000 | | | | |
| Possession of farm implements (X10) | -0.012 | 0.371* | 0.163 | 0.223* | 0.169 | 0.268* | 0.356* | 0.379* | 0.630* | 1.000 | | | |
| Holding size (X11) | 0.057 | 0.242* | 0.197 | 0.209* | 0.073 | 0.334* | 0.182 | 0.243* | 0.604* | 0.577* | 1.000 | | |
| Occupation (X12) | 0.033 | -0.161 | 0.248* | 0.250* | -0.020 | -0.140 | -0.123 | -0.087 | 0.109 | 0.090 | 0.058 | 1.000 | |
| Annual income (X13) | 0.071 | 0.231* | 0.201* | 0.321* | 0.152 | 0.191 | 0.285* | 0.299* | 0.677* | 0.760* | 0.716* | 0.145 | 1.000 |

* Significant at 0.05 level, ** Significant at 0.01 level

The data in the table revealed that age of the respondents had significantly and positively associated with education and social participation. Educational Status had positively associated with all the variables except family type, family size and occupation. Family type positively associated with family size, occupation, income and family size with house type, possession of farm implements, holding size, occupation and income. Social participation had positive association with age, education, cosmo politeness, use of communication materials and extension contact. Cosmopolite behaviour of the respondents had positively associated with education, social participation, use of communication materials and extension contact.

Use of communication materials had positive association with all the variables except age, family type, family size, holding size, and income.

Similarly extension contact had positively associated with all the variables except age, family type, family size and occupation. Type of house had also positively associated with all the variables except age, family type, social participation, occupation and possession of farm implements. Holding size had positively associated with education, family size, cosmo politeness, extension contact, house type, possession of farm implements and income. Occupational background of the respondents had positive association with family type, family size, and income. Similarly, annual income of the respondents had positive association with all the variables except age, social participation, cosmopolitanism and occupation.

The findings of the study therefore conclude that education, cosmopolitanism, use of communication materials, extension contact, type of house, possession of farm implements, holding size, and annual income were the significant variables having better association among themselves. It is natural that the individuals having better education, cosmopolitan behaviour, use of communication materials, contact with extension agencies acquired better knowledge. Similarly, housing type, possession of farm implements, holding size and annual income were the indicators of progressiveness which facilitates in acquiring more knowledge.

It is therefore suggested that these variables may be taken into account while involving the respondents in better implementation of watershed development programme.

OBJECTIVE – II

Knowledge and perception about functioning of Watershed Development Programme

Survival of any living organism on earth is essentially depends on two basic resources i.e. soil and water, nature's two valuable gifts to mankind. It is estimated that about 5433 tons of soil along with 10 million tons of plant nutrients are lost annually in India. Watershed Development Programme offers an eco-friendly way that is both cheap and effective in arresting and indeed reversing the degradation of natural resources. It involves and encourages the direct participation of people at the field level who take an avid interest in acquiring adequate knowledge in implementation of the programme. The guideline developed has also emphasised for the active participation of the people starting from planning to evaluation of the activities. It is therefore planned in the study to frame another objective for assessing the knowledge and perception of the people living in watershed areas towards functioning of the programme.

Knowledge about implementation of the programme, involvement of the project personnel, sources of getting information, knowledge about guideline, institutional arrangements, community organisation, objective, programme development, programme implementation, funding pattern, monitoring and evaluation were selected as the variables for assessing the knowledge level. Results obtained from the analysis of data on these aspects have been discussed in this section.

2.1: Programme initiation

Knowledge about programme initiation indicates the interest, knowledge, understanding and involvement of the people in programme implementation. Though, the Watershed Development Programme was implemented during 1995 at national level, the programme have been implemented in the study area during 1996-97. The data collected from the respondents on their knowledge about initiation of the programme have been indicated in table 6.2.1.

Table 6.2.1: Knowledge about initiation of the programme

| Sl. No. | Initiation | Nuapada district (n=96) | | Kalahandi district (n=96) | | Total (n=192) | |
|---------|--------------|-------------------------|-------|---------------------------|-------|---------------|-------|
| | | F | % | F | % | F | % |
| 1 | Last 3 years | 80 | 83.11 | 64 | 66.67 | 144 | 75.00 |
| 2 | Last 5 years | 16 | 16.67 | 32 | 33.33 | 48 | 25.00 |

As observed from the table, majority of the respondents in both Nuapada and Kalahandi district were aware of the implementation of the programme since last three years only from the period of data collection during 2013. It has been clearly mentioned in the guideline that all the families living in the watershed areas are to be well informed immediately about the implementation of the programme. It is also mandatory that all the families in the watershed areas have to be the members of the Watershed Association and formulate own programmes.

The findings therefore conclude that the respondents had not adequate knowledge about the initiation of the programme in their area.

2.2: Sources of information

Programme Implementation Agency, Watershed Development Team members and District Watershed Advisory Committee are the main agencies informing people about programme initiation. It has also been mentioned in the guideline for wide coverage in print and electronic media about programme implementation. The respondents were therefore asked about the sources for getting information about programme implementation. The data collected on scale point of regularly, occasionally and never were analysed with weightage of 2, 1 and 0 (Supe, 2007). The results obtained from the analysis have been presented in table below.

Table 6.2.2: Sources of information on programme implementation

| Sl. No. | Source | Mean Score | | | Pooled mean score | Rank |
|---------|--|-------------------------|---------------------------|----------|-------------------|------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Programme Implementation Agency (PIA) | 1.37 | 1.40 | 2.14 | 1.39 | V |
| 2 | Watershed Development Team Members (WDT) | 1.79 | 1.67 | 6.70 | 1.73 | I |
| 3 | Watershed Volunteers | 1.50 | 1.72 | 12.79 | 1.61 | III |
| 4 | Watershed Committee | 1.58 | 1.75 | 9.71 | 1.67 | II |
| 5 | Watershed Association | 1.59 | 1.44 | 9.43 | 1.52 | IV |
| 6 | Mass Media | 0.32 | 0.38 | 15.79 | 0.35 | VII |
| 7 | Watershed Advisory Committee | 1.33 | 0.51 | 35.29 | 0.42 | VI |

(Maximum obtainable Score – 2)

The data in the table indicated that the respondents of both Nuapada and Kalahandi district had poor opinion about receiving information from the Watershed Advisory Committee and mass media. At the same time, the respondents were also not much agreed for receiving information from the Programme Implementation Agency regularly. However, the respondents found agreed for receiving information from Watershed Development Team members, volunteers, Watershed Committee members and Watershed Association who are mostly assist people at watershed level.

The Programme Implementation Agency is the principal supervisory agency for all the watershed activities at the field level. Opinion of the respondents indicated that the Programme Implementation Agency had not much involved in transmitting information. It may be the fact that the respondents had poor knowledge about programme initiation and mostly they become aware after the programme implemented. It is therefore suggested that the Programme Implementation Agency should be fully involved in the implementation of the programme and provide all information regularly since it is the link between watershed people and District Watershed Advisory Committee.

2.3: Involvement of Project personnel

The success of the Watershed Development Programme largely depends on the interest and involvement of the officials implementing the programme. Their involvement will definitely make easier in designing feasible programme from the people's perspective. Attempt was therefore made in the study to analyse the extent of involvement of the project personnel. The data collected on scale point of fully, partially and not involved were analysed with score value of 2, 1 and 0 respectively (Supe, 2007). The results so obtained have been reflected in table 6.2.3.

Table 6.2.3: Extent of involvement of the project personnel

| Sl. No. | Personnel | Mean Score | | | Pooled mean score | Gap (%) |
|---------|-------------------------------|-------------------------|---------------------------|----------|-------------------|---------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Project Implementation Agency | 1.41 | 1.31 | 7.09 | 1.36 | 32.00 |
| 2 | Watershed Development Team | 1.76 | 1.71 | 2.84 | 1.74 | 13.00 |
| 3 | Watershed Volunteers | 1.67 | 1.79 | 6.70 | 1.73 | 13.50 |

| | | | | | | |
|---|------------------------------|------|------|-------|------|-------|
| 4 | President of the Association | 1.82 | 1.98 | 8.08 | 1.90 | 5.00 |
| 5 | Watershed committee members | 1.89 | 1.90 | 0.53 | 1.90 | 5.00 |
| 6 | District Advisory Committee | 0.56 | 0.42 | 25.00 | 0.49 | 75.55 |

(Maximum obtainable Score – 2)

As observed from the table, the respondents of both Nuapada and Kalahandi district were of similar opinion. The respondents had good opinion about involvement of the Watershed Development Team members, volunteers, President of the Watershed Association and Watershed Committee members. Very poor opinions were observed on the involvement of the District Watershed Advisory Committee members. Significant gaps were also observed on the involvement of the Project Implementation Agency.

Watershed Development team members staying in the watershed areas are regularly visiting people in formulating and implementing of the programme along with technical guidance and expertise. Volunteers, president and committee members are from the same watershed area and selected by the Association. The Project Implementation Agency is the supervising officers taking all the responsibilities for development of the watershed as a whole. His active involvement is essential for solving day to day field problems. District Advisory Committee members are district level officials of the related developmental departments are reviewing and monitoring the watershed activities. They need to visit the watershed area, discuss with the beneficiaries and watershed team members for guidance and resource mobilisation. Though the respondents had good opinion about field level officials, it is suggested that the Project Implementing Agency have to visit regularly and District Advisory Committee members intermediary to extent moral support and solving the problems encountered in field situation for effective implementation of the programme.

2.4: Institutional arrangement

The guideline envisages a clear cut institutional arrangements starting from community organisation, problem prioritisation, programme formulation and implementation including monitoring and evaluation. The watershed beneficiaries have to be fully involved in all the stages for which all should have detail knowledge about the institutional arrangements. The data collected from the respondents on scale point of strongly agree, agree and disagree over the framed statements have been analysed with the score value of 2, 1 and 0 respectively. The results so obtained are appeared in table 6.2.4.

Table 6.2.4: Knowledge about institutional arrangements

| Sl. No. | Knowledge | Mean Score | | | Pooled mean score | Gap (%) |
|---------|---|-------------------------|---------------------------|----------|-------------------|---------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Village consulted before implementation | 1.09 | 1.25 | 12.80 | 1.17 | 41.50 |
| 2 | Analysis of priorities | 1.07 | 1.60 | 33.13 | 1.34 | 33.00 |
| 3 | Formation of users and Self Help Groups | 1.13 | 1.39 | 18.71 | 1.26 | 37.00 |
| 4 | Volunteers employed on common agreement | 0.83 | 1.13 | 26.55 | 0.98 | 51.00 |
| 5 | Contribution of users in each activity | 0.99 | 1.33 | 25.56 | 1.16 | 42.00 |
| 6 | Sufficient training to develop confidence | 0.49 | 0.79 | 36.97 | 0.64 | 68.00 |
| 7 | PIA and WDT guide sufficiently | 0.96 | 1.33 | 27.83 | 1.15 | 42.50 |

(Maximum obtainable Score – 2)

The respondents of both the Nuapada and Kalahandi districts were of similar opinions on 'village consulted before implementation' and 'formation of users and Self Help Groups'. Though significant differential opinions were observed among the respondents of both the district on analysis of priorities, volunteers employed on common agreement, contribution of users in each activity, sufficient training to develop confidence on community organisation, Project Implementation Agency and Watershed Development Team members to guide sufficiently but the percentage of gaps indicated poor knowledge.

Prior to implementation of the programme, detailed discussions have to be made with watershed people for detail understanding to ensure their full cooperation. The people have to be fully involved in setting need based priority areas for designing feasible programmes. Formation of users and Self Help Groups are the basic in formulation of programme as guideline envisages adequate programmes for each family. It has also been mentioned that each beneficiaries have to contribute at least 10.00% either in labour or material and the monetary value will be deducted from the project cost and deposited in the development fund towards maintenance and use of the created assets after post project period. Two volunteers have to be selected with common agreement of the watershed people to assist in programme implementation. Significant gaps observed on all these aspects suggested that the District Rural Development Agency as the nodal agency should analyse the essentialities of the institutional arrangements and appraise the people with detail understanding to ensure their cooperation and active participation.

2.5: Community Organisation

Community Organisation is another important component of the Watershed Development Programme. All the watershed people should be appraised about formation of Watershed Association, Watershed Committee, conducting meeting to select members for the Committee, role and responsibilities of each member, fund utilisation pattern, monitoring and evaluation for effective implementation of the programme. The data collected on same scale point of strongly agree, agree and disagree were analysed and presented in table 6.2.5.

Table 6.2.5: Knowledge about Community Organisation

| Sl. No. | Knowledge | Mean Score | | | Pooled mean score | Gap (%) |
|---------|--|-------------------------|---------------------------|-----------|-------------------|---------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff. (%) | | |
| 1 | Association formed before implementation | 1.30 | 1.41 | 7.80 | 1.36 | 32.00 |
| 2 | All people to be the member of association | 1.17 | 1.48 | 20.95 | 1.33 | 33.50 |
| 3 | Watershed Committee formed with common decision | 1.18 | 1.32 | 10.60 | 1.25 | 37.50 |
| 4 | Conducting regular meeting of the association | 0.91 | 1.05 | 13.23 | 0.98 | 51.00 |
| 5 | Association approve accounts, monitor and review progress | 0.78 | 1.41 | 21.58 | 0.96 | 52.00 |
| 6 | Watershed secretary maintains all accounts | 1.22 | 1.22 | 0.00 | 1.22 | 39.00 |
| 7 | Contribution deposited in the account of development fund | 1.09 | 1.20 | 9.17 | 1.15 | 42.50 |
| 8 | Development fund exclusively used for post project activities. | 1.36 | 1.15 | 15.44 | 1.26 | 37.00 |

(Maximum obtainable Score – 2)

The respondents of both Nuapada and Kalahandi district were almost of similar opinions on various aspects of Community Organisation. The respondents had poor knowledge on conducting regular meetings of the Watershed Association, association approve accounts, monitor and review the progress as well as contribution of the beneficiaries deposited in the account of development fund. Significant gaps were also observed on watershed secretary maintain all accounts, development fund exclusively used for post project activities, Watershed Committee formed with common decisions, all people to be the member of association and association formed before implementation. All these are the pre-requisite for effective implementation of the Watershed Development Programme. It indicates that the respondents were not exposed sufficiently to the guideline and their participation in the programme implementation as a whole not satisfactory.

It is therefore suggested that the respondents need to be further exposed to the guideline for the clear understanding about various aspects of implementation of the programme to ensure their active participation.

2.6. Knowledge about objective

The guideline emphatically depicts the objective of the project for allround development of the watershed. The watershed people should have clear understanding of the objectives to ensure active participation. The data collected from the respondents on scale point of strongly agree, agree and disagree (Supe, 2007), have been analysed and presented in table 6.2.6.

Table 6.2.6: Knowledge about objectives of the programme

| Sl. No. | Knowledge | Mean Score | | | Pooled mean score | Gap (%) |
|---------|-------------------------------------|-------------------------|---------------------------|----------|-------------------|---------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Covers all developmental activities | 1.06 | 0.97 | 8.49 | 1.02 | 14.00 |
| 2 | Employment generation | 1.13 | 1.59 | 28.93 | 1.36 | 32.00 |

| | | | | | | |
|---|--|------|------|-------|------|-------|
| 3 | Management of adverse situation | 1.34 | 1.27 | 5.22 | 1.31 | 34.50 |
| 4 | Conservation of soil and water | 1.65 | 1.86 | 11.29 | 1.76 | 12.00 |
| 5 | Restoration of ecological balance | 1.27 | 1.82 | 30.22 | 1.55 | 22.50 |
| 6 | Emphasis on indigenous knowledge | 0.76 | 0.73 | 3.95 | 0.75 | 62.50 |
| 7 | Optimum use of available resources | 0.93 | 0.98 | 5.10 | 0.96 | 52.00 |
| 8 | More attention towards poverty alleviation | 0.90 | 1.05 | 14.29 | 0.98 | 51.00 |
| 9 | Empowerment of rural poor | 0.92 | 1.02 | 9.80 | 0.97 | 51.50 |

(Maximum obtainable Score – 2)

The data in the table revealed that the respondents of both Nuapada and Kalahandi district were of similar opinion in all the aspects of the objectives mentioned in the table except employment generation and restoration of ecological balance where the respondents of Kalahandi district had better opinion than Nuapada district. The respondents of both the districts had good knowledge of the objectives towards conservation of soil and water as well as restoration of ecological balance. They had also better knowledge towards of management of adverse situation and employment generation.

The important objective of the Watershed Development Programme is to cover all developmental activities of the watershed. Since, watershed people have their established indigenous knowledge; it has to be incorporated in the programme development. Optimum uses of available resources, more attention towards poverty alleviation and empowerment of watershed people have been emphasised in the objectives. Poor knowledge observed on these aspects suggested for further exposure of

the respondents for a clear understanding of the objectives of the programme in order to develop their interest for active participation.

2.7: Knowledge about operational procedure

The guideline has clearly indicated various operational procedures for effective implementation of the watershed development programme. The watershed people should have clear understanding since the beneficiaries have to be actively involved in all the stages starting from institutional arrangements to monitoring and evaluation. The results obtained from the analysis of collected data on scale point of strongly agree, agree and disagree (Supe, 2007) on framed statements have been reflected in table below.

Table 6.2.7: Knowledge about operational procedure

| Sl. No. | Knowledge | Mean Score | | | Pooled mean score | Gap (%) |
|---------|---|-------------------------|---------------------------|----------|-------------------|---------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Programme specificity | 1.08 | 1.28 | 15.63 | 1.18 | 41.00 |
| 2 | Community approach | 1.43 | 1.56 | 8.33 | 1.50 | 25.00 |
| 3 | Flexibility in implementation | 1.30 | 0.95 | 26.92 | 1.13 | 43.50 |
| 4 | Well defined role of related institutions | 0.94 | 1.08 | 12.96 | 1.01 | 49.50 |
| 5 | No overlapping of programmes | 1.43 | 1.05 | 26.57 | 1.24 | 38.00 |
| 6 | Programme on long term benefits | 1.43 | 1.35 | 5.59 | 1.39 | 30.50 |
| 7 | Greater role of farm women | 1.02 | 1.07 | 4.67 | 1.05 | 47.50 |
| 8 | Adequate programme for resource poor | 1.09 | 0.84 | 22.94 | 0.97 | 51.50 |

| | | | | | | |
|---|--------------------------------|------|------|-------|------|-------|
| 9 | Transparency in implementation | 0.82 | 0.67 | 18.29 | 0.75 | 62.50 |
|---|--------------------------------|------|------|-------|------|-------|

(Maximum obtainable Score – 2)

It is observed from the table that the respondents of both Nuapada and Kalahandi district were almost of similar opinions. The respondents had very poor knowledge on transparency in implementation, adequate programme for the resource poor, well defined role of different institutions, greater role of farm women, flexibility in implementation and programme specificity. However, the respondents had better knowledge on community approach and to some extent programming on long term benefits as well as no overlapping of programmes.

The guideline envisages for the adequate programme for all the families living in the watershed area. Revolving fund facilities are also provided for the vocational activities to the landless people. It has also been emphasised for adequate activities for women. Since the programming and fund utilisation done by the people, transparency is to be maintained. It is therefore presumed that the programmes were formulated by the watershed committee members in consultation with Watershed Development Team for which all these poor knowledge were observed on operational procedure. It is therefore suggested that the project officials should make clear understanding of the people about guideline and involve them in all the stages for effective implementation of the programme.

2.8: Programme development

The guideline envisages well defined procedure towards development of feasible programmes. It includes various activities to be undertaken for the development of the watershed as a whole. Watershed Association along with its committee members, Watershed Development Team members and Project Implementation Agency have to thoroughly scrutinize the action plan developed for the watershed. Each beneficiary should have detail knowledge about various activities to be undertaken for developing a feasible and realistic programme. The responses received from the respondents on scale point of strongly agree, agree and disagree on the framed statements have been analysed with score value of 2, 1 and 0

respectively, (Supe, 2007). The results obtained from the analysis of data have been presented in table below.

Table 6.2.8: Knowledge about programme development

| Sl. No. | Knowledge | Mean Score | | | Pooled mean score | Gap (%) |
|---------|---|-------------------------|---------------------------|----------|-------------------|---------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Involvement in problem diagnosis | 1.14 | 1.52 | 25.00 | 1.33 | 33.50 |
| 2 | Participation in programme formulation | 0.96 | 1.32 | 27.27 | 1.14 | 43.00 |
| 3 | Participatory decision for programming in Government land | 1.01 | 1.23 | 17.89 | 1.12 | 44.00 |
| 4 | Adequate programme for each family | 0.72 | 0.92 | 21.74 | 0.82 | 59.00 |
| 5 | Emphasis on plantations | 1.27 | 1.34 | 5.22 | 1.31 | 34.50 |
| 6 | Adequate programme for conservation of soil and moisture | 1.09 | 1.17 | 6.84 | 1.13 | 43.50 |
| 7 | Repair, restoration and up gradation of community assets | 1.20 | 1.18 | 1.67 | 1.19 | 40.50 |
| 8 | Renovation of water resources | 1.20 | 1.11 | 7.50 | 1.16 | 42.00 |

(Maximum obtainable Score – 2)

The data in the table revealed that the respondents of both the districts were of similar opinions. They had also considerable knowledge about various aspects of programme development. However, taking percentage of gaps into account, it is suggested that the respondents need to be further exposed for a clear understanding about various aspects of programme development as mentioned in the guideline to develop their competency in developing feasible, realistic and sustainable programme.

2.9: Programme Implementation

Table 6.2.9: Knowledge about programme implementation

| Sl. No. | Knowledge | Mean Score | | | Pooled mean score | Gap (%) |
|---------|-------------------------------------|-------------------------|---------------------------|----------|-------------------|---------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Each family implement own programme | 1.27 | 1.34 | 5.22 | 1.31 | 34.50 |
| 2 | Technical expertise by WDT | 1.38 | 1.34 | 2.90 | 1.36 | 32.00 |
| 3 | Immediate action on field problem | 1.01 | 1.07 | 5.61 | 1.04 | 48.00 |
| 4 | Timely monitoring of progress | 1.17 | 1.04 | 11.11 | 1.11 | 44.50 |
| 5 | Close supervision by WDT | 1.26 | 1.06 | 15.87 | 1.16 | 42.00 |
| 6 | Timely use of inputs and materials | 1.11 | 1.01 | 9.01 | 1.06 | 47.00 |
| 7 | Regular review of progress | 1.14 | 0.94 | 17.54 | 1.04 | 48.00 |

(Maximum obtainable Score – 2)

As revealed from the table, the respondents of both Nuapada and Kalahandi district were of similar opinion. The data in the table as a whole

revealed that the respondent had some degree of knowledge about implementation of the programmes as envisaged in the guideline. Considering the percentage of gap exists on all the aspects, it is suggested that the project officials should further expose the watershed beneficiaries for detail knowledge and understanding for effective implementation of the approved programmes.

2.10: Funding pattern

The guideline clearly spelled out the details of funding pattern particularly procedure for release of funds, utilisation and maintenance of accounts. The watershed secretary therefore recruited by the Watershed Association for maintenance of the accounts. There is also the system of Watershed Development Fund and various procedures spelled out for fund accumulation which exclusively kept for repair and maintenance of created assets during post project period. Knowledge levels of the respondents collected on same scale point of strongly agree, agree and disagree (Supe, 2007) have been analysed and presented in table below.

Table 6.2.10: Knowledge about funding pattern

| Sl. No. | Knowledge | Mean Score | | | Pooled mean score | Gap (%) |
|---------|--|-------------------------|---------------------------|----------|-------------------|---------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Adequate fund for developmental activities | 0.46 | 0.53 | 13.21 | 0.50 | 75.00 |
| 2 | Funds for community organisation | 1.19 | 1.33 | 10.53 | 1.26 | 37.00 |
| 3 | Adequate fund for capacity building | 0.75 | 1.07 | 29.91 | 0.91 | 54.50 |
| 4 | Freedom to people in fund utilisation | 0.99 | 1.00 | 1.00 | 1.00 | 50.00 |

| | | | | | | |
|---|---|------|------|-------|------|-------|
| 5 | Compulsory contribution to development fund | 1.50 | 1.28 | 14.67 | 1.39 | 30.50 |
| 6 | Scope for credit facilities | 0.10 | 1.36 | 25.74 | 1.19 | 40.50 |
| 7 | Revolving fund for SHGs | 0.96 | 1.08 | 11.11 | 1.02 | 49.00 |
| 8 | Well defined procedure in fund utilisation | 1.11 | 1.24 | 10.48 | 1.18 | 41.00 |

(Maximum obtainable Score – 2)

The respondents of both the districts were significantly differ in their opinion on adequate funds for capacity building and scope for credit facilities where the respondents of Kalahandi district had better knowledge than Nuapada districts. However, the respondents had not much agreed for all the aspects of funding pattern mentioned in the guideline.

The guideline clearly indicates the allotment of funds under different heads, release in different phases and utilisation pattern. It is apprehended that the respondents had not properly understood the funding pattern and suggested for further exposure.

2.11: Monitoring and evaluation

The guideline clearly indicated for regular monitoring and evaluation of the progress in participatory mode. Immediate attentions have to be taken to solve the field problems noticed during monitoring and supervision. Besides, the beneficiaries are to be well trained about fund utilisation and record maintenance. The data collected from the respondents on scale point of strongly agree, agree and disagree (Supe, 2007) have been analysed and presented in table 6.2.11.

Table 6.2.11: Knowledge about monitoring and evaluation

| Sl. No. | Knowledge | Mean Score | | | Pooled mean score | Gap (%) |
|---------|--|-------------------------|---------------------------|-----------|-------------------|---------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff. (%) | | |
| 1 | Capacity building for record maintenance | 1.08 | 1.49 | 27.52 | 1.29 | 35.50 |
| 2 | Regular meeting by WDT | 1.33 | 1.18 | 11.28 | 1.26 | 37.00 |
| 3 | Close supervision of each activity | 1.15 | 1.14 | 0.87 | 1.15 | 43.00 |
| 4 | Timely technical guidance | 1.07 | 0.97 | 9.35 | 1.02 | 49.00 |
| 5 | Documentation of each activity | 1.02 | 0.86 | 15.69 | 0.94 | 53.00 |
| 6 | Solving problems and difficulties | 0.89 | 0.86 | 3.37 | 0.88 | 56.00 |
| 7 | Participatory evaluation of progress | 0.94 | 0.71 | 24.47 | 0.83 | 58.50 |
| 8 | Raising Watershed Development Fund | 1.33 | 1.10 | 17.29 | 1.22 | 39.00 |

(Maximum obtainable Score – 2)

As observed from the table, the respondents of Nuapada and Kalahandi districts had comparatively poor knowledge on documentation of each activity, solving problems and difficulties immediately on field problems, participatory evaluation of the progress, timely technical guidance and close supervision of each activity. Significant gaps were also observed on raising watershed development funds, capacity building for record maintenance and regular meeting by Watershed Development Team members on field activities.

As per the guideline, individual families have to develop their own programmes being assisted by WDT members which will be scrutinised and

approved by the District Advisory Committee. The concerned families will take the advance from the Watershed Association and implement the programme. He has to maintain all the records. The WDT members, secretary of the Watershed Association and volunteers have to assist in the record maintenance. Capacity building programme are also to be organised for the maintenance of all the relevant records. Besides, the beneficiaries have to be actively involved in evaluation of the programmes. Inadequate knowledge observed on all these aspects of monitoring and evaluation may bring the fact that the respondents were not being sufficiently trained and suggested for further exposure.

Further attempt has been made for a comparative analysis of the knowledge level of the respondents on various aspects of implementation of the Watershed Development Programme covered under study. Analysis made with pooled mean score value under each variable have been reflected in table 6.2.12.

Table 6.2.12: Comparative analysis of the knowledge level

| Sl. No. | Knowledge | Mean Score | | | C.R. value | Pooled mean score (n=192) | Gain over mean | Gap (%) |
|---------|---------------------------|-------------------------|---------------------------|-----------|------------|---------------------------|----------------|---------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff. (%) | | | | |
| 1 | Institutional arrangement | 0.94 | 1.26 | 25.40 | 0.148 | 1.10 | -0.03 | 45.00 |
| 2 | Community organisation | 1.13 | 1.25 | 9.60 | 0.053 | 1.19 | +0.06 | 40.50 |
| 3 | Objective | 1.11 | 1.25 | 11.20 | 0.063 | 1.18 | +0.05 | 41.00 |
| 4 | Operational procedure | 1.17 | 1.09 | 6.84 | 0.037 | 1.13 | 0.00 | 43.50 |
| 5 | Programme development | 1.07 | 1.22 | 12.30 | 0.068 | 1.15 | +0.02 | 42.50 |

| | | | | | | | | |
|---|---------------------------|------|------|------|-------|------|-------|-------|
| 6 | Programme implementation | 1.19 | 1.11 | 6.72 | 0.036 | 1.15 | +0.02 | 42.50 |
| 7 | Funding pattern | 1.00 | 1.11 | 9.91 | 0.052 | 1.06 | -0.07 | 47.00 |
| 8 | Monitoring and evaluation | 1.10 | 1.04 | 5.45 | 0.028 | 1.07 | -0.06 | 46.50 |
| | Average | 1.09 | 1.17 | 6.84 | 0.037 | 1.13 | | 43.50 |

(Maximum obtainable Score – 2)

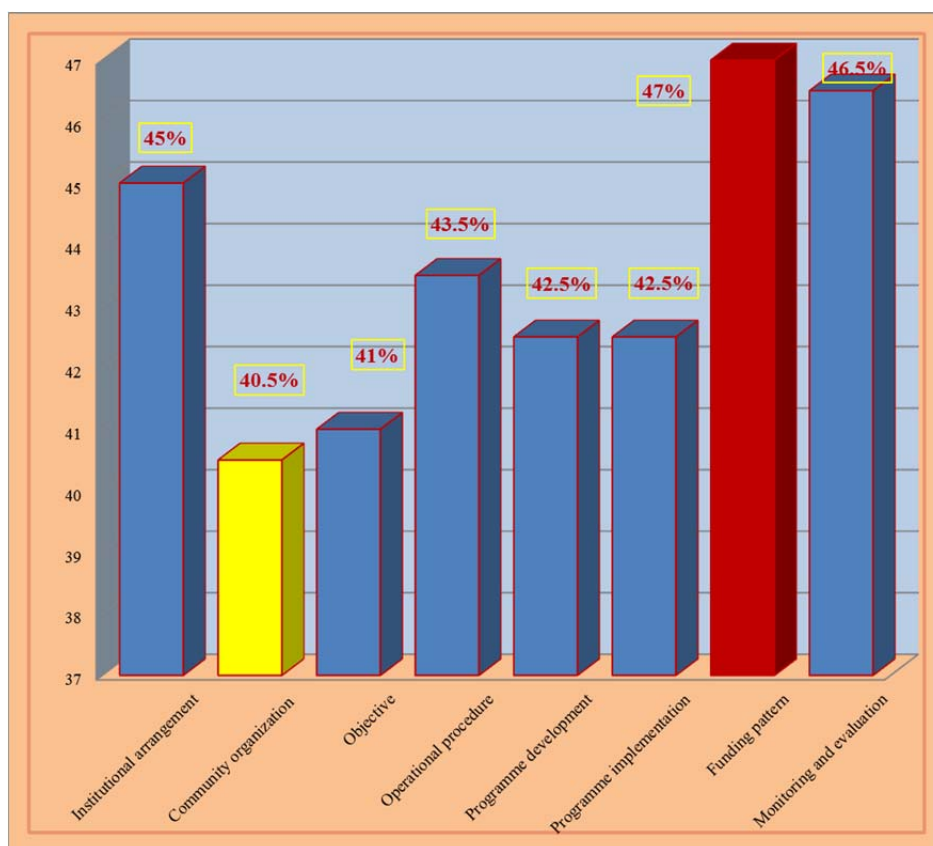


Fig. 11: GAP Percentage in Knowledge Level on Watershed Programme

No significant differential knowledge level was observed among the respondents of Nuapada and Kalahandi district on various aspects of the functioning of the Watershed Development programme. It implies that the knowledge level of the respondents of both Nuapada and Kalahandi districts were at par. Comparatively better knowledge were observed on Community organisation, objective, operational procedure, Programme development and implementation. However, the knowledge levels of the respondents were almost similar on various aspects of implementation of the Watershed Development programme. Considering the significant gap of 43.50 to 47.00 percents, the findings conclude that the respondents had to be further exposed to acquire sufficient knowledge on all these aspects for effective implementation of the programme.

Further attempt was made to locate the deficient knowledge areas for immediate remedial measures. Selection made with comparatively lower mean score have presented in table below.

Table 6.2.13: Comparative weak knowledge level of the respondents

| Sl. No. | Knowledge | Mean Score | | Pooled mean score (n=192) | Gap (%) |
|---------|--|-------------------------|---------------------------|---------------------------|---------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | | |
| 1 | Adequate fund for developmental activities | 0.46 | 0.53 | 0.50 | 75.00 |
| 2 | Sufficient training for community organisation | 0.49 | 0.79 | 0.64 | 68.00 |
| 3 | Emphasis on indigenous knowledge | 0.76 | 0.73 | 0.75 | 62.75 |
| 4 | Transparency in implementation | 0.82 | 0.67 | 0.75 | 62.75 |
| 5 | Adequate programme for each family | 0.72 | 0.92 | 0.82 | 59.00 |
| 6 | Participatory evaluation of progress | 0.94 | 0.71 | 0.83 | 58.50 |

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| | | | | | |
|----|--|------|------|------|-------|
| 7 | Solving problems and difficulties | 0.89 | 0.86 | 0.88 | 56.00 |
| 8 | Adequate fund for capacity building | 0.75 | 1.07 | 0.91 | 54.50 |
| 9 | Documentation of each activities | 1.02 | 0.86 | 0.94 | 53.00 |
| 10 | Association approves accounts, monitor and review progress | 0.78 | 1.14 | 0.96 | 52.00 |
| 11 | Optimum use of available resources | 0.93 | 0.98 | 0.96 | 52.00 |
| 12 | Empowerment of rural poor | 0.92 | 1.02 | 0.97 | 51.50 |
| 13 | Adequate programme for resource poor | 1.09 | 0.84 | 0.97 | 51.50 |
| 14 | More attention towards poverty alleviation | 0.90 | 1.05 | 0.98 | 51.00 |
| 15 | Volunteers employed on common agreement | 0.83 | 1.13 | 0.98 | 51.00 |
| 16 | Conducting regular meeting of the association | 0.91 | 1.05 | 0.98 | 51.00 |
| 17 | Freedom to people in fund utilisation | 0.99 | 1.00 | 1.00 | 50.00 |
| 18 | Well defined role of different institutions | 0.94 | 1.08 | 1.01 | 49.50 |
| 19 | Timely technical guidance | 1.07 | 0.97 | 1.02 | 49.00 |
| 20 | Revolving fund for SHGs | 0.96 | 1.08 | 1.02 | 49.00 |
| 21 | Immediate action on field problems | 1.01 | 1.07 | 1.04 | 48.00 |
| 22 | Regular review of progress | 1.14 | 0.94 | 1.04 | 48.00 |
| 23 | Greater role of farm women | 1.02 | 1.07 | 1.05 | 47.5 |
| 24 | Timely use of inputs and materials | 1.11 | 1.01 | 1.06 | 47.00 |

(Maximum obtainable Score – 2)

The guideline developed for the implementation of the Watershed Development Programme clearly spelled out all these supports mentioned in the table. Poor knowledge may be due to ignorance of the respondents. It is therefore suggested that the watershed people should be sufficiently trained on the guideline to have a clear understanding for effective implementation of the programme.

Attempt was also made in the study to assess the influence of socio-economic variables increasing the knowledge level of the respondents towards effective implementation of the Watershed Development Programme. Analysis made with Pearson's Coefficient of correlation has been reflected in table 6.2.14.

Table 6.2.14: Influence of socio-economic variables on knowledge

| Variable | Nuapada district (n=96) | | Kalahandi district (n=96) | | Total (n=192) | |
|-----------------------------|----------------------------|-----------|------------------------------|-----------|------------------|-----------|
| | 'r' value | 't' value | 'r' value | 't' value | 'r' value | 't' value |
| Age (X1) | 0.392* | 4.131 | -0.131 | -1.281 | 0.172 | 2.407 |
| Education (X2) | 0.552** | 6.418 | 0.380* | 3.983 | 0.470** | 7.340 |
| Family type (X3) | -0.086 | -0.837 | -0.103 | -1.004 | -0.059 | -0.815 |
| Family size (X4) | 0.041 | 0.398 | 0.184 | 1.815 | 0.117 | 1.624 |
| Social participation(X5) | 0.301* | 3.060 | 0.180 | 1.774 | 0.257* | 3.666 |
| Cosmopolitaness (X6) | 0.480** | 5.305 | 0.167 | 1.642 | 0.375* | 5.576 |
| Extension contact (X7) | 0.687** | 9.166 | 0.415** | 4.422 | 0.581** | 9.840 |
| Communication material (X8) | 0.526** | 5.996 | 0.516** | 5.840 | 0.515** | 8.281 |
| Type of house (X9) | 0.216* | 2.145 | 0.243* | 2.429 | 0.238* | 3.378 |
| Land holding (X10) | 0.431** | 4.631 | 0.118 | 1.152 | 0.301* | 4.351 |
| Occupation (X11) | -0.141 | -1.381 | -0.348* | -3.599 | -0.195 | -2.740 |
| Annual Income(X12) | 0.357** | 3.705 | 0.056 | 0.544 | 0.210* | 2.961 |

* Significant at 0.05 level, ** Significant at 0.01 level.

The data in the table revealed that all the socio-economic variables covered under study had significantly and positively influenced the knowledge level of the respondents of Nuapada district towards effective implementation of the watershed programme except family type, family size, and occupation. In case of the respondents of Kalahandi district, education, extension contact, use of communication materials and type of house positively and occupation negatively influenced the knowledge level. The pooled mean score value indicated that education, social participation, cosmopolitaness, extension contact, communication materials used, type of house, holding size and annual income of the respondents were the important variables accelerating the knowledge level of the respondents in implementation of the watershed Development Programme .

Further attempt have been made to locate the important socio-economic variables to assess the causal impact on the consequent factors. The results obtained from the multiple regression analysis have been reflected in table 6.2.15.

Table 6.2.15: Regression analysis of socio-economic variable on knowledge

(n=192)

| Variable | Un standardized Co-efficient | | Standardized Co-efficient | | 't' value | Probability |
|---------------------------|------------------------------|------------|---------------------------|------------|-----------|-------------|
| | Beta | Std. Error | Beta | Std. Error | | |
| Age (X1) | 3.121 | 1.983 | 0.093 | 0.045 | 1.573 | 0.117 |
| Education (X2) | 0.933 | 1.194 | 0.061 | 0.081 | 0.781 | 0.435 |
| Family type (X3) | -1.668 | 2.648 | -0.040 | 0.071 | -0.630 | 0.529 |
| Family size (X4) | 5.379 | 2.619 | 0.132 | 0.052 | 2.053 | 0.041 |
| Social participation (X5) | 0.477 | 0.590 | 0.049 | 0.045 | 0.808 | 0.419 |
| Cosmopolitaness (X6) | -0.224 | 0.421 | -0.039 | 0.079 | -0.533 | 0.594 |

| | | | | | | |
|-----------------------------|--------|-------|--------|-------|--------|-------|
| Extension contact (X7) | 2.295 | 0.423 | 0.424 | 0.081 | 5.421 | 0.000 |
| Communication material (X8) | 1.059 | 0.532 | 0.173 | 0.058 | 1.989 | 0.048 |
| Type of house (X9) | -0.544 | 1.896 | -0.023 | 0.083 | -0.286 | 0.774 |
| Land holding (X10) | 5.883 | 1.682 | 0.302 | 0.067 | 3.497 | 0.000 |
| Occupation (X11) | -5.732 | 2.182 | -0.155 | 0.065 | -2.626 | 0.009 |
| Annual Income (X12) | -4.198 | 1.756 | -0.228 | 0.062 | -2.390 | 0.017 |

$R^2=0.665$ Adj. $R^2=0.629$ S.E.-14.86

The data in the table revealed that the best fitted regression equation could explain 66.5% of the total variance in influencing the knowledge level of the respondents towards implementation of Watershed Development Programme. Among the twelve variables, extension contact, use of communication materials, holding size, family size, occupation and annual income of the respondents could help in the enhancement of the knowledge level.

Attempt has also been made to locate the essential factors through stepwise regression analysis. The Results so obtained have been reflected in table 6.2.16.

Table 6.2.16: Stepwise Regression Analysis of socio-economic variables influencing knowledge (n=192)

| Sl. No | Variable | Beta | Adj. R2 | R2 | 't' value | Probability |
|--------|-------------------|--------|---------|-------|-----------|-------------|
| 1 | Extension contact | 2.360 | 0.571 | 0.578 | 6.63591 | 0.000 |
| 2 | Education | 2.976 | 0.640 | 0.651 | 2.96142 | 0.003 |
| 3 | Occupation | -5.522 | 0.667 | 0.682 | 2.63713 | 0.009 |
| 4 | Holding size | 2.651 | 0.691 | 0.711 | 2.30992 | 0.021 |

The results obtained from the stepwise regression analysis revealed that extension contact, education, occupation and holding size were the significant variables to explain the level of knowledge about implementation of Watershed Development Programme.

Further attempt has been made in the study to assess the cause and effect relationships among the socio-economic variables influencing knowledge level. The results obtained from the path analysis have been indicated in Table 6.2.17.

Table- 6.2.17.-Path Analysis of socio economic variables influencing knowledge (n=192)

| Variable | Total Effect | Total Direct Effect | Total Indirect Effect | Substantial Effect | | |
|-----------------------------|--------------|---------------------|-----------------------|--------------------|----------|---------------|
| | | | | I | II | III |
| Age (X1) | - 0.523 | -0.23 | -0.293 | 0.142X11 | 0.136X2 | 0.105X5 |
| Education (X2) | 0.723 | 0.214 | 0.509 | 0.137X8 | -0.112X6 | -0.059X2 |
| Family type (X3) | - 0.514 | - 0.227 | -0.287 | 0.173X1 | -0.143X8 | - 0.034X10 |
| Family size (X4) | - 0.627 | - 0.110 | -0.517 | -0.225X4 | 0.196X5 | -0.086X7 |
| Social participation (X5) | 0.513 | 0.180 | 0.333 | -0.147X6 | 0.113X10 | - 0.042X11 |
| Cosmopolitaness (X6) | - 0.576 | - 0.220 | -0.356 | -0.206X7 | 0.167X9 | 0.082X3 |
| Extension contact (X7) | - 0.514 | - 0.221 | -0.293 | -0.223X5 | -0.172X8 | -0.074X1 |
| Communication material (X8) | 0.368 | 0.590 | 0.958 | 0.566X10 | 0.367X7 | -0.142X5 |
| Type of house (X9) | - 0.514 | - 0.380 | -0.134 | 0.196X12 | 0.104X8 | -0.023X2 |
| Land holding (X10) | - 0.016 | - 0.202 | 0.186 | -0.276X9 | -0.150X3 | -0.045X8 |

| | | | | | | |
|--------------------|------------|------------|--------|----------|----------|----------|
| Occupation (X11) | - 0.402 | - 0.219 | -0.183 | -0.177X5 | 0.089X4 | 0.035X6 |
| Annual Income(X12) | - 0.642 | - 0.084 | -0.726 | 0.261X3 | 0.089X11 | -0.078X5 |

Residual Effect: 0.033

Highest Indirect Effect: Communication materials used

As observed from the table, use of communication materials had the highest direct effect on influencing the knowledge level of the respondents. The other variables were house type, age, occupation, education, family type, social participation, cosmopolitaness, extension contact, holding size, out of which education, social participation positively and others negatively influence the knowledge level. Use of communication materials had also exhibited highest positive indirect effect in influencing the knowledge level. The other variables positively influenced were education, social participation, holding size, and negatively with age, family type, family size, cosmopolitaness, extension contact, type of house, and occupation.

The variable use of communication materials exhibiting highest indirect effect had associationship with as many as five variables. It is therefore concluded that the variable use of communication materials channelised through education, family type, extension contact, house type, and holding size had exhibited influence in accelerating the knowledge level of the respondents in implementation of the Watershed Development Programme. The residual effect being 0.033, it is to inferred that 3.30% of the variation in this relation could not be explained.

Analysis made through correlation co efficient, multiple regression, stepwise regression, and path analysis concluded that education, extension contact, holding size, occupation, and use of communication materials could help in accelerating the knowledge level of the respondents towards effective implementation of the Watershed Development Programme.

OBJECTIVE – III

Extent of Involvement in the implementation of Watershed Development Programme

The sustainable agricultural development in the present changed context can only be achieved with the conservation of soil and water as the basic natural resources coupled with human resource development to meet the new challenges of the 21st century. The Government of India has implemented nation wide massive and nicely designed watershed development programme incorporating all possible factors towards effective implementation. Soil and water conservation work along with agricultural production have been emphasised. Field functionaries have also been sufficiently trained on community organisation, problem prioritisation with agro-ecological survey, action plan formulation, monitoring and evaluation as well as report and returns. It has been observed that the desired participation of the watershed beneficiaries were lacking. Attempt was therefore made in the study to frame another objective to assess the extent of involvement of the tribal people in the process of the implementation of watershed development programme.

Freedom in implementation of the programme as well as involvement in watershed activities, decision making process, programme formulation, programme implementation, fund utilisation, monitoring and evaluation was selected as the variables. The data were collected on scale point of fully, partially and not involved were analysed with score value of 2, 1 and 0 respectively (Supe, 2007). The results obtained from the analysis of data have been discussed in this section.

3.1: Watershed activities

The guideline emphasises bottom-up planning and top-down approaches. Emphasis has been given to incorporate the indigenous knowledge, experience, aspiration and moralities of the watershed people while formulating action plan. The watershed beneficiaries are to be actively involved in all the phases of the implementation of the programme. The data collected from the respondents towards their involvement in various activities are reflected in table 6.3.1.

Table 6.3.1: Extent of involvement in watershed activities

| Sl. No. | Activity | Mean Score | | | Pooled mean score | Rank |
|---------|--------------------------|-------------------------|---------------------------|----------|-------------------|------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Agro-ecological survey | 1.34 | 1.41 | 4.96 | 1.38 | I |
| 2 | Problem identification | 1.36 | 1.30 | 4.41 | 1.34 | II |
| 3 | Programme formulation | 1.19 | 1.19 | 0.00 | 1.19 | IV |
| 4 | Programme implementation | 1.23 | 1.19 | 3.25 | 1.21 | III |
| 5 | Fund utilisation | 1.06 | 0.81 | 23.58 | 0.94 | V |
| 6 | Evaluation of progress | 0.98 | 0.88 | 10.20 | 0.93 | VI |

(Maximum obtainable Score – 2)

The data in the table revealed that the respondents of both Nuapada and Kalahandi district were of similar opinion except involvement in fund utilisation. The respondents of both the districts were better involved in agro-ecological survey and problem identification. Their involvement in programme formulation and implementation found to be satisfactory. But, poor involvement were observed on fund utilisation and evaluation of the progress.

As per the guideline, the individual beneficiaries have to take the advance from the Watershed Association as per the approved programme, for purchase of necessary inputs, implementation of the programme and submission of fund utilisation report to the Association. If the concerned beneficiaries not involved in fund utilisation, transparency in implementation of the programmes may be doubtful. Similarly, the beneficiaries are to be actively involved in evaluation of the day to day progress with Watershed Development Team members, volunteers and watershed committee members. Poor involvement in this regard

apprehended that the programme implementation was not properly done for which desired results may not be achieved.

It is therefore suggested that the Project Implementation Agency as the nodal officer at the watershed level should thoroughly supervise and ensure the active involvement of the beneficiaries in fund utilisation as well as evaluation of the day to day progress succeeding in achieving the desired results.

Further attempts have been made to assess the extent of freedom given to the beneficiaries in implementation of the programme. The data collected from the respondents in this regard have been analysed and presented in table 6.3.2.

Table 6.3.2: Freedom in implementation of the programme

| Sl. No. | Freedom | Mean Score | | | Pooled mean score (n=192) | Gap (%) |
|---------|--------------------------|-------------------------|---------------------------|----------|---------------------------|---------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Programme development | 1.27 | 1.32 | 4.07 | 1.30 | 35.00 |
| 2 | Programme implementation | 1.29 | 1.30 | 0.77 | 1.30 | 35.00 |
| 3 | Fund utilisation | 1.21 | 0.89 | 26.45 | 1.05 | 47.50 |
| 4 | Giving suggestion | 1.26 | 1.31 | 3.82 | 1.29 | 35.50 |
| 5 | Purchase of inputs | 0.85 | 0.77 | 9.41 | 0.81 | 59.50 |
| 6 | Use of created assets | 1.48 | 1.42 | 4.05 | 1.45 | 27.50 |

(Maximum obtainable Score – 2)

From the table, significant differential opinions were observed among the respondents of both Nuapada and Kalahandi district on fund utilisation where the respondents of Kalahandi district not much agreed. Very poor opinions were also observed from the respondents of both the districts on their freedom for purchase of inputs. However, the respondents of both the districts were agreed on their freedom in use of created assets and to

some extent on programme development as well as programme implementation.

The District Rural Development Agency released funds directly to the Watershed Association which are deposited in their bank account. The concerned beneficiaries will take the advance, will purchase required amounts, implement the programme and submit the vouchers to the secretary of the Watershed Association. The concerned beneficiaries has also to contribute 10.00% of the sanctioned amount either in shape of labour or material for which the monetary value deducted from the sanctioned amount and deposited in the Watershed Development Fund account. When the beneficiaries were not getting freedom in purchase of inputs and utilisation of fund, the objective of the project is diluted and the beneficiaries may not be actively involved in the programme implementation.

3.2: Decision making process

The Watershed Development Programme aims at empowering the people in implementation of the programme. Their involvement in decision making process is more valuable and worthwhile starting from need identification to programme designing, constraint analysis, knowledge and skill enhancement, programme implementation, selection of farmers' representatives as well as purchase of inputs and materials. The data collected from the respondents on their involvement in the decision making process have been analysed and presented in table 6.3.3.

Table 6.3.3: Involvement in the decision making process

| Sl. No. | Involvement | Mean Score | | | Pooled mean score (n=192) | Gap (%) |
|---------|-----------------------|-------------------------|---------------------------|----------|---------------------------|---------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Need identification | 1.37 | 1.43 | 4.20 | 1.40 | 30.00 |
| 2 | Programme development | 1.29 | 1.27 | 1.55 | 1.28 | 36.00 |

| | | | | | | |
|---|--------------------------------------|------|------|-------|------|-------|
| 3 | Programme implementation | 1.27 | 1.08 | 14.96 | 1.18 | 41.00 |
| 4 | Fund utilisation | 0.91 | 0.91 | 0.00 | 0.91 | 54.50 |
| 5 | Constraint analysis | 1.16 | 1.22 | 4.92 | 1.19 | 40.50 |
| 6 | Selection of farmer's representative | 0.89 | 0.77 | 13.48 | 0.83 | 58.50 |
| 7 | Selection farmers for training | 0.93 | 0.78 | 16.13 | 0.86 | 57.00 |

(Maximum obtainable Score – 2)

The data in the table revealed that the respondents of both Nuapada and Kalahandi district were of similar opinion as significant differential opinions were not observed. The respondents of both the districts were of poor opinion about selection of farmer's representatives, selection of farmers for training, fund utilisation, programme implementation and constraint analysis. Involvement of the respondents towards decision making on need identification and programme development were also not encouraging.

As per the guideline, transparency are to be maintained and all the decisions to be taken with active participation of the watershed people. If the people are not involved in selecting watershed president, secretary, volunteers, watershed committee chairman and members, favouritism may arise in implementation of the programme where the benefits may not be extended proportionately to all. Similar situations may arise in fund utilisation and constraint analysis where proper need identification and programme development could not be done and the basic objective of all round development of the watershed may not be achieved.

It is therefore suggested that the project officials should realise the importance of the participation of beneficiaries and involve the watershed people in all the decision making process to develop a realistic and feasible programme to achieve the objective of the programme.

3.3: Programme formulation

Programme formulation require involvement of watershed people in agro-ecological survey, problem diagnosis and prioritisation, programme designing, formulation of action plan and preparing consolidated action plan for the watershed as a whole. It will facilitate for developing feasible programme to each families living in the concerned watershed. The data collected from the respondents have been indicated in table 6.3.4 after analysis.

Table 6.3.4: Involvement in programme formulation

| Sl. No. | Involvement | Mean Score | | | Pooled mean score (n=192) | Gap (%) |
|---------|---------------------------------------|-------------------------|---------------------------|----------|---------------------------|---------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Participation in PRA exercise | 1.27 | 1.28 | 0.78 | 1.28 | 36.00 |
| 2 | Assessing needs of people | 1.36 | 1.34 | 1.47 | 1.35 | 32.50 |
| 3 | Problem diagnosis | 1.27 | 1.15 | 9.45 | 1.21 | 39.50 |
| 4 | Problem prioritisation | 1.29 | 1.09 | 15.50 | 1.19 | 40.50 |
| 5 | Assessing interventions | 1.03 | 0.79 | 23.30 | 0.91 | 54.50 |
| 6 | Developing own programme | 1.46 | 1.30 | 10.96 | 1.38 | 31.00 |
| 7 | Programming for Government land | 0.92 | 0.96 | 4.17 | 0.94 | 53.00 |
| 8 | Preparing consolidated watershed plan | 1.16 | 1.13 | 2.59 | 1.15 | 42.50 |

(Maximum obtainable Score – 2)

The respondents of both Nuapada and Kalahandi districts were of similar opinion as revealed from the data in the table. Considering the gap percentage, the respondents were not much involved in assessing

interventions (54.50%), programming for Government land (53.00%), preparing consolidated watershed plan (42.50%), problem prioritisation (40.50%) and problem diagnosis (39.50%). Better responses were observed on developing own programme and assessing needs of the watershed people. It indicates that the watershed people are only involved in developing their own programme.

The guideline emphasises for the programming in both Government and private land. Involvement of all the watershed people are essential for programming in Government land for the benefit of all categories of people irrespective of their holding size. Involvements in preparing consolidated watershed plan ensure for the programming and benefit for the both user and Self Help Groups. Similarly, participation of people in problem diagnosis, prioritisation and assessing interventions facilitates adequate programming for all. Without active involvement, adequate programming for all families may be doubtful.

The findings therefore suggested that the project officials should take all attempt to involve people in all aspects of programme formulation covered under study so that each family will be benefitted through implementation of adequate programmes.

3.4: Programme implementation

The guideline in para 86 indicated that each user groups have to prepare their own action plan with time and cost estimates, designing operational procedure for each activity along with clearly defined roles and responsibilities. The landless families will also prepare their action plan on various vocational activities. The individual family have to implement their own programme as approved by the District Watershed Advisory Committee. The data collected on involvement of the watershed people on programme implementation have been analysed and presented in table 6.3.5.

Table 6.3.5: Involvement in programme implementation

| Sl. No. | Involvement | Mean Score | | | Pooled mean score (n=192) | Gap (%) |
|---------|---|-------------------------|---------------------------|----------|---------------------------|---------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Undertaking activities as approved | 1.28 | 1.33 | 3.76 | 1.31 | 34.50 |
| 2 | Arranging required inputs | 0.88 | 1.08 | 18.52 | 0.98 | 51.00 |
| 3 | Timely reporting the progress of work | 0.61 | 0.89 | 31.46 | 0.75 | 62.50 |
| 4 | Reviewing progress time to time | 1.03 | 1.09 | 5.50 | 1.06 | 47.00 |
| 5 | Evaluation of the programme | 1.28 | 1.08 | 15.63 | 1.18 | 41.00 |
| 6 | Conflict management | 0.94 | 0.71 | 24.47 | 0.83 | 58.50 |
| 7 | Refinement/modification of approved programme | 0.38 | 0.51 | 25.49 | 0.45 | 77.50 |
| 8 | Maintaining records of activities | 1.10 | 1.04 | 5.45 | 1.07 | 46.50 |
| 9 | Discussion on post project activities | 0.81 | 0.74 | 8.64 | 0.78 | 61.00 |

(Maximum obtainable Score – 2)

The data in the table indicated that the respondents had differential opinions on their involvement on timely reporting of the progress of work, conflict management and refinement or modification over approved programme. But, the mean score value being at lower side and higher percentage of gap observed indicated for their poor involvement. Poor involvements were also observed on arranging required inputs, reviewing the progress time to time, and evaluation of the programme, record maintenance and discussion on post project activities.

The data in the table as a whole revealed the poor involvement of the respondents on various aspects of the programme implementation

covered under study. Since, the individual beneficiaries have to implement their own programme, the project officials have to involve the beneficiaries fully in the processes of programme implementation in order to achieve the end results.

3.5: Fund utilisation

Specific norms have been clearly spelled out in fund utilisation. The individual beneficiary has to place demand to the Watershed Association and take advance for implementing the approved programmes. Therefore, allotted funds have to be spent by the concerned beneficiaries for which they have to be fully involved. The data collected from the respondents on their involvement in fund utilisation are presented in table below after analysis.

Table 6.3.6: Involvement in fund utilisation

| Sl. No. | Involvement | Mean Score | | | Pooled mean score (n=192) | Gap (%) |
|---------|---------------------------------------|-------------------------|---------------------------|----------|---------------------------|---------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Placing demand for fund release | 0.58 | 0.71 | 18.31 | 0.65 | 67.50 |
| 2 | Utilizing the money properly | 1.01 | 1.24 | 18.55 | 1.13 | 43.50 |
| 3 | Purchasing required inputs/ materials | 0.47 | 0.60 | 21.67 | 0.54 | 73.00 |
| 4 | Maintaining accounts | 0.95 | 1.08 | 12.04 | 1.02 | 49.00 |
| 5 | Sending expenditure statements | 0.77 | 0.95 | 18.95 | 0.86 | 57.00 |
| 6 | Contribution for development fund | 1.43 | 1.67 | 14.37 | 1.56 | 22.00 |
| 7 | Availing credit | 1.02 | 0.80 | 21.57 | 0.91 | 54.50 |
| 8 | Mode of repayment of loan | 0.96 | 0.73 | 23.96 | 0.84 | 58.00 |

| | | | | | | |
|---|---------------------------------|------|------|------|------|-------|
| 9 | Utilisation of development fund | 0.49 | 0.45 | 8.16 | 0.47 | 76.50 |
|---|---------------------------------|------|------|------|------|-------|

(Maximum obtainable Score – 2)

The data in the table revealed that the respondents had very poor opinion about their involvement in fund utilisation. Significant percentages of gaps were observed on their involvement in various aspects of fund utilisation mentioned in the table. However; better involvements were observed on contribution towards development fund. As the individual beneficiaries have to contribute at least 10.00% of the total budgetary allocation either in shape of material or labour and mandatory, the respondents have to contribute for which the respondents stated for their involvement in contribution towards Watershed Development Fund.

Fund utilisation is the domain of the beneficiaries. They have to receive the funds from the Watershed Association and utilise in implementing the approved programmes. Poor involvement in this regard apprehended that transparency is not being maintained in fund utilisation. It is therefore suggested that the District Watershed Advisory Committee members have to properly monitor and regulate for the fully involvement of the watershed people in fund utilisation.

3.6: Monitoring and Evaluation

The guideline envisages proper monitoring and evaluation of the day-to-day progress of work with participatory mode involving project personnel and beneficiaries. The purpose is to solve the problems encountered in the field situation and ensuring to achieve the end results. Extents of involvement in monitoring and evaluation have been reflected in table below after analysis of data collected from the respondents.

Table 6.3.7: Involvement in monitoring and evaluation

| Sl. No. | Involvement | Mean Score | | | Pooled mean score (n=192) | Gap (%) |
|---------|-----------------------|-------------------------|---------------------------|----------|---------------------------|---------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Consultation with WDT | 1.02 | 1.08 | 5.56 | 1.05 | 47.50 |

| | | | | | | |
|---|-----------------------------------|------|------|-------|------|-------|
| 2 | Arrangement of additional inputs | 0.59 | 0.66 | 10.61 | 0.63 | 68.50 |
| 3 | Planning for crop diversification | 0.93 | 1.03 | 9.71 | 0.98 | 51.00 |
| 4 | Introduction of new technologies | 0.80 | 1.01 | 20.79 | 0.91 | 54.50 |
| 5 | Record maintenance | 0.79 | 0.80 | 1.25 | 0.80 | 60.00 |
| 6 | Evaluating progress of work | 0.81 | 0.76 | 6.17 | 0.79 | 60.50 |
| 7 | Giving suggestions | 0.98 | 0.93 | 5.10 | 0.95 | 52.50 |

(Maximum obtainable Score – 2)

The data in the table revealed that the respondents of both Nuapada and Kalahandi district were almost of similar opinion. The respondents of both the districts have also stated for their poor involvements. Significant percentages of gaps were observed on all aspects of monitoring and evaluation covered under study. The findings lead to conclude that proper monitoring and evaluation were not being done for which fulfilment of the objectives may be doubtful.

The Watershed Development Programme aimed at all round development of the watershed as a whole. The programme is designed from the people's perspective with participatory approach. There should be proper monitoring and evaluation with active involvement of the beneficiaries to achieve the end results. It is therefore suggested that the District Advisory Committee regulating implementation of the programme have to ensure proper monitoring and evaluation of the activities undertaken with active participation of the people to develop their competency in managing all activities.

Further attempt have been made for a comparative analysis of the involvement of the watershed people in various aspects of implementation of the Watershed Development Programme. The purpose is to locate the deficient areas to recommend for further strengthening. Analysis made with pooled mean score value have been presented in table 6.3.8.

Table 6.3.8: Comparative analysis of the involvement

| Sl. No. | Involvement | Mean Score | | | Pooled mean score (n=192) | Gap (%) |
|---------|---------------------------|-------------------------|---------------------------|----------|---------------------------|---------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Watershed activities | 1.20 | 1.13 | 5.83 | 1.16 | 42.00 |
| 2 | Decision making process | 1.12 | 1.07 | 4.46 | 1.09 | 45.50 |
| 3 | Programme formulation | 1.22 | 1.13 | 7.38 | 1.18 | 41.00 |
| 4 | Programme implementation | 0.92 | 0.94 | 2.13 | 0.93 | 53.50 |
| 5 | Fund utilisation | 0.84 | 0.92 | 8.70 | 0.89 | 55.50 |
| 6 | Monitoring and evaluation | 0.85 | 0.90 | 5.56 | 0.87 | 56.50 |
| | Average | 1.03 | 1.02 | 0.97 | 1.02 | 49.00 |

(Maximum obtainable Score – 2)

Comparative analysis of data in the table revealed that the respondents of both Nuapada and Kalahandi districts were of similar opinions as no significant differential opinions were observed. Very poor opinions were observed on their involvement in programme implementation, fund utilisation, monitoring and evaluation in comparison to watershed activities, decision making process and programme formulation. However; the percentage of gaps observed indicated that the respondents were not adequately involved in all aspects of the implementation of Watershed Development Programme.

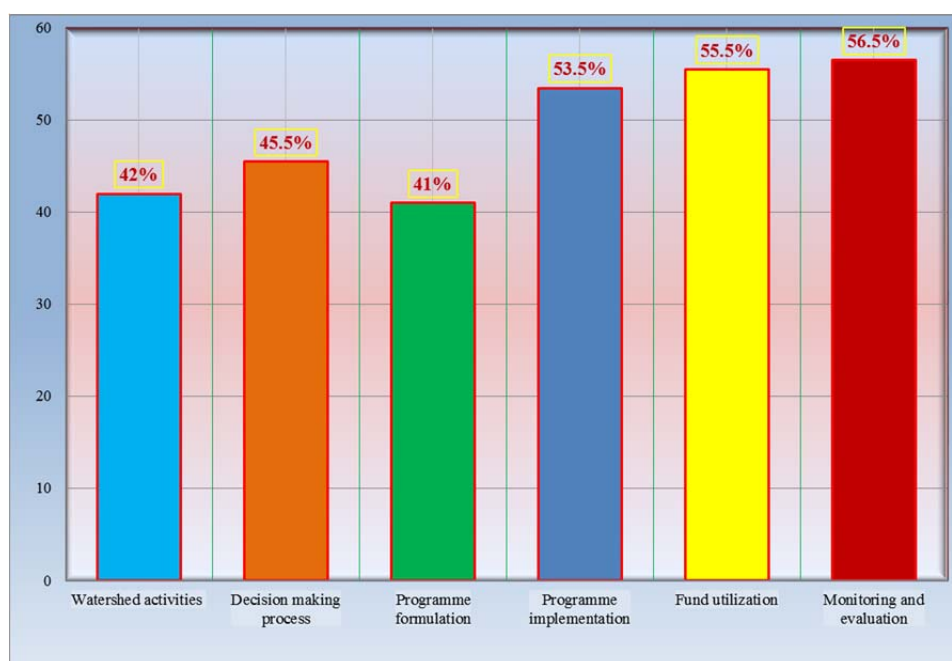


Fig. 12: Gap Percentage on Involvement In Watershed Activities

Attempt was therefore made to locate the weak development areas for taking strategies for their active involvement in implementation of various activities. Selection made with lower mean score value have been reflected in table 6.3.9.

Table 6.3.9: Comparatively poor involvement in watershed activities

| Sl. No. | Involvement | Mean Score | | Pooled mean score (n=192) | Gap (%) |
|---------|---------------------------------------|-------------------------|---------------------------|---------------------------|---------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | | |
| 1 | Refinement/modification of programmes | 0.38 | 0.51 | 0.45 | 77.50 |
| 2 | Utilisation of development fund | 0.49 | 0.45 | 0.47 | 76.50 |
| 3 | Purchasing required inputs/materials | 0.47 | 0.60 | 0.54 | 73.00 |

| | | | | | |
|----|---------------------------------------|------|------|------|-------|
| 4 | Arrangement of additional inputs | 0.59 | 0.66 | 0.63 | 68.50 |
| 5 | Placing demand for fund release | 0.58 | 0.71 | 0.65 | 67.50 |
| 6 | Timely reporting the progress of work | 0.61 | 0.89 | 0.75 | 62.50 |
| 7 | Discussion on post project activities | 0.81 | 0.74 | 0.78 | 61.00 |
| 8 | Evaluating progress of work | 0.81 | 0.76 | 0.79 | 60.50 |
| 9 | Record maintenance | 0.79 | 0.80 | 0.80 | 60.00 |
| 10 | Conflict management | 0.94 | 0.71 | 0.83 | 58.50 |
| 11 | Mode of repayment of loan | 0.96 | 0.73 | 0.84 | 58.00 |
| 12 | Sending expenditure statement | 0.77 | 0.95 | 0.86 | 57.00 |
| 13 | Introduction of new technologies | 0.80 | 1.01 | 0.91 | 54.50 |
| 14 | Assessing interventions | 1.03 | 0.79 | 0.91 | 54.50 |
| 15 | Availing credit | 1.02 | 0.80 | 0.91 | 54.50 |
| 16 | Programming in Government land | 0.92 | 0.96 | 0.94 | 53.00 |
| 17 | Giving suggestions | 0.98 | 0.93 | 0.95 | 52.50 |
| 18 | Planning for crop diversification | 0.93 | 1.03 | 0.98 | 51.00 |
| 19 | Arranging required inputs | 0.88 | 1.08 | 0.98 | 51.00 |
| 20 | Maintaining accounts | 0.95 | 1.08 | 1.02 | 49.00 |

(Maximum obtainable Score – 2)

The activities mentioned in the table are very much pertinent for the successful implementation of the programme. The guideline also emphasised for the active involvement of the watershed people on these aspects. If the watershed people are actively involved on all these activities, it will definitely facilitate for effective implementation of the Watershed Development Programme. It is therefore suggested that the project Implementation Agency as well as District Watershed Advisory Committee members have to realise the benefits of all these activities and

take all possible steps for active involvement of watershed people on these activities on priority for effective implementation of the programme.

Further attempt have also been made for the multiple regression analysis to assess the pertinent socio-economic attributes of the respondents accelerating their involvement in implementation of the programme. The results so obtained have been reflected in Table-6.310.

Table-6.3.10:-Regression analysis of socio economic variables influencing Involvement (n=192)

| Variable | Un standardized Co-efficient | | Standardized Co-efficient | | ‘t’ value | Probability |
|-----------------------------|------------------------------|------------|---------------------------|------------|-----------|-------------|
| | Beta | Std. Error | Beta | Std. Error | | |
| Age (X1) | 0.015 | 1.901 | 0.000 | 0.032 | 0.008 | 0.994 |
| Education (X2) | -0.995 | 1.144 | -0.067 | 0.045 | -0.869 | 0.386 |
| Family type (X3) | 2.212 | 2.538 | 0.055 | 0.021 | 0.872 | 0.385 |
| Family size (X4) | -1.354 | 2.510 | -0.034 | 0.033 | -0.539 | 0.590 |
| Social participation (X5) | -0.236 | 0.566 | -0.025 | 0.061 | -0.418 | 0.677 |
| Cosmopolitaness (X6) | 0.259 | 0.404 | 0.046 | 0.074 | 0.640 | 0.523 |
| Extension contact (X7) | 2.137 | 0.406 | 0.407 | 0.042 | 5.266 | 0.000 |
| Communication material (X8) | 1.296 | 0.510 | 0.218 | 0.023 | 2.540 | 0.012 |
| Type of house (X9) | 2.296 | 1.817 | 0.101 | 0.041 | 1.264 | 0.208 |
| Land holding (X10) | 3.964 | 1.612 | 0.210 | 0.056 | 2.458 | 0.015 |
| Occupation (X11) | -6.636 | 2.092 | -0.186 | 0.052 | -3.173 | 0.002 |
| Annual Income(X12) | -1.152 | 1.683 | -0.064 | 0.033 | -0.684 | 0.495 |

$$R^2 = 0.680 \text{ Adj. } R^2 = 0.645 \text{ SE} = 14.227$$

As observed from the table, the best fitted regression equation could explain 68.0% of the total variance in influencing involvement of the respondents in implementation of the Watershed Development Programme. Among the selected twelve variables, extension contact, use of communication materials, holding size and occupation could help in exhibiting positive influence towards involvement of the respondents in different activities of the Watershed Development Programme.

OBJECTIVE – IV

Role of Stakeholders extending support

The survival on earth essentially depends on two basic resources i.e soil and water being the two valuable gifts of the nature to mankind. A no-care attitude and gross negligence coupled with our ever-increasing needs and demands over the years have taken the problem to a threatening dimension. People in rainfed areas counter daunting natural conditions by following traditional and low risk cultivation practices that typically yield low returns. Soils are often severely eroded, infertile and deficient in organic matter. The watershed development must lead to people's self reliance, self support and self esteem. It must enrich the life of the people and improve the quality. Land use adjustment is vital to the implementation of watershed programmes. Meaningful and effective adjustment can be achieved through organising people's institutions and people's action. Therefore, the stakeholders have significant contribution in effective implementation of the programme towards upliftment of the watershed people.

The guideline in para 16 have clearly mentioned for the establishment of appropriate institutional arrangements to steer and guide the project personnel and beneficiaries for creating sufficiently skilled as well as capable human resources. Attempt was therefore made in the study to analyse the role of the stakeholders associated with the implementation of the project for extending support in relation to community organisation, technical guidance, credit and finance, input supply, infrastructure support, policy consideration, behaviour of the project personnel and linkage with stakeholders. The data collected from the respondents have been analysed and presented in this section.

1. Community organisation

Ensuring participation of local communities is an important requirement of Watershed Development Project. Various committees are to be formed to ensure the common decision making process. These committees are to participate in the planning process, execution of action plans as well as developing norms and systems for equitable distribution of benefits and

regulating the use of resources. The data collected from the respondents on scale point of very often, often, sometimes and never have been analysed with score value of 3, 2, 1 and 0 respectively (Supe, 2007). The results so obtained have been reflected in table 6.4.1.

Table 6.4.1: Extent of support towards community organisation

| Sl. No. | Support | Mean Score | | | Pooled mean score (n = 192) | Rank |
|---------|--|---------------------------|-----------------------------|----------|-----------------------------|------|
| | | Nuapada district (n = 96) | Kalahandi district (n = 96) | Diff (%) | | |
| 1 | Rapport establishment with villagers | 2.01 | 2.47 | 18.62 | 2.24 | I |
| 2 | Decisions with common agreement | 1.83 | 2.28 | 19.74 | 2.06 | II |
| 3 | Negotiation and mediation in conflicts | 1.44 | 1.55 | 7.10 | 1.50 | III |
| 4 | Establishing good harmony | 1.53 | 1.33 | 13.07 | 1.43 | V |
| 5 | Developing interest among people | 1.30 | 1.29 | 0.77 | 1.30 | VI |
| 6 | Establishing good cooperation and coordination | 1.48 | 1.45 | 2.03 | 1.46 | IV |
| 7 | Developing leadership among people | 1.24 | 1.29 | 3.88 | 1.27 | VII |

(Maximum obtainable Score – 3)

It is observed from the table that the respondents of both the districts had very poor opinion about the role of the project personnel towards negotiation and mediation in conflicts, establishing good harmony, developing interest, establishing good coordination and cooperation as

well as developing leadership among people. However, the respondents had better opinion towards rapport establishment with villagers and decisions taken on common agreement.

The basic aim of the project is all round development of the watershed as a whole. The watershed people have to be fully involved in programme implementation and fund utilisation for which there must be common understanding among people. Therefore, negotiation and mediation in conflicts, establishing good harmony, developing interest to work wholeheartedly, good cooperation and coordination and leadership development among people are very much essential for effective implementation of the programme. It is therefore suggested that the project personnel should properly organise the villagers or community and ensure all these attributes among the people so that the beneficiaries will work with common understanding to achieve the end results.

4.2: Credit and finance

Watershed people are relatively resource poor. They essentially require additional financial support for implementing all the programmes formulated in the action plan. The project personnel have to liason with credit institutions for the financial support. Information collected from the respondents on scale point of very often, often, sometimes and never (Supe, 2007) have been analysed and presented in table 6.4.2.

Table 6.4.2: Extent of support on credit and finance

| Sl. No. | Support | Mean Score | | | Pooled mean score (n = 192) | Rank |
|---------|-----------------------------------|---------------------------|-----------------------------|----------|-----------------------------|------|
| | | Nuapada district (n = 96) | Kalahandi district (n = 96) | Diff (%) | | |
| 1 | Liasoning with credit institution | 1.10 | 1.64 | 32.93 | 1.37 | I |
| 2 | Facilitating for required credit | 1.01 | 1.57 | 35.67 | 1.29 | II |

| | | | | | | |
|---|---------------------------------------|------|------|-------|------|-----|
| 3 | Assisting in processing of documents | 0.90 | 1.31 | 31.30 | 1.10 | III |
| 4 | Timely disbursement of loan | 0.68 | 0.89 | 23.60 | 0.78 | IV |
| 5 | Fixing installments as per capability | 0.46 | 0.48 | 4.17 | 0.47 | V |
| 6 | Flexibility in repayment | 0.47 | 0.33 | 29.79 | 0.40 | VI |
| 7 | Insurance coverage | 0.31 | 0.23 | 25.81 | 0.27 | VII |

(Maximum obtainable Score – 3)

Though differential opinions were observed among the respondents of Nuapada and Kalahandi district on various aspects of credit and finance mentioned in the table except fixing instalments as per the capability of the watershed beneficiaries, the low mean score value indicated for the poor support. Hence, the data in the table as a whole revealed that the respondents were not getting adequate support from the credit institutions in availing credit.

It is therefore suggested that the project Implementation Agency should liason with financial institutions and extend facilities for easy sanction of required credit in time, flexibility in fixing instalments as per their capabilities along with insurance coverage to compensate the loss accrued due to unwarranted situations.

4.3: Technical guidance

Watershed Development Programme is an approach for integrated development of the watershed areas. Though the basic consideration related to the land and water resource management but in reality, the emphasis is on appropriate land use based on its potentialities and liking of the people. One of the major implementation aspects is to equip the watershed people with adequate knowledge and skills on technologies of the various enterprises feasible and sustainable to the area. The data collected from the respondents on scale point of very often, often, sometimes and never on technical guidance have been analysed. The results so obtained have been presented in table 6.4.3.

Table 6.4.3: Extent of support on technical guidance

| Sl. No. | Support | Mean Score | | | Pooled mean score (n = 192) | Rank |
|---------|---|---------------------------|-----------------------------|----------|-----------------------------|------|
| | | Nuapada district (n = 96) | Kalahandi district (n = 96) | Diff (%) | | |
| 1 | Good rapport with related departments | 1.63 | 2.27 | 28.19 | 1.95 | I |
| 2 | Technical guidance by experts | 1.64 | 2.21 | 25.79 | 1.93 | II |
| 3 | Regular diagnostic visit | 1.09 | 1.49 | 26.85 | 1.29 | IV |
| 4 | Close monitoring and supervision | 1.06 | 1.26 | 15.87 | 1.16 | V |
| 5 | Immediate action on field problems | 0.98 | 1.10 | 10.91 | 1.04 | VI |
| 6 | Adequate training for capacity building | 1.39 | 1.27 | 8.63 | 1.33 | III |
| 7 | Exposure visit for confidence | 1.07 | 0.80 | 25.23 | 0.94 | VII |

(Maximum obtainable Score – 3)

It is observed from the table that the respondents of Nuapada and Kalahandi districts were differed in their opinions. The respondents of Kalahandi district had better opinion towards good rapport with related departments and technical guidance by experts. Poor opinions were observed from the respondents of both the districts on other aspects as mentioned in the table. The pooled mean score value had also revealed for the poor supports from the stakeholders on various aspects of technical guidance as mentioned in the table.

Watershed Development Programme has been designed for increase in productivity, employment and income generation of the watershed people. The beneficiaries essentially need the support on regular diagnostic visit, close monitoring and supervision, immediate action on field problems, adequate training for developing competency as well as exposure visit to ideal places for confidence development on the technologies. When the respondents were not getting all these supports, implementation of the approved programme might have not done as per the recommendation and doubtful in achieving the end results.

It is therefore suggested that the District Watershed Advisory Committee has to analyse the essentialities of all these supports and liason with the developmental departments for the necessary technological support for effective implementation of the programmes.

4.4: Input supply

Production and productivity are depending on the recommended use of inputs and materials. Besides, timely availability, required quantity with quality parameters, reasonable price and easy access are the determinants in application of the recommended quantity of inputs. The data collected from the respondents on scale point of very often, often, sometimes and never (Supe, 2007) towards support on input supply have been analysed and presented in table 6.4.4.

Table 6.4.4: Extent of support on input supply

| Sl. No. | Support | Mean Score | | | Pooled mean score (n = 192) | Rank |
|---------|------------------------------------|---------------------------|-----------------------------|----------|-----------------------------|------|
| | | Nuapada district (n = 96) | Kalahandi district (n = 96) | Diff (%) | | |
| 1 | Linking farmers with input dealers | 1.09 | 1.77 | 38.42 | 1.43 | I |
| 2 | Liasoning for quality inputs | 0.96 | 1.59 | 39.62 | 1.28 | II |
| 3 | Ensuring timely supply of inputs | 0.73 | 1.29 | 43.41 | 1.01 | III |

| | | | | | | |
|---|--|------|------|-------|------|----|
| 4 | Act as guarantee in input supply | 0.46 | 0.95 | 51.58 | 0.76 | IV |
| 5 | Ensure reasonable price | 0.45 | 0.58 | 22.41 | 0.52 | VI |
| 6 | Liasoning for supply of inputs on credit | 0.52 | 0.53 | 1.89 | 0.53 | V |

(Maximum obtainable Score – 3)

The data in the table revealed that the respondents of both Nuapada and Kalahandi districts were of similar opinion towards support on liasoning for input supply on credit. Significant differential opinions were observed on other aspects of the supports on input supply as mentioned in the table. But; the data in the table as a whole indicated for the poor support on input supply.

The respondents of the Watershed Development Programme are tribal and usually resource poor. They essentially need all these supports on input supply for proper management of all farm based activities. It is therefore suggested that the Project Implementation Agency and Watershed Development Team members have to liason with the local input dealers to supply quality inputs in time and with reasonable price enabling them to implement the programmes effectively.

4.5: Infrastructure support

Watershed Development Programmes are preferably implemented in degraded watersheds where infrastructures for undertaking farm based activities are scarce. Maximum funds of 55.0% were earmarked under works. Hence, adequate funds have been provided for infrastructure and expected adequate infrastructure development. But the data collected from the respondents deviate from the guideline as mentioned in the table 6.4.5.

Table 6.4.5: Extent of support on infrastructure

| Sl. No. | Support | Mean Score | | | Pooled mean score (n = 192) | Rank |
|---------|-----------------------------------|---------------------------|-----------------------------|----------|-----------------------------|------|
| | | Nuapada district (n = 96) | Kalahandi district (n = 96) | Diff (%) | | |
| 1 | Developing irrigation facility | 1.99 | 2.57 | 22.57 | 2.28 | II |
| 2 | Construction of channels | 2.01 | 2.56 | 21.48 | 2.29 | I |
| 3 | Ensuring power supply | 0.25 | 0.12 | 52.00 | 0.18 | VII |
| 4 | Protection for crop damage | 1.45 | 0.34 | 7.59 | 1.40 | III |
| 5 | Custom hiring of farm implements | 0.32 | 0.17 | 46.88 | 0.25 | VI |
| 6 | Development of own infrastructure | 0.56 | 0.67 | 12.50 | 0.60 | IV |
| 7 | Liasoning for subsidy | 0.25 | 0.48 | 47.92 | 0.37 | V |

(Maximum obtainable Score – 3)

The data in the table revealed that the respondents of both the districts had favourable opinions towards construction of channels and developing irrigation facilities. But, poor opinions were observed on other aspects of infrastructure as mentioned in the table. Without electricity, the beneficiaries could not lift the water from the reservoirs, canals or ponds for irrigating crops. Though cattle menace is a great problem which cannot be solved easily, the people should be organised properly to safeguard the crop on cooperative basis and restrict free movement of the cattle. Since, labour scarcity is very common and hike in labour wages, the entrepreunering farmers in the watershed areas are to be motivated for purchasing farm equipments under custom hiring services for timely field operation and other managements. The beneficiaries may be promoted for developing own infrastructures and link them with financial institutions for credit facilities.

The reactions of the respondents on these aspects are genuine and suggested for adequate support by the concerned district developmental department.

4.6: Policy consideration

The guideline envisages well defined institutional arrangements from the state to field level assigning duties and responsibilities to each organisations and personnel involved in the process. Local institutions have also to be strengthened for empowerment of the watershed people. Community participation, gender sensitivity, social and economic equity, accountability, transparency etc. have been emphasised in the guideline. The study therefore attempted to assess the support towards all these policy consideration. The data collected from the respondents on same scale point of very often, often, sometimes and never (Supe, 2007) over the framed statements have been analysed and presented in the table 6.4.6.

Table 6.4.6: Extent of support on Policy consideration

| Sl. No. | Support | Mean Score | | | Pooled mean score (n = 192) | Rank |
|---------|--|---------------------------|-----------------------------|----------|-----------------------------|------|
| | | Nuapada district (n = 96) | Kalahandi district (n = 96) | Diff (%) | | |
| 1 | Regular meeting with stakeholders | 1.66 | 1.66 | 0.00 | 1.66 | II |
| 2 | Fully utilisation of available resources | 1.59 | 1.01 | 36.48 | 1.30 | IV |
| 3 | Exploring external resources | 1.49 | 0.37 | 75.17 | 0.93 | VI |
| 4 | Thrust for improvement of tribal | 1.57 | 2.15 | 26.98 | 1.86 | I |
| 5 | Emphasis on solving problems | 1.31 | 0.90 | 31.30 | 1.10 | V |
| 6 | Due consideration for the constraints | 1.40 | 1.65 | 15.15 | 1.52 | III |

(Maximum obtainable Score – 3)

Significant differential opinions were observed among the respondents of Nuapada and Kalahandi districts except regular meeting with the officials as observed from the table. Though the respondents of Kalahandi district had favourably opined towards thrust for the improvement of tribal but not being supported by the respondents of Nuapada district. The data in the table as a whole revealed for the poor opinion of the respondents towards support on various aspects of policy considerations covered under study.

The guideline envisages for the regular meeting with the stakeholders for full utilisation of available resources, exploring additional essential resources, solving problems and overall improvement for the resource poor tribal people. It is therefore apprehended that the guideline might have not properly understood by the project officials and proper monitoring not done in this regard. It is therefore suggested that the District Rural Development Agency as the nodal agency have to organise capacity building programmes to make the officials and beneficiaries for a clear understanding of the guideline and regulate follow-up action so that both officials and beneficiaries will be involved fully in designing realistic action plan for the improvement of tribal people in the watershed areas.

Further, attempts have been made for a comparative analysis of the support extended by various stakeholders involved in the implementation of Watershed Development Programme. The results obtained from the analysis of pooled mean score value have been presented in table 6.4.7.

Table 6.4.7: Comparative analysis of support from the stakeholders

| Sl. No. | Support | Mean Score | | | Pooled mean score (n = 192) | Gap (%) |
|---------|------------------------|---------------------------|-----------------------------|----------|-----------------------------|---------|
| | | Nuapada district (n = 96) | Kalahandi district (n = 96) | Diff (%) | | |
| 1 | Community organisation | 1.55 | 1.67 | 7.19 | 1.61 | 46.33 |
| 2 | Technical guidance | 1.27 | 1.49 | 14.77 | 1.38 | 54.00 |

| | | | | | | |
|---|----------------------------|------|------|-------|------|-------|
| 3 | Credit and finance | 0.70 | 0.92 | 23.91 | 0.81 | 73.00 |
| 4 | Input supply | 0.70 | 1.12 | 37.50 | 0.91 | 69.67 |
| 5 | Infrastructure development | 0.98 | 1.13 | 13.27 | 1.06 | 64.67 |
| 6 | Policy consideration | 1.50 | 1.29 | 14.00 | 1.40 | 53.33 |
| | Average | 1.12 | 1.27 | 18.44 | 1.20 | 60.17 |

(Maximum obtainable Score – 3)

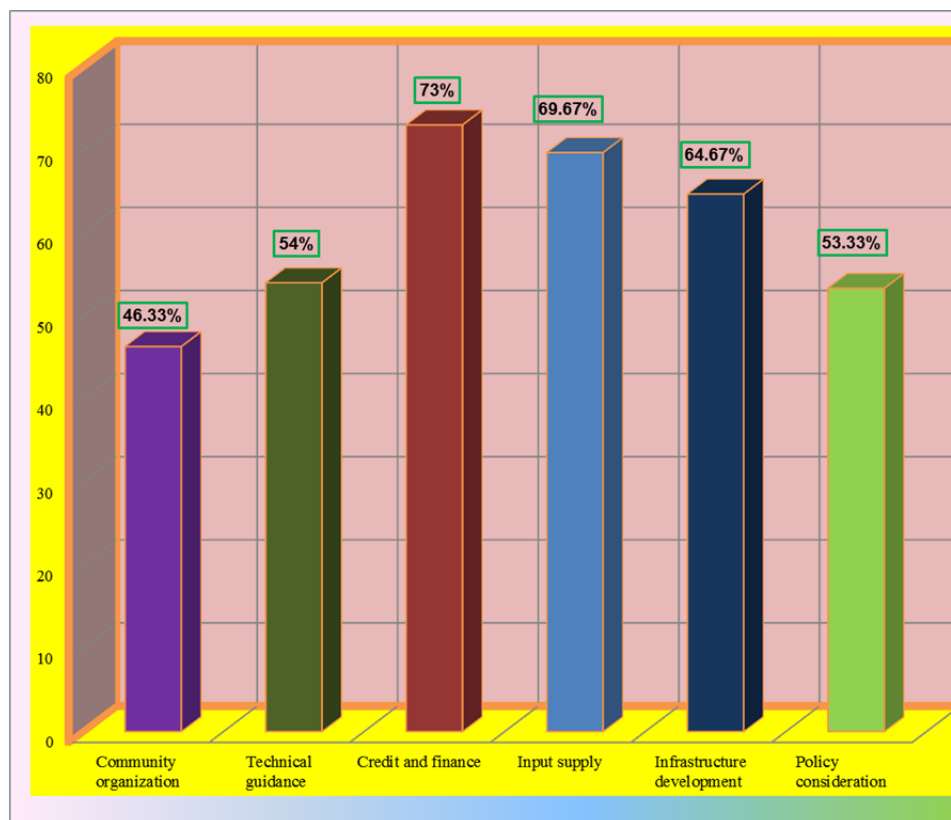


Fig. 13: Gap Percentage in Support from the Stake Holders

Comparative analysis of data revealed from the table indicated that significant gaps were observed on the support of the various stakeholders

associated with the implementation of the Watershed Development Programme. Maximum gap of 73.00% were observed on the supports towards credit and finance followed by input supply (69.67%), infrastructure development (64.67%), technical guidance (54.00%), policy consideration (53.33%) and community organisation (46.33%). The findings may conclude that the Watershed Development Programme was not implemented as per the guideline for which the District Watershed Advisory Committee have to sufficiently expose the project officials and watershed beneficiaries on the guideline and closely monitor for the involvement of all the stakeholders for successful implementation of the programme.

Any programme could not be implemented successfully, if good cooperation and involvement are not received from the project personnel. The behaviour of the officials many a times motivates the users to adopt the recommended practices. The study had also attempted to assess the opinion of the respondents towards behaviour of the project personnel. The data collected on the scale point of strongly agree, agree and disagree (Supe, 2007) have been analysed and presented in table 6.4.8.

Table 6.4.8: Attitude of the respondents towards project personnel

| Sl. No. | Attitude | Mean Score | | | Pooled mean score (n = 192) | Rank |
|---------|--|---------------------------|-----------------------------|----------|-----------------------------|------|
| | | Nuapada district (n = 96) | Kalahandi district (n = 96) | Diff (%) | | |
| 1 | Good behavior | 1.60 | 1.72 | 6.97 | 1.66 | I |
| 2 | Very cooperative and cordial | 1.54 | 1.59 | 3.14 | 1.57 | II |
| 3 | Sincere and interested in work | 1.28 | 1.14 | 10.93 | 1.21 | III |
| 4 | Accountable | 1.04 | 0.87 | 16.34 | 0.95 | V |
| 5 | Establishing good interpersonal relationship | 1.24 | 0.96 | 22.58 | 1.10 | IV |

| | | | | | | |
|---|-----------------------------------|------|------|-------|------|-----|
| 6 | Developing professional attitude | 0.97 | 0.71 | 26.80 | 0.84 | VII |
| 7 | Assume responsibility for success | 1.04 | 0.77 | 25.96 | 0.91 | VI |

(Maximum obtainable Score – 2)

The data in the table revealed that the respondents of both Nuapada and Kalahandi districts had favourable opinion towards good behaviour, cooperative, cordiality of the project personnel and to some extent their sincerity, interest in work as well as interpersonal relationships. The respondents had poor opinion towards the project personnel on their accountability, professional attitude and assuming responsibility.

Accountability, assuming responsibility and developing professional attitude are the determinants of success. These might be the reasons for which poor support were obtained from the related stakeholders in successful implementation of the programmes. It is therefore suggested that the District Watershed Advisory Committee members have to closely monitor the efficiencies of the field level project officials and ensure their responsibility, accountability and developing professional attitude for successful implementation of the programme in achieving the end results.

One of the best examples of effective implementation of any programme is that where people feel a sense of ownership over the programmes. Strong linkages have to be established with the related stakeholders for extending resources and facilities for effective implementation of the programme. Attempt was therefore made in the study to assess the extent of linkages established with various stakeholders. The data collected from the respondents on scale point of strong, moderate and no linkage (Supe, 2007) have been analysed and presented in table 6.4.9.

Table 6.4.9: Extent of linkage with the stakeholders

| Sl. No. | Stakeholder | Mean Score | | | | | Spearman's rho (ρ) Value | Poole d mean score (n = 192) | Rank |
|---------|------------------------------------|---------------------------|------|-----------------------------|------|-----------|---------------------------------|------------------------------|------|
| | | Nuapada district (n = 96) | Rank | Kalahandi district (n = 96) | Rank | Diff. (%) | | | |
| 1 | Revenue department | 1.03 | IV | 0.84 | VI | 18.45 | 0.78** | 0.94 | III |
| 2 | Electricity department | 0.27 | X | 0.33 | IX | 18.18 | | 0.30 | VIII |
| 3 | Agriculture department | 1.57 | II | 1.30 | II | 17.20 | | 1.44 | II |
| 4 | Soil conservation department | 1.74 | I | 1.66 | I | 4.60 | | 1.70 | I |
| 5 | Horticulture department | 1.57 | II | 1.30 | II | 17.20 | | 1.44 | II |
| 6 | Agriculture Engineering department | 0.41 | VIII | 0.20 | X | 51.20 | | 0.30 | IX |

| | | | | | | | | | |
|----|----------------------------|------|-----|------|------|-------|--|------|-----|
| 7 | Credit institutions | 0.82 | V | 0.99 | V | 17.17 | | 0.91 | IV |
| 8 | Co-operation department | 0.35 | IX | 1.21 | III | 71.07 | | 0.78 | V |
| 9 | Traders and input dealers | 0.55 | VI | 0.53 | VIII | 3.64 | | 0.54 | VII |
| 10 | Animal resource department | 0.13 | XI | 0.10 | XI | 23.08 | | 0.12 | X |
| 11 | Research institutions | 0.50 | VII | 0.73 | VII | 31.50 | | 0.62 | VI |

(Maximum obtainable Score – 2)

** Significant at 0.01 level of probability

The data in the table revealed that the respondents of both Nuapada and Kalahandi districts were agreed for the good linkage with Soil Conservation, Agriculture and Horticulture Departments. The respondents of Kalahandi district though agreed for the linkage with Co-operation department but not agreed by the respondents of Nuapada district. Poor opinions were also observed towards linkage with all other departments mentioned in the table.

The rank order correlation being significant, it is inferred that the difference between the two groups of respondents of two districts is differed in their opinions on extent of linkages established with the stakeholders.

Watershed Development Programme aimed at the development of the watershed as a whole. The beneficiaries having land may get the benefits from the Agriculture, Horticulture and Soil Conservation Departments. The landless people need the support of animal Resource and other departments. Linkage with traders and input dealers ensure timely supply of inputs, credit institutions for financial assistance, research institute for capacity building and technology generation, co-operation department for subsidy and marketing of the produce, agriculture engineering for farm mechanisation, revenue department for plantations and fodder development in Government land for the landless and resource poor as well as electricity department for power supply for the farm activities. It is therefore suggested that the project officials have to liason with all these departments and establish good linkage for adequate support ensuring effective implementation of all activities ensuring the all-round development of the watershed.

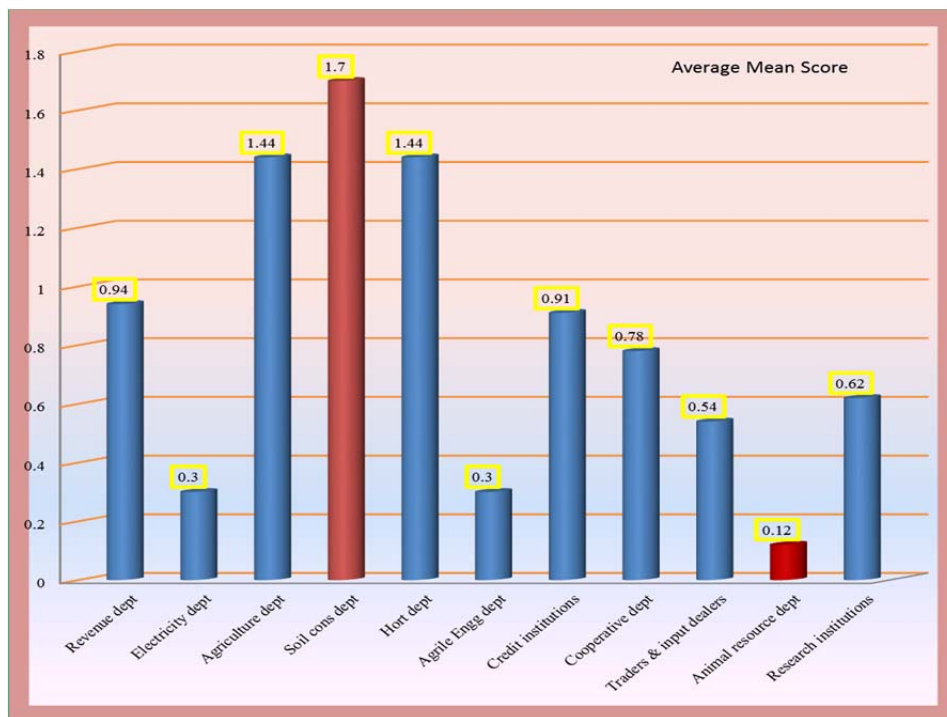


Fig. 14: Extent of Linkage with Stakeholders

Further attempt have been made for the multiple regression analysis to find out the important socio-economic variables of the respondents exhibiting influence towards linkage with stakeholders. The results obtained from the analysis of data have been reflected in table 6.4.10.

Table 6.4.10: Influence of socio -economic variables influencing linkage on Stakeholders (n=192)

| Variable | Un standardized Co-efficient | | Standardized Co-efficient | | 't' value | Probability |
|-----------------------------|------------------------------|------------|---------------------------|------------|-----------|-------------|
| | Beta | Std. Error | Beta | Std. Error | | |
| Age (X1) | 0.363 | 2.303 | 0.009 | 0.068 | 0.157 | 0.874 |
| Education (X2) | 2.469 | 1.386 | 0.146 | 0.059 | 1.780 | 0.076 |
| Family type (X3) | 1.816 | 3.074 | 0.039 | 0.032 | 0.590 | 0.555 |
| Family size (X4) | 5.728 | 3.041 | 0.128 | 0.066 | 1.883 | 0.061 |
| Social participation (X5) | 0.238 | 0.685 | 0.022 | 0.049 | 0.347 | 0.728 |
| Cosmopolitaness (X6) | 0.196 | 0.489 | 0.030 | 0.057 | 0.401 | 0.688 |
| Extension contact (X7) | 1.518 | 0.491 | 0.254 | 0.033 | 3.087 | 0.002 |
| Communication material (X8) | 0.807 | 0.618 | 0.119 | 0.023 | 1.305 | 0.193 |
| Type of house (X9) | -1.796 | 2.201 | -0.069 | 0.054 | -0.816 | 0.415 |
| Land holding (X10) | 4.141 | 1.953 | 0.193 | 0.063 | 2.120 | 0.035 |
| Occupation (X11) | -5.276 | 2.533 | -0.130 | 0.084 | -2.082 | 0.038 |
| Annual Income(X12) | 2.070 | 2.038 | 0.102 | 0.057 | 1.015 | 0.311 |

$$R^2=0.608 \text{ Adj } R^2=0.588 \text{ SE } =17.235$$

As observed from the table, the best fitted regression equation could explain 60.8 % of the total variance in influencing the support of the

stakeholders. Among twelve variables, education, family size, extension contact, holding size and occupation helped in exhibiting positive influence on the stake holders extending support for effective implementation of the Watershed Development Programme.

OBJECTIVE – V

Extent of change occurred in socio-economic status of the watershed people

Soil, water, vegetation and energy are the basic natural resources needed for agricultural production. It is an established fact that conservation of natural resources and their management holds key to sustainable agriculture. Watershed Development Programme has been conceptualised as the rational utilisation of land and water resources for optimum and sustained production with minimum hazard to natural resources. The programme has become the main intervention for natural resource management which means proper land use, protecting land against all form of degradation, building and maintaining soil fertility, proper management of rain water, flood protection, draught mitigation and increasing productivity for all land uses.

The Watershed people are actively involved in problem identification and developing feasible programme for each family along with fund utilisation exclusively by themselves. Adequate funds are allocated for community organisation and formation of various users and Self Help Groups. Technical personnel have also been employed on full time basis to guide the people and supervise all activities. Regular monitoring and evaluation are made by the Project Implementation Agency as well as District Watershed Advisory Committee to resolve the issues and solve the problems encounter during implementation. Since, the programme is based on community approach with bottom-up planning from the watershed beneficiaries perspective and exclusively fund utilisation by them, it is expected that the programme might have been implemented effectively resulting all round development of the watershed people .

Attempt was therefore made in the study to set another objective to assess the change in socio-economic status of the watershed people. Material possession, technological adoption, cropping pattern, farm activities, income, socio-cultural improvement, economic enhancement, infrastructure development and environment protection were selected as

the variables to assess the changes. Opinion of the respondents collected on scale point of strongly agree, agree and disagree (Supe, 2007) were analysed with score value of 2, 1 and 0 respectively. The results obtained from the analysis of data are discussed in this section.

5.1: Technological change

Watershed development programme aims at appropriate land use based on its potentialities and liking of the people. One of the major implementation aspects is to equip the watershed people with adequate knowledge and skills on technologies of various enterprises feasible and sustainable to the area. The data collected from the respondents on technological change have been analysed and presented in table 6.5.1.

Table 6.5.1: Extent of technological change

| Sl. No. | Change | Mean Score | | | Pooled mean score (n=192) | Rank |
|---------|--|-------------------------|---------------------------|----------|---------------------------|------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Increase in production and productivity | 1.23 | 1.27 | 3.15 | 1.25 | I |
| 2 | Adoption of recommended technology | 1.07 | 1.02 | 4.67 | 1.05 | IV |
| 3 | Exposure to various information sources | 1.20 | 1.15 | 4.17 | 1.17 | III |
| 4 | Increase in occupational competency | 0.91 | 0.85 | 6.59 | 0.88 | VI |
| 5 | Better use of available resources | 1.27 | 1.30 | 2.31 | 1.29 | II |
| 6 | Adoption of remunerative enterprises | 0.71 | 1.16 | 38.79 | 0.93 | V |
| 7 | Sustainability and stability in production | 0.88 | 0.99 | 11.11 | 0.93 | V |

(Maximum obtainable Score – 2)

The data in the table revealed that significant differential opinions were observed among the respondents of Nuapada and Kalahandi districts on adoption of remunerative enterprises. Though the respondents of Kalahandi district agreed, but the respondents of Nuapada district had not supported. It indicates that there was not much change in the adoption of remunerative enterprises. Poor opinions were also observed on increase in occupational competency, sustainability and stability in production as well as adoption of recommended practices. However, the respondents of both the districts were agreed for increase in production and productivity as well as better use of available resources.

The data in the table as a whole indicated that there was not much of technological change due to implementation of watershed development programme.

5.2: Economical change

Watershed Development Programme is a unique one which emphasised active involvement of people and empowered them in programme formulation, implementation along with fund utilisation. Besides, each family will have adequate programmes irrespective of holding size. Community or group approach is another speciality of the programme. All these in combination definitely supplement employment generation and economic development of the watershed people. The data collected from the respondents on various aspects of economic change were analysed and results appeared in table 6.5.2.

Table 6.5.2: Extent of economic change

| Sl. No. | Change | Mean Score | | | Pooled mean score (n=192) | Rank |
|---------|-----------------------------|-------------------------|---------------------------|----------|---------------------------|------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Generation of employment | 1.52 | 1.51 | 0.66 | 1.52 | I |
| 2 | Avenues for self employment | 0.77 | 0.79 | 2.53 | 0.78 | IV |

| | | | | | | |
|---|---------------------------------|------|------|-------|------|-----|
| 3 | Productive time management | 0.57 | 0.67 | 14.93 | 0.62 | VI |
| 4 | Easy marketing of the produce | 0.50 | 0.82 | 39.02 | 0.66 | V |
| 5 | Access to credit facility | 1.15 | 1.33 | 15.93 | 1.24 | II |
| 6 | Improvement in living condition | 1.00 | 0.99 | 1.00 | 1.00 | III |

(Maximum obtainable Score – 2)

As depicted from the table, poor opinion of the respondents of both Nuapada and Kalahandi districts were observed on productive time management, easy marketing of the produce, avenues for self employment and improvement in living condition. Better opinions observed on employment generation and accesses to credit facilities are also contradictory to the poor developments observed. When there was not much of technological change, naturally there will be poor economic change.

It is therefore suggested that the project officials have to critically analyse for the generation of self employment, productive time management, marketing avenues while formulating programmes for the watershed beneficiaries and implement with regular guidance so that there will be better economic change and improvement in the overall living conditions of the watershed people.

5.3: Social change

Community organisation, group formation, development of team spirit and community approach are the principal motto of the project. Conflict resolution, negotiation, mediation and capacity building have also been emphasised in the guideline. The district level nodal agency has to establish good linkage with related developmental departments to explore resources. The project also laid emphasis for health, education and above all social developments. The data collected from the respondents on this regard have been reflected in table 6.5.3.

Table 6.5.3: Extent of social change

| Sl. No. | Change | Mean Score | | | Pooled mean score (n=192) | Rank |
|---------|---|-------------------------|---------------------------|----------|---------------------------|------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Good linkage established with officials | 1.06 | 1.04 | 1.89 | 1.05 | I |
| 2 | Better co-ordination and team work | 0.97 | 0.92 | 5.15 | 0.94 | IV |
| 3 | More attention of the developmental departments | 0.91 | 0.94 | 3.19 | 0.92 | V |
| 4 | Conscious for eco-friendly technology | 0.88 | 0.71 | 19.32 | 0.79 | VII |
| 5 | Optimum use of family resources | 0.94 | 1.01 | 6.93 | 0.97 | II |
| 6 | More consciousness of people | 0.93 | 0.78 | 16.12 | 0.85 | VI |
| 7 | Decision making capacity increased | 0.96 | 0.96 | 0.00 | 0.96 | III |

(Maximum obtainable Score – 2)

The data in the table revealed that the respondents of both Nuapada and Kalahandi district were of similar opinion as no significant differential opinions observed. Moreover, the respondents of both the districts had poor opinion towards various aspects of social change covered under study. Better coordination, team work, consciousness of people and decision making capabilities facilitates selection of feasible activities as well as effective implementation of the programme. Good linkage and more attention of the developmental departments ensure flow of external resources for proper implementation of the programme. All these might have resulted for poor technological and economical change along with optimum use of family resources and consciousness for eco-friendly technology.

It is therefore suggested that the project officials should realise the importance of all these social aspects and organise watershed people accordingly for developing feasible programmes and its effective implementation for developments.

5.4: Cultural change

People living in the watershed area are relatively resource poor. They are usually lacking in their perception, consciousness and progressiveness. Community approach, team spirit, cooperation and sharing of experiences are essentially required. Cultural activities are the best opportunities to expand their perception, vision and development of moral courage for active involvement in the programme. The guideline also suggested for community organisation and participation of people on each community activities. The data collected from the respondents on cultural change have been analysed and presented in table 6.5.4.

Table 6.5.4: Extent of cultural change

| Sl. No. | Change | Mean Score | | | Pooled mean score (n=192) | Rank |
|---------|-----------------------------------|-------------------------|---------------------------|----------|---------------------------|------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Better understanding among people | 1.35 | 1.35 | 0.00 | 1.35 | I |
| 2 | Conflict management | 1.00 | 1.00 | 0.00 | 1.02 | VII |
| 3 | Respect to each other | 1.12 | 1.01 | 9.82 | 1.06 | VI |
| 4 | Unity among people | 1.28 | 1.06 | 17.18 | 1.17 | IV |
| 5 | Help others in crisis | 1.00 | 0.97 | 3.00 | 0.98 | VIII |
| 6 | People became more cooperative | 1.07 | 1.32 | 18.94 | 1.20 | III |

| | | | | | | |
|---|---|------|------|-------|------|----|
| 7 | Collective decision for community development | 1.08 | 1.47 | 26.53 | 1.28 | II |
| 8 | Good harmony established | 1.03 | 1.25 | 17.60 | 1.14 | V |

(Maximum obtainable Score – 2)

As observed from the table, the respondents of both Nuapada and Kalahandi districts had favourably opined for better understanding among the watershed people, collective decisions for community development, more cooperative, good harmony established and unity among people. The respondents had also comparatively of better opinion for respect to each other and conflict resolution system. But, poor responses were obtained on helping others in crisis.

The data in the table as a whole reveal that there was considerable cultural change among people due to implementation of Watershed Development Programme.

5.5: Change in infrastructure

Watershed development programme aims at renovation of existing assets and creation of additional essential assets towards conservation of soil and moistures along with optimum utilisation of resources. Adequate funds of 55.00% have been earmarked for the watershed development works which includes ridge area treatment, drainage line treatment, development of water harvesting structures and land developments. It is expected that significant infrastructural changes might have done to the watershed. The data collected from the respondents have been presented in table 6.5.5 after analysis.

Table 6.5.5: Extent of change in infrastructure

| Sl. No. | Change | Mean Score | | | Pooled mean score (n=192) | Rank |
|---------|------------------------------|-------------------------|---------------------------|----------|---------------------------|------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Increased in water resources | 1.69 | 1.56 | 7.69 | 1.63 | I |

| | | | | | | |
|---|--|------|------|-------|------|-----|
| 2 | Repair, restoration and up-gradation of common resources | 1.41 | 1.37 | 2.84 | 1.39 | IV |
| 3 | Increase in soil fertility | 1.40 | 1.71 | 18.13 | 1.55 | II |
| 4 | Community approach | 1.38 | 1.63 | 15.34 | 1.50 | III |
| 5 | Better access to inputs and materials | 0.93 | 0.78 | 16.13 | 0.85 | VI |
| 6 | Resource generation for post project activities | 1.23 | 1.07 | 13.01 | 1.15 | V |
| 7 | Resource mobilisation | 1.15 | 1.15 | 0.00 | 1.15 | V |
| 8 | Permanency in information flow | 1.00 | 0.70 | 30.00 | 0.85 | VI |

(Maximum obtainable Score – 2)

It is observed from the table that the respondents of both Nuapada and Kalahandi districts had favourably opined for the change in increasing water resources, increase in soil fertility, community approach as well as repair, restoration and upgradation of community resources. The respondents had also some what agreed for the resource mobilisation and fund generation towards post project activities. It indicates that the watershed development programme had created significant changes on development of infrastructures. But, poor opinions were observed on better access to inputs and materials along with permanency on information flow.

Since, there is fund allocation of 55.00% of the total budget towards infrastructure; it is obvious of infrastructure developments. These infrastructures could not be used properly unless there is permanency in information flow as well as better access to inputs and materials for which the project officials have to take adequate steps to ensure these facilities for proper utilisation of the infrastructures developed.

5.6: Changes in environment

Restoring ecological balance and conservation of natural resources as well as environment are the mandatory activities of the watershed development programme. Therefore, the project has laid emphasis on plantation of fuel, fodder and fruit plants along with pasture development in Government land to check soil erosion as well as conservation of rain water. The data collected from the respondents on environmental changes have been reflected in table 6.5.6 after analysis.

Table 6.5.6: Extent of changes on environment

| Sl. No. | Change | Mean Score | | | Pooled mean score (n=192) | Rank |
|---------|--------------------------------------|-------------------------|---------------------------|----------|---------------------------|------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Conservation of natural resources | 1.66 | 1.46 | 12.05 | 1.56 | I |
| 2 | Plantations in degraded lands | 1.62 | 1.37 | 15.43 | 1.49 | II |
| 3 | Pasture development in wasteland | 1.22 | 0.67 | 45.08 | 0.94 | VII |
| 4 | Economical use of water | 1.32 | 1.24 | 6.06 | 1.28 | V |
| 5 | Restoration of ecological balance | 1.38 | 1.34 | 2.90 | 1.39 | IV |
| 6 | Maintenance of soil health | 1.41 | 1.55 | 9.03 | 1.48 | III |
| 7 | Consciousness to protect environment | 1.17 | 0.88 | 24.79 | 1.02 | VI |

(Maximum obtainable Score – 2)

As depicted from the table, significant differential opinions were observed among the respondents of Nuapada and Kalahandi districts on pasture development in waste land and consciousness to protect the

environment. It indicates that significant changes have not been made on these aspects. However, the respondents of both the districts were agreed for the changes on conservation of natural resources, plantations in degraded land, maintenance of soil health, restoration of ecological balance and economical use of water.

The data in the table as a whole revealed that there were some significant changes in environment due to implementation of the Watershed Development Programme. However, further attempts may be made towards pasture developments in waste land to meet the fodder requirements for the domestic animals and proper utilisation of the waste land. Similarly, consciousness of people may be developed through various extension approaches for protecting the environment from all adverse effect.

5.7: Change in material possession

Another mandatory activity of the watershed development programme is to ensure overall development of the watershed by promoting simple, easy and affordable technological solutions with emphasis on use of indigenous technical knowledge and available resources. It is a single window, integrated and sustainable area development programme aiming at sustainable income to each family. Hence, possessions of materials are the best indicator to assess development. The results obtained from the analysis of data collected from the respondents towards changes in material possession have been presented in table 6.5.7.

Table 6.5.7: Extent of changes in material possession

| Sl. No. | Change | Mean Score | | | Pooled mean score (n=192) | Rank |
|---------|----------------------------------|-------------------------|---------------------------|----------|---------------------------|------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Use of improved quality seeds | 1.27 | 1.26 | 0.79 | 1.27 | I |
| 2 | Use of fertilisers and chemicals | 1.29 | 1.24 | 3.88 | 1.27 | I |
| 3 | Use of implements | 0.80 | 0.97 | 17.53 | 0.87 | VI |

| | | | | | | |
|---|--------------------------------|------|------|-------|------|-----|
| 4 | Self sufficient in food | 0.94 | 1.37 | 31.39 | 1.15 | II |
| 5 | Better housing | 0.87 | 0.99 | 12.12 | 0.93 | V |
| 6 | Purchase of household articles | 0.81 | 0.90 | 10.00 | 0.85 | VII |
| 7 | Better education to children | 1.04 | 0.89 | 14.42 | 0.96 | IV |
| 8 | Improvement in living standard | 0.99 | 1.10 | 10.00 | 1.05 | III |

(Maximum obtainable Score – 2)

The data in the table indicated that the respondents of both Nuapada and Kalahandi districts were not agreed for the change on purchase of household articles, use of implements in farm activities, better housing, better education to children and improvement in living conditions. Differential opinion observed on self sufficiency in food bring the fact that the tribal people in the watershed area were also not self sufficient in food. Though the respondents had better opinions on use of quality seeds of improved variety and use of fertilisers and chemicals, these are not much related with materials possession.

When there was not much of technological and economical change, the respondents might have not generated more income for which there was not much changes in material possession as well as improvement in living condition. It is therefore suggested that the project authorities have to concentrate more on technological and economical developmental activities with thrust on weak areas observed from the study so that socio-economic status of the tribal people in watershed areas could be improved.

5.8: Change in farm activities

The objectives of the watershed development programme are to increase the availability of surface and ground water, regeneration of degraded natural resources, reducing soil erosion, restoration of ecological balance and improvement of land productivity. It has also been emphasised for promoting sustainable livelihood and diversifying livelihood options especially for the small and marginal farmers as well as asset less persons

including women. It is therefore expected that there was significant changes in farm activities by adopting feasible enterprise since the project aims at adequate farm activities for each family. The data collected from the respondents in this regard have been analysed and presented in table 6.5.8.

Table 6.5.8: Extent of changes in farm activities

| Sl. No. | Change | Mean Score | | | Pooled mean score (n=192) | Rank |
|---------|---|-------------------------|---------------------------|----------|---------------------------|------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Increase in cropping pattern and cropping intensity | 1.18 | 1.42 | 16.90 | 1.30 | I |
| 2 | Adopting remunerative enterprise | 0.68 | 1.29 | 42.29 | 0.98 | III |
| 3 | Diversion to better enterprise | 0.62 | 1.19 | 47.90 | 0.00 | IV |
| 4 | Expansion of cultivated area | 1.05 | 1.28 | 17.97 | 1.17 | II |
| 5 | Growing crops round the year | 0.69 | 0.89 | 22.47 | 0.79 | VI |
| 6 | Optimum use of resources | 1.04 | 1.29 | 19.40 | 1.17 | II |
| 7 | Skill competency in use of inputs and materials | 0.85 | 0.93 | 8.60 | 0.89 | V |

(Maximum obtainable Score – 2)

The data in the table reflected that the respondents of both Nuapada and Kalahandi districts had poor opinions on skill competency in use of inputs and materials as well as growing crops round the year. Significant differential opinions were observed on adopting remunerative enterprise and diversion to better enterprise. Significant changes have also not been

observed on expansion of cultivated area and optimum use of resources due to low mean score value. However, better opinion was observed from the respondents of both the districts on increase in cropping pattern and cropping intensity.

Adopting remunerative enterprise, diversion to better enterprise, expansion of cultivated area, growing crops round the year, optimum use of resources, skill competency in use of inputs and materials are the indicators of all round development of the watershed people. Poor opinions of the respondents conclude that there were not much changes in the farm activities and adequate programmes not designed for each family. It is therefore suggested that the project authorities have to analyse the essentialities of all these farm activities and formulate feasible programme adequately for the upliftment of each tribal family living in the watershed area.

5.9: Use and maintenance of assets

One of the mandatory conditions of the project is the contribution of watershed people towards watershed development fund. There should be contribution of at least 10.00% of the cost of each programme undertaken on private land for other caste and 5.00% for scheduled castes and scheduled tribes as well as small and marginal farmers either in shape of labour or materials. The equivalent monetary value are be deducted from the project cost and deposited in the watershed development fund accounts specifically used for the use and maintenance of assets. Information collected from the respondents on use and maintenance of assets has been presented in table 6.5.9 after analysis of data.

Table 6.5.9: Changes in use and maintenance of assets

| Sl. No. | Change | Mean Score | | | Pooled mean score (n=192) | Rank |
|---------|---------------------------|-------------------------|---------------------------|----------|---------------------------|------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Emphasis on community use | 1.41 | 1.50 | 6.00 | 1.45 | I |

| | | | | | | |
|---|--|------|------|-------|------|-----|
| 2 | Proportionate contribution to development fund | 1.32 | 1.08 | 18.18 | 1.20 | II |
| 3 | Development fund use with common agreement | 1.23 | 0.98 | 20.33 | 1.10 | V |
| 4 | Proper care and maintenance of the assets | 1.03 | 1.29 | 20.16 | 1.16 | IV |
| 5 | Effective utilisation of the assets | 1.10 | 1.09 | 0.91 | 1.10 | V |
| 6 | Commitment to safeguard the assets | 1.20 | 1.19 | 0.83 | 1.19 | III |

(Maximum obtainable Score – 2)

As observed from the table, the respondents of both Nuapada and Kalahandi districts were almost of similar opinion. Better responses were observed on emphasis for community use, proportionate contribution to watershed development fund and commitment to safeguard the assets. The respondents were also favourably opined towards proper care and maintenance of assets, development fund used with common agreement as well as proper utilisation of assets.

The data in the table as a whole revealed that the respondents of both the districts had favourably opined for the proper use and maintenance of the assets created through the watershed development of programme. However, proper care, maintenance and utilisation of the created assets along with its use with common agreement may be further strengthened for sustainable use of the created assets.

5.10: Change in income

The guideline placed a central emphasis on capacity of the stakeholders as well as their participation right from project planning through implementation and post-project maintenance. Livelihood security is the over riding goal of the programme along with promoting sustainability and equitable sharing of benefits. Increase in income through adequate farm activities, food and nutritional security, distress mitigation etc. are also the

motto of the project. It is therefore anticipated for the significant changes in the income level of the watershed people through implementation of the programme. Results obtained from the analysis of data collected from the respondents are appeared in table 6.5.10.

Table 6.5.10: Extent of change in income level

| Sl. No. | Change | Mean Score | | | Pooled mean score (n=192) | Rank |
|---------|------------------------------------|-------------------------|---------------------------|----------|---------------------------|------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Income increased | 1.20 | 1.38 | 13.04 | 1.29 | II |
| 2 | Enable to meet the family need | 0.89 | 1.14 | 21.93 | 1.01 | V |
| 3 | Savings increased | 0.89 | 0.88 | 1.12 | 0.88 | VII |
| 4 | Better education to children | 1.03 | 0.88 | 14.50 | 0.95 | VI |
| 5 | Optimum utilisation of resources | 1.01 | 1.31 | 22.90 | 1.16 | IV |
| 6 | Fully utilisation of family labour | 1.24 | 1.29 | 3.88 | 1.27 | III |
| 7 | Increase in farm investment | 1.32 | 1.32 | 0.00 | 1.32 | I |

(Maximum obtainable Score – 2)

The data in the table revealed that the respondent of both Nuapada and Kalahandi districts were almost of similar opinion. The respondents had favourably stated for the increase in income and farm investments, fully utilisation of family labour as well as optimum utilisation of resources. But, the respondents were not agreed for the increase in savings, better education to children and to some extent fulfilling the family requirement. It is therefore concluded that though the respondents had stated for increase in income, but the income was not enough to fulfil their minimum requirements like better education to children and to meet the family requirement.

When there were not much of farm activities, it is quite natural that the income is not adequate enough to meet the family requirements. It is therefore suggested that the project officials should take sufficient attention while scrutinising the action plan and critically examine for adequate activities to each family to generate substantial income for their upliftment.

Further attempts have been made for a comparative analysis of the changes in various activities covered under study. Analyses made with pooled mean score value under each activity is appeared in table 6.5.11.

Table 6.5.11: Comparative analysis of the change in activities

| Sl. No. | Change | Mean Score | | | Pooled mean score (n=192) | Gain over mean | Gap (%) |
|---------|-----------------------|-------------------------|---------------------------|----------|---------------------------|----------------|---------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | | |
| 1 | Technological | 1.04 | 1.11 | 6.31 | 1.08 | -0.03 | 46.00 |
| 2 | Economical | 0.92 | 1.02 | 9.80 | 0.97 | -0.14 | 51.50 |
| 3 | Social | 0.95 | 0.91 | 4.21 | 0.93 | -0.18 | 53.50 |
| 4 | Cultural | 1.12 | 1.18 | 5.08 | 1.15 | +0.04 | 42.50 |
| 5 | Infrastructural | 1.27 | 1.25 | 1.57 | 1.26 | +0.15 | 37.00 |
| 6 | Environment | 1.40 | 1.22 | 12.86 | 1.31 | +0.20 | 34.50 |
| 7 | Material possession | 1.00 | 1.09 | 8.26 | 1.05 | -0.06 | 47.50 |
| 8 | Farm activities | 0.87 | 1.18 | 26.27 | 1.03 | -0.08 | 48.50 |
| 9 | Maintenance of assets | 1.22 | 1.19 | 2.46 | 1.21 | +0.10 | 39.50 |
| 10 | Annual income | 1.08 | 1.17 | 7.69 | 1.13 | +0.02 | 43.50 |
| | Average | 1.08 | 1.13 | 8.45 | 1.11 | | 44.4 |

(Maximum obtainable Score – 2)

As observed from the table, the respondents of both Nuapada and Kalahandi districts were of similar opinion. The respondents had stated better changes on infrastructural, environment, assets maintenance, cultural and income level in comparison to technological, economic, social, material possession and farm activities. It indicates that maximum

attention was given towards infrastructural support than income generating activities. It is therefore suggested that, the project authorities should give equal attention to the infrastructural development and increase in farm activities so that the tribal people in watershed area can have farm activities round the year, productive time management and optimum utilisation of both internal and external resources which will definitely uplift their socio-economic status. However, the percentage of gap observed indicate that there was deficiencies in all the aspects of developments covered under study.

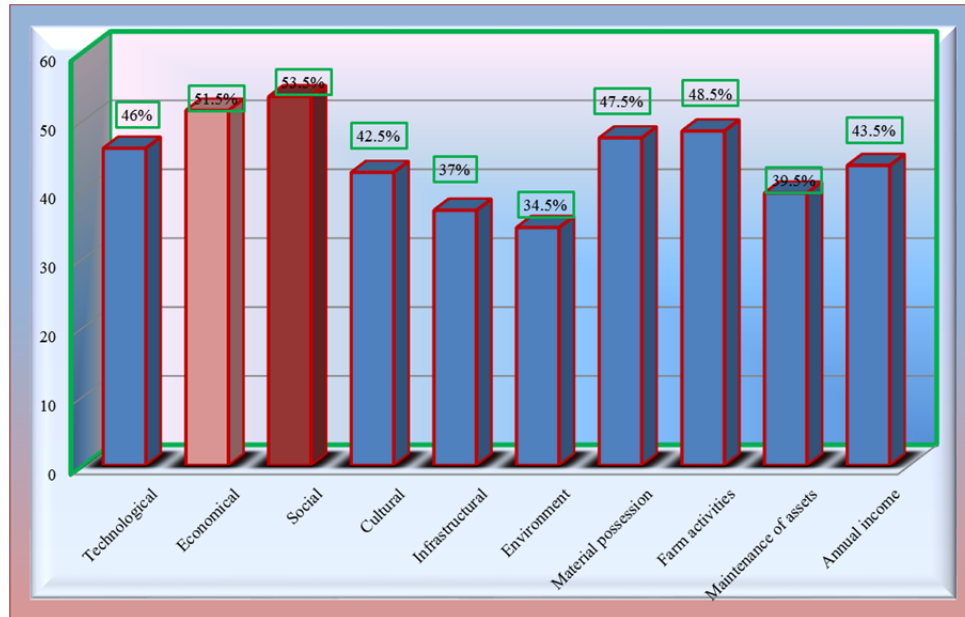


Fig. 15: Gap Percentage on Changes in Activities

Further attempt was therefore made to locate poor development areas for making concentrated efforts for the development of tribal in the watershed area. Selection made with comparatively lower mean score value have been reflected in table below.

Table 6.5.12: Comparatively Poor changes in various activities

| Sl. No. | Activity | Mean Score | | Pooled mean score (n=192) | Gap (%) |
|---------|---|-------------------------|---------------------------|---------------------------|---------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | | |
| 1 | Productive time management | 0.57 | 0.67 | 0.62 | 69.00 |
| 2 | Easy marketing of the produce | 0.50 | 0.82 | 0.66 | 67.00 |
| 3 | Avenues for self employment | 0.77 | 0.79 | 0.78 | 61.00 |
| 4 | Growing crops round the year | 0.69 | 0.89 | 0.79 | 60.50 |
| 5 | Consciousness for eco-friendly technology | 0.88 | 0.71 | 0.79 | 60.50 |
| 6 | More consciousness of people | 0.93 | 0.78 | 0.85 | 57.50 |
| 7 | Permanency in information flow | 1.00 | 0.70 | 0.85 | 57.50 |
| 8 | Better access to inputs and materials | 0.93 | 0.78 | 0.85 | 57.50 |
| 9 | Purchase of household article | 0.81 | 0.90 | 0.85 | 57.50 |
| 10 | Savings increased | 0.89 | 0.88 | 0.88 | 56.00 |
| 11 | Increase in occupational competency | 0.91 | 0.85 | 0.88 | 56.00 |
| 12 | Skill competency in use of inputs and materials | 0.85 | 0.93 | 0.89 | 55.50 |
| 13 | Use of implements | 0.80 | 0.97 | 0.89 | 55.50 |
| 14 | Diversion to better enterprise | 0.62 | 1.19 | 0.90 | 55.00 |

| | | | | | |
|----|---|------|------|------|-------|
| 15 | More attention of developmental departments | 0.91 | 0.94 | 0.92 | 54.00 |
| 16 | Better housing | 0.87 | 0.99 | 0.93 | 53.50 |
| 17 | Adoption of remunerative enterprise | 0.71 | 1.16 | 0.93 | 53.50 |
| 18 | Sustainability and stability in production | 0.88 | 0.99 | 0.93 | 53.50 |
| 19 | Pasture development in waste land | 1.22 | 0.67 | 0.94 | 53.00 |
| 20 | Better coordination and team work | 0.97 | 0.92 | 0.94 | 53.00 |
| 21 | Better education to children | 1.03 | 0.88 | 0.95 | 52.50 |
| 22 | Increase in decision making capacity | 0.96 | 0.96 | 0.96 | 52.00 |
| 23 | Optimum use of family resources | 0.94 | 1.01 | 0.97 | 51.50 |
| 24 | Help others in crisis | 1.00 | 0.97 | 0.98 | 51.00 |

(Maximum obtainable Score – 2)

The weak activities mentioned in the table indicated that there were not much of changes in the socio-economic conditions of the tribal people living in the watershed area. These activities are also very much essential for the development of the tribal people in the watershed areas. It is therefore suggested that the project officials should examine all these aspects and take necessary steps to design appropriate action plan for the improvement of the tribal people in the watershed areas.

Further attempt have been made for the multiple regression analysis to assess the causal factors exhibiting influence on developments of the respondents. The results so obtained have been indicated in Table -6.5.13.

Table- 6.5.13.-Regression Analysis of socio economic variables on developments (n=192)

| Variable | Un standardized Co-efficient | | Standardized Co-efficient | | 't' value | Probability |
|-----------------------------|------------------------------|------------|---------------------------|------------|-----------|-------------|
| | Beta | Std. Error | Beta | Std. Error | | |
| Age (X1) | 3.773 | 2.802 | 0.0714 | 0.023 | 1.346 | 0.179 |
| Education (X2) | 2.869 | 1.687 | 0.1195 | 0.011 | 1.700 | 0.090 |
| Family type (X3) | -10.935 | 3.741 | -0.1664 | 0.064 | -2.923 | 0.003 |
| Family size (X4) | 6.853 | 3.700 | 0.107 | 0.045 | 1.851 | 0.065 |
| Social participation (X5) | 0.061 | 0.833 | 0.004 | 0.024 | 0.073 | 0.941 |
| Cosmopolitaness (X6) | -0.042 | 0.596 | -0.004 | 0.037 | -0.071 | 0.943 |
| Extension contact (X7) | 2.651 | 0.598 | 0.311 | 0.006 | 4.432 | 0.000 |
| Communication material (X8) | -0.816 | 0.752 | -0.084 | 0.034 | -1.086 | 0.278 |
| Type of house (X9) | 9.923 | 2.678 | 0.268 | 0.018 | 3.704 | 0.000 |
| Land holding (X10) | 1.734 | 2.376 | 0.056 | 0.028 | 0.729 | 0.466 |
| Occupation (X11) | -8.792 | 3.083 | -0.151 | 0.016 | -2.851 | 0.004 |
| Annual Income (X12) | 7.239 | 2.480 | 0.250 | 0.008 | 2.918 | 0.004 |

$$R^2 = 0.669 \text{ Adj. } R^2 = 0.640 \text{ S.E.} = 20.972$$

The best fitted regression equation could explain 66.9 % of the total variance exhibiting influence on various aspects of developments. Among the twelve variables, extension contact, type of house, occupation, annual income, family type, family size, and education found to have positive influence on developments of the respondents through implementation of Watershed Development Programme.

Further attempt have been made for stepwise regression analysis to screen out the less important causal factors influencing various aspects of

developments. The results obtained from the analysis of data have been indicated in Table 6.5.14

Table-6.5.14.- Stepwise Regression Analysis of socio-economic variables on various changes (n=192)

| Sl. No | Variable | Beta | Adj. R2 | R2 | 't' value | Probability |
|--------|-------------------|-----------|---------|--------|-----------|-------------|
| X12 | Annual income | 8.944863 | 0.4255 | 0.4290 | 4.4810 | 0.0000 |
| X7 | Extension contact | 2.321368 | 0.4907 | 0.5613 | 4.5427 | 0.0000 |
| X9 | House type | 9.753885 | 0.5356 | 0.5537 | 3.8786 | 0.0001 |
| X11 | Occupation | -7.616154 | 0.6228 | 0.6328 | -2.5339 | 0.0121 |
| X3 | Family type | -7.385887 | 0.6516 | 0.6639 | -2.1660 | 0.0316 |
| X2 | Education | 2.895565 | 0.7398 | 0.7543 | 2.0811 | 0.0388 |

The results indicated in the table revealed that education, family type, extension contact, house type, occupation and annual income level of the respondents significantly influenced various aspects of developments through implementation of the Watershed Development Programme.

Path Analysis has also been made to assess the cause and effect relationships of socio-economic variables influencing various aspects of developments. The results so obtained have been reflected in Table 6.5.15.

Table- 6.5.15:-Path Analysis of socio economic variables on developments (n=192)

| Variable | Total Effect | Total Direct Effect | Total Indirect Effect | Substantial Effect | | |
|----------------|--------------|---------------------|-----------------------|--------------------|----------|----------|
| | | | | I | II | III |
| Age (X1) | 0.320 | 0.115 | 0.205 | 0.109X10 | 0.036X2 | 0.026X11 |
| Education (X2) | 0.413 | 0.202 | 0.211 | 0.157X8 | 0.139X10 | -0.059X2 |

| | | | | | | |
|-----------------------------|-------|-------|--------|----------|----------|----------|
| Family type (X3) | 0.056 | - | 0.277 | 0.113X5 | -0.102X7 | -0.034X9 |
| Family size (X4) | - | - | -0.140 | 0.092X12 | 0.086X6 | -0.042X4 |
| Social participation (X5) | 0.513 | 0.450 | 0.063 | 0.144X10 | 0.105X6 | -0.042X5 |
| Cosmopolitaness (X6) | - | - | -0.356 | -0.206X7 | 0.167X9 | 0.088X12 |
| Extension contact (X7) | - | - | 0.140 | -0.127X5 | -0.108X8 | - |
| Communication material (X8) | 0.231 | 0.590 | 0.821 | -0.051X4 | 0.017X7 | -0.009X3 |
| Type of house (X9) | 0.115 | 0.380 | 0.495 | -0.194X9 | 0.109X12 | -0.023X8 |
| Land holding (X10) | - | - | 0.175 | 0.276X10 | 0.150X11 | -0.045X6 |
| Occupation (X11) | - | - | -0.183 | -0.172X1 | 0.135X10 | 0.089X6 |
| Annual Income (X12) | 0.025 | 0.079 | -0.054 | 0.062X3 | 0.052X11 | -0.048X5 |

Residual Effect: 0.053

Highest Indirect Effect: Communication material used

As observed from the table, social participation had the highest positive and direct effect followed by education. Similarly, extent of use of communication materials had the highest positive indirect effect influencing various aspects of development. The other variables in order were house type, family type, education and age. The variable use of communication materials had the associations with education, extension contact and house type.

It is therefore concluded that the variable use of communication materials channelised through education, extension contact and house type exhibited positive influence on various aspects of developments in implementation of the Watershed Development Programme. The residual

effect being 0.053 inferred that 5.30% of the variation in this relation could not be explained.

Analysis made through multiple regression, stepwise regression and path analysis concluded that education, extension contact and house type of the respondents found to exhibit positive influence in accelerating various aspects of developments. It is therefore suggested that the project officials have to put emphasis on these attributes for successful implementation of the programme resulting development of the tribal people in the watershed area.

OBJECTIVE – VI

Constraints impending successful implementation of the programme

Dry land farming plays an important role in agricultural production in the country. It is inevitable that the second green revolution has to come from the dry land farming and application of technology, inputs and investments are to be made accordingly to convert these so-called grey areas to green. Watershed management is necessary to protect, conserve and improve the land resources for efficient and sustained production, protect and enhance water resource, moderate floods and reduce silting of tanks, increase irrigation and conserve rain water for crops to mitigate drought as well as to utilise the natural local resources for improving agriculture.

The basic purpose of the Watershed Development Programme is to make the people self sufficient in food, fodder and water. The success of the programme demands individual efforts, dedicated leadership, participatory mode and community approach. The programme is of completely new dimension and empowered people in designing and implementing the programme along with fund utilisation, accounting and record maintenance. In spite of all flexibility in operational procedures, significant changes have not been made on upliftment of people and more particularly tribal people in the watershed area. Another objective was therefore made in the study to analyse the constraints impending successful implementation of the programme.

Constraints relating to planning, programme development, programme implementation, funding pattern, monitoring and evaluation, maintenance of assets, institutional arrangements and functioning of the association were selected as the variables for analysing the constraints. The data collected on scale point of strongly agree, agree and disagree over the framed statements under each variable were analysed with score value of 2, 1 and 0 respectively (Supe, 2007). The results obtained from the analysis of data are discussed in this section.

6.1: Planning

Successful implementation of any programme demands good planning. Therefore, planning is more important which makes implementation easier

and achieve the desired outcome. The guideline envisages for the detailed procedure in planning and designing plan of work for the entire watershed. The planning includes agro-eco system analysis, problem diagnosis, assessing interventions and programming from the user's perspective incorporating their wisdom and experience. The data collected on constraints towards planning expressed by the respondents have been analysed and presented in table 6.6.1.

Table 6.6.1: Constraints in planning watershed programme

| Sl. No. | Constraint | Mean Score | | | Pooled mean score (n=192) | Rank |
|---------|--|-------------------------|---------------------------|----------|---------------------------|------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Not participate in PRA exercise | 1.02 | 0.89 | 12.74 | 0.94 | III |
| 2 | Problem diagnosis not done properly | 0.49 | 0.66 | 25.76 | 0.57 | VI |
| 3 | Planning not done from user's perspective | 0.34 | 0.22 | 35.29 | 0.28 | VIII |
| 4 | Emphasis not given to indigenous knowledge | 1.00 | 0.85 | 15.00 | 0.90 | IV |
| 5 | Exhaustive proforma in reporting | 1.37 | 1.43 | 4.20 | 1.36 | I |
| 6 | Planning not done by experienced personnel | 0.88 | 0.57 | 35.23 | 0.70 | V |
| 7 | Poor leadership among people | 1.04 | 0.90 | 13.46 | 0.95 | II |
| 8 | No simple and sustainable programming | 0.17 | 0.88 | 80.68 | 0.51 | VII |

(Maximum obtainable Score – 2)

The data in the table revealed that the respondents of both Nuapada and Kalahandi districts had of similar opinions. The respondents were agreed for 'not participating in PRA exercise', 'emphasis not given to indigenous knowledge' and 'poor leadership among people'. Though significant differential opinions observed on 'problem diagnosis not done properly', 'planning not done from user's perspective', 'planning not done by experienced personnel', 'no simple and sustainable programming'; the mean score value being at lower side indicated that the respondents were not much agreed as the constraints. The only constraint expressed by the respondents of both the districts was 'exhaustive proforma for reporting'.

The individual beneficiaries have to take the advance from the Watershed Association, purchase required inputs, materials and implement the programme. The beneficiaries have to submit a detailed report mentioning the inputs purchased, fund utilised, progress made etc. The proforma developed for the purpose is exhaustive one and difficult to understand by the tribal people. It is therefore suggested that the proforma should be recasted in simpler form with easy understanding and the project personnel have to apprise in detail about the reporting system enabling the respondents to report the activities properly.

6.2: Programme development

Each families living in the watershed area must have adequate programme for optimum utilisation of his resources for income generation. Therefore, programme development should cover all farm based activities particularly on their needs, advocating feasible vocational enterprises for the weaker communities and ensuring strong interrelationship among the enterprises for maximum utilisation of resources and recycling of by-products. The constraints faced on programme development were collected from the respondents, analysed and presented in table below.

Table 6.6.2: Constraints in programme development

| Sl. No. | Constraint | Mean Score | | | Pooled mean score (n=192) | Rank |
|---------|---|-------------------------|---------------------------|----------|---------------------------|------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Not cover all farm based activities | 0.75 | 0.59 | 21.33 | 0.66 | VI |
| 2 | Not based on needs of the people | 0.68 | 0.63 | 7.35 | 0.65 | VII |
| 3 | Insufficient attempt for self employment | 1.20 | 1.23 | 2.44 | 1.22 | III |
| 4 | No interrelationship among suggested technologies | 0.70 | 0.54 | 22.86 | 0.62 | VII |
| 5 | No sustainable programming | 1.14 | 1.02 | 10.53 | 1.08 | IV |
| 6 | Not related to the available resources | 0.89 | 0.56 | 37.08 | 0.73 | V |
| 7 | Priorities not towards poverty alleviation | 1.32 | 1.26 | 4.88 | 1.29 | II |
| 8 | No adequate programme for farm women | 1.31 | 1.47 | 10.88 | 1.39 | I |

(Maximum obtainable Score – 2)

The data in the table revealed that the respondents of both Nuapada and Kalahandi districts had agreed for programming done covering all farm based activities, based on the needs of the people, interrelationship among suggested technologies and related to the available resources. At the same time, they had expressed the constraints of 'no adequate programme for farm women', 'priorities not towards poverty alleviation', 'insufficient attempt for self employment' and 'no sustainable programming'.

The Watershed Development Programme aims at the development of the watershed as a whole. Each family therefore should have adequate programme including farm women. Priorities to be given for self-employment, poverty alleviation and sustainable programming. It is therefore suggested that the project authorities should scrutinise sufficiently on the action plan developed by watershed people and laid emphasis on these aspects in order to achieve the end results of the project.

6.3: Programme implementation

Watershed beneficiaries have the sole responsibilities in implementation of their own approved programme. They have to receive the funds from the Watershed Association and implement the programme. Therefore, close monitoring, supervision and proper guidance are required for effective implementation of the programme. The constraints expressed by the respondents on programme implementation have been presented in table 6.6.3 after analysis of the collected data.

Table 6.6.3: Constraints in programme implementation

| Sl. No. | Constraint | Mean Score | | | Pooled mean score (n=192) | Rank |
|---------|--|-------------------------|---------------------------|----------|---------------------------|------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | No flexibility in implementation | 0.83 | 0.85 | 2.35 | 0.84 | IV |
| 2 | No role specification of different institutions | 0.59 | 0.43 | 27.11 | 0.51 | VII |
| 3 | Implementation not done with full knowledge of everybody | 1.31 | 1.54 | 14.94 | 1.43 | I |
| 4 | Well arrangements of inputs and materials | 0.85 | 0.77 | 9.41 | 0.81 | V |

| | | | | | | |
|---|---|------|------|-------|------|------|
| 5 | Systematic steps not followed | 0.86 | 0.68 | 20.93 | 0.77 | VI |
| 6 | Overlapping of programmes | 0.44 | 0.29 | 34.09 | 0.37 | VIII |
| 7 | No permanent approach to each programme | 1.29 | 1.48 | 12.84 | 1.34 | II |
| 8 | Insufficient demonstration | 1.30 | 1.20 | 7.69 | 1.25 | III |

(Maximum obtainable Score – 2)

It is observed from the table that the respondents of both Nuapada and Kalahandi districts had not faced much constraints rather supported for 'no overlapping of programmes', 'role specification of different institutions', 'systematic steps followed', 'well arrangement of inputs and materials' as well as 'flexibility in implementation'. In other words, they expressed the constraints of implementation not done with full knowledge of everybody, no permanent approach to each programme and insufficient demonstration.

It has been specified in the guideline that transparency to be maintained. Each activity has to be undertaken with the knowledge of everybody so that tribal people will develop interest to involve in the activities. Similarly; stability and sustainability of the activities are other concerns where permanent approaches are very much essential. Sufficient demonstrations are to be conducted to develop knowledge and skill competency as well as confidence development to continue the practice. The findings therefore suggested that the project officials should realise importance of these aspects and take all possible steps for effective implementation of the programme for its continuance, sustainability as well as stability in production and productivity.

6.4: Funding pattern

The guideline has fixed norms in fund allocation and utilisation. Funds are released by the Project Director, District Rural Development Agency as the nodal agency at the district level to the Watershed Association and deposited in their bank account. The funds are released on the sub-heads

of administrative costs, works, community organisation, travelling allowances etc. in phased manner for a period of three years. The beneficiaries have to receive the funds from the Watershed Association, utilise in implementing the approved programmes and submit the details of expenditure to the Secretary of the Watershed Association. The data collected from the respondents about the constraints in funding pattern have been analysed and reflected in table 6.6.4.

Table 6.6.4: Constraints in funding pattern

| Sl. No. | Constraint | Mean Score | | | Pooled mean score (n=192) | Rank |
|---------|--|-------------------------|---------------------------|----------|---------------------------|------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Inadequate funds to cover all activities | 1.48 | 1.58 | 6.33 | 1.53 | I |
| 2 | No funds for community organisation | 0.36 | 0.73 | 50.68 | 0.55 | VI |
| 3 | Insufficient funds for training and other educational activities | 1.41 | 1.40 | 0.71 | 1.41 | III |
| 4 | No freedom in fund utilisation | 0.22 | 0.64 | 65.63 | 0.43 | VII |
| 5 | No revolving fund for SHG activities | 1.25 | 1.60 | 21.88 | 1.43 | II |
| 6 | Untimely flow of funds | 0.66 | 0.63 | 4.55 | 0.65 | V |
| 7 | Development fund not used for post project activities | 0.77 | 0.55 | 28.57 | 0.66 | IV |

(Maximum obtainable Score – 2)

As observed from the table, the respondents of both Nuapada and Kalahandi districts did not agree for the constraints of 'no funds for

community organisation', 'no freedom in fund utilisation', 'untimely flow of funds' and 'development fund not used for the post project activities'. It implies that the respondents were availing facilities on these aspects as per the guideline. But, the respondents had stated the constraints of 'inadequate funds to cover all activities', 'no revolving fund for SHG activities' and 'insufficient funds for training and other educational activities'.

It has been mentioned in the guideline that adequate programmes are to be developed for each family for optimum utilisation of resources. Capacity building is very essential to develop competency in proper management of the activities undertaken. There is also provision of revolving fund facilities for the landless, weaker communities including women to undertake income generating activities. Hence; the constraints expressed on these three aspects are genuine and suggested for possible remedial measures for the upliftment of tribal people in the watershed area.

6.5: Monitoring and evaluation

Close supervision, constant monitoring and evaluation of day-to-day activities are the criteria for achieving the end results. Therefore, monitoring and evaluation is another important module reflected in the guideline. All the project officials, watershed volunteers, Secretary and team members were also sufficiently exposed on proper monitoring and evaluation. The constraints expressed by the respondents on monitoring and evaluation have been reflected in table 6.6.5 after analysis of the collected data.

Table 6.6.5: Constraints in monitoring and evaluation

| Sl. No. | Constraint | Mean Score | | | Pooled mean score (n=192) | Rank |
|---------|---------------------------------------|-------------------------|---------------------------|----------|---------------------------|------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Approach to complete the targets only | 1.51 | 1.44 | 4.67 | 1.48 | II |

| | | | | | | |
|---|---|------|------|-------|------|------|
| 2 | Inadequate team spirit among the project personnel | 0.95 | 1.03 | 7.77 | 0.99 | V |
| 3 | Excessive control by the project personnel | 0.69 | 0.28 | 59.42 | 0.48 | VIII |
| 4 | Lack of sincerity and dedication of the project personnel | 0.51 | 0.83 | 38.55 | 0.67 | VII |
| 5 | Lack of friendly approach | 0.89 | 1.01 | 11.88 | 0.95 | VI |
| 6 | Insufficient knowledge of the project personnel | 0.31 | 0.43 | 27.91 | 0.39 | IX |
| 7 | Not encouraging harmony among people | 1.40 | 1.25 | 10.71 | 1.33 | IV |
| 8 | Problems and difficulties not taken care | 1.40 | 1.50 | 6.67 | 1.45 | III |
| 9 | No regular review meeting | 1.51 | 1.47 | 2.65 | 1.49 | I |

(Maximum obtainable Score – 2)

Though differential opinions were observed from the table among the respondents of Nuapada and Kalahandi districts on excessive control, lack of sincerity and dedication as well as insufficient knowledge of the project personnel, the mean score value revealed that the respondents had not expressed much constraints. The respondents of both the districts were almost similar in opinion on other aspects. The respondents were not much agreed for the constraints on various aspects of monitoring and evaluation covered under study. In addition, the respondents were also not agreed for the constraints of insufficient knowledge of the project personnel, lack of friendly approach and inadequate team spirit among the project personnel

The Watershed Project has been designed with the novel idea of the development of the watershed as a whole. Approach to complete the targets only will deviate the guideline and cannot fulfil the objective of the project. Unless harmony established among the people, the Watershed Development Programme cannot be implemented successfully. Immediate actions are to be taken for the problems and difficulties faced particularly in the field situations. There should be regular review meeting to assess the progress and future course of action. These are lacking in the monitoring and evaluation for which the respondents had expressed as the constraints. It is therefore suggested that the project officials have to realise these lapses and take appropriate measures to achieve the end results as well as the objectives of the project.

6.6: Maintenance of assets

One of the mandatory conditions of the project is people's contribution towards Watershed Development fund. The contribution shall be minimum of 10% of the cost of the activities executed on private land and 5.00% for the weaker communities. The contribution would be acceptable either in cash, labour or material and equal monetary value will be deducted and deposited in the separate bank account opened as Watershed Development fund. The funds will be deposited in shape of fixed deposit for use towards repair and maintenance of the created assets after withdrawal of the project. The constraints expressed by the respondents towards maintenance of the assets have been presented in table 6.6.6 after analysis.

Table 6.6.6: Constraints in maintenance of assets

| Sl. No. | Constraint | Mean Score | | | Pooled mean score (n=192) | Rank |
|---------|--|-------------------------|---------------------------|----------|---------------------------|------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Insufficient funds to maintain assets | 0.89 | 0.97 | 8.25 | 0.93 | III |
| 2 | Inadequate leadership to maintain the assets | 1.42 | 1.34 | 5.63 | 1.38 | II |

| | | | | | | |
|---|--|------|------|-------|------|----|
| 3 | No skill competency in operation and maintenance | 1.59 | 1.68 | 5.36 | 1.64 | I |
| 4 | No security arrangement to safeguard | 0.50 | 0.39 | 22.00 | 0.45 | IV |
| 5 | No cooperation of people for contribution | 0.29 | 0.32 | 9.38 | 0.31 | VI |
| 6 | Competition in use of assets | 0.47 | 0.26 | 44.68 | 0.37 | V |

(Maximum obtainable Score – 2)

As observed from the table, the respondents of both Nuapada and Kalahandi districts had not stated the constraints of competition in use of assets, no cooperation of people for contribution towards development fund, no security arrangement to safeguard the created assets and to some extent insufficient funds to maintain the assets. But, the constraints stated by the respondents were inadequate leadership to maintain the assets and no skill competency in operation as well as maintenance of the assets.

The assets created are to be handed over to the watershed people after closure of the project period. The watershed people have to use, repair and maintain the created assets from the Watershed Development funds. Unless, the people have skill competency in operation and maintenance of the assets, the assets cannot be used for a longer period. Similarly, there must be an appropriate leader who can guide the watershed people in proper use and maintenance of the assets. Hence, the constraints stated by the respondents are genuine. It is therefore suggested that the project officials have to train few people for their skill competency in operation and maintenance as well as select one dedicated individual having leadership quality with capacity building to guide the watershed people for proper use and maintenance before handing over the assets for sustainable use.

6.7: Institutional arrangements

The guideline clearly spelled out a well defined institutional arrangements starting from the state to watershed level mentioning the duties and responsibilities to each institutions as well as individuals involved in the process of implementation. Training programmes are also organised for all the stakeholders for a clear understanding about their duties and responsibilities. The data collected from the respondents towards constraints in institutional arrangement have also been analysed. The results so obtained have been indicated in table 6.6.7.

Table 6.6.7: Constraints on institutional arrangements

| Sl. No. | Constraint | Mean Score | | | Pooled mean score (n=192) | Rank |
|---------|--|-------------------------|---------------------------|----------|---------------------------|------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | G.P/Village not consulted adequately | 1.55 | 1.50 | 3.23 | 1.53 | I |
| 2 | User and Self Help Group not formed properly | 1.26 | 1.16 | 7.94 | 1.21 | V |
| 3 | Priority analysis not done | 0.46 | 0.40 | 13.04 | 0.43 | VI |
| 4 | Committee members not selected with common agreement | 1.57 | 1.45 | 7.64 | 1.51 | II |
| 5 | Volunteers and Secretary not selected properly | 1.36 | 1.40 | 2.86 | 1.38 | III |
| 6 | No compulsion towards contribution to development fund | 1.34 | 1.24 | 7.46 | 1.29 | IV |
| 7 | Monopoly in programming | 0.33 | 0.40 | 17.50 | 0.37 | VII |

(Maximum obtainable Score – 2)

The data in the table revealed that the respondents of both Nuapada and Kalahandi districts were almost similar opinions. The respondents of both the districts had stated the constraints of 'Gram Panchayat/Village not consulted adequately', 'committee members not selected with common agreement', 'volunteers and secretary not selected properly', 'no compulsion towards contribution to development fund' as well as 'user and Self Help Groups not formed properly'. However; the respondents had agreed for 'the priority analysis and no monopoly in programme formulation'.

The concerned Gram Panchayat or village should be consulted sufficiently before implementation of the Watershed Development Programme. Awareness programme are to be organised to develop consciousness among the watershed people for active involvement in the programme. Funds have also been allotted under community organisation to form various users and Self Help Groups. Watershed Committee members are to be selected unanimously with members from various categories as specified in the guideline. The Secretary as paid employee and key role in maintaining all records should be selected properly. Similarly; volunteers as the paid worker assist people and officials in developing action plan and implementation of programmes should be capable, dedicated and sincere. Proportionate contribution to Watershed Development is mandatory for the repair and maintenance of the assets created. Very pertinent constraints were stated by the respondents which should be strictly followed for effective implementation of the Watershed Development Programme.

6.8: Functioning of the Association

Each individual in the watershed area should be the member of the Watershed Association failing which will not entitled to get any benefits. The association should be registered under the Registration of Societies Act. The Association has to prepare the action plan, monitor and review the progress, scrutinise statement of accounts, organise users and Self Help Groups, resolve differences and disputes, lay down procedures for the operation as well as maintenance of assets and above all approve the activities during post project period. Constraints expressed by the

respondents towards functioning of the association have been reflected in the table 6.6.8 after analysis of the data collected from the respondents.

Table 6.6.8: Constraints in functioning of the association

| Sl. No. | Constraint | Mean Score | | | Pooled mean score (n=192) | Rank |
|---------|--|-------------------------|---------------------------|----------|---------------------------|------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Membership not compulsory | 0.31 | 0.26 | 16.13 | 0.29 | VII |
| 2 | President not selected unanimously | 0.41 | 0.24 | 41.46 | 0.32 | VI |
| 3 | Meeting not held regularly | 1.53 | 1.60 | 4.38 | 1.57 | I |
| 4 | Problems and difficulties not discussed in the meeting | 1.41 | 1.53 | 7.84 | 1.47 | III |
| 5 | Monopoly of the committee members | 1.40 | 1.42 | 1.41 | 1.41 | IV |
| 6 | Transparency not maintained | 1.43 | 1.61 | 11.18 | 1.52 | II |
| 7 | Not liasoning properly with related organisations | 1.31 | 1.29 | 1.53 | 1.30 | V |

(Maximum obtainable Score – 2)

The data in the table reflected that the respondents of both Nuapada and Kalahandi districts were agreed for the compulsory membership of the association and president selected unanimously. But, the respondents of both the districts had stated the constraints of 'meeting of the association not held regularly', 'transparency not maintained in the functioning of the association', 'problems and difficulties not discussed in the meeting',

‘monopoly of the committee members’ as well as ‘not liasoning with related developmental organisations for exploring resources’.

The constraints expressed by the respondents indicated that the Watershed Association was not functioning as per the guideline. The findings therefore suggested that the project officials particularly Project Implementation Agency should build the capability of the watershed people through training programmes on community organisation and understanding of the guideline so that watershed people will have the clear understanding of their roles as well as responsibilities and properly function the association.

Further attempts have been made for a comparative analysis of the constraints. The purpose is to locate pertinent constraint areas for giving more thrust to resolve the issues. The analysis made with pooled mean score value under each variable have been indicated in table 6.6.9.

Table 6.6.9: Comparative analysis of the constraint

| Sl. No. | Constraint | Mean Score | | | Pooled mean score (n=192) | Rank |
|---------|----------------------------|-------------------------|---------------------------|----------|---------------------------|------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | Diff (%) | | |
| 1 | Planning | 0.79 | 0.80 | 1.25 | 0.80 | VIII |
| 2 | Programme Development | 1.00 | 0.91 | 9.00 | 0.96 | IV |
| 3 | Programme implementation | 0.93 | 0.91 | 2.15 | 0.92 | VI |
| 4 | Funding pattern | 0.88 | 1.02 | 13.73 | 0.95 | V |
| 5 | Monitoring and evaluation | 1.02 | 1.03 | 0.97 | 1.03 | III |
| 6 | Maintenance of assets | 0.86 | 0.83 | 3.49 | 0.85 | VII |
| 7 | Institutional arrangements | 1.12 | 1.08 | 3.57 | 1.10 | II |
| 8 | Functioning of Association | 1.11 | 1.14 | 2.63 | 1.13 | I |

(Maximum obtainable Score – 2)

The data in the table revealed that the respondents of both Nuapada and Kalahandi districts were of similar opinions. The data in the table as a whole revealed that the respondents had almost opined in similar manner about the constraints on various aspects of the implementation of Watershed Development Programme covered under study. However; the respondents had comparatively more constraints perception on functioning of the Watershed Association, institutional arrangements, monitoring and evaluation in comparison to other aspects.

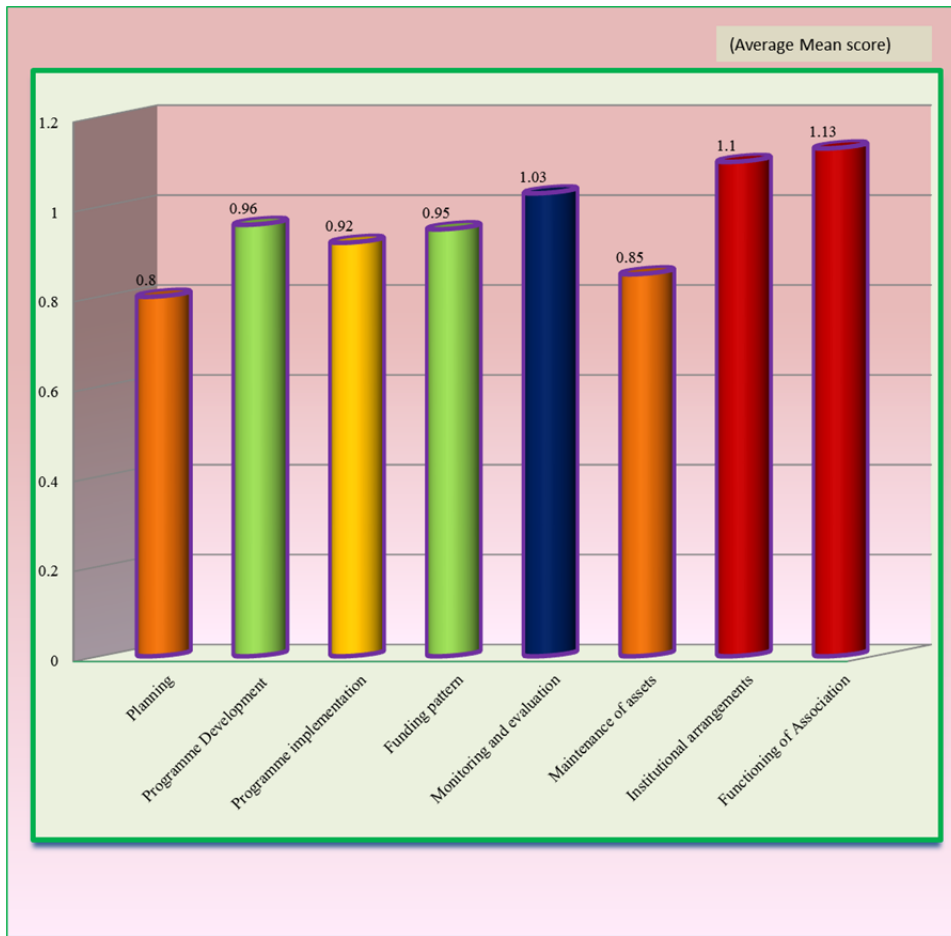


Fig. 16: Comparative Analysis of the Constraints

The findings therefore revealed that the respondents had not faced serious constraints in implementation of the Watershed Development Programme. However, they had some constraints in every aspects of the programme implementation. Attempt was therefore made to identify the pertinent constraints in effective implementation of the programme. The selection made with comparatively higher mean score value have been presented in table 6.6.10.

Table 6.6.10: Pertinent constraints in implementation of the programme

| Sl. No. | Constraint | Mean Score | | Pooled mean score (n=192) | Rank |
|---------|---|-------------------------|---------------------------|---------------------------|------|
| | | Nuapada district (n=96) | Kalahandi district (n=96) | | |
| 1 | No skill competency in operation and maintenance of assets | 1.59 | 1.68 | 1.64 | I |
| 2 | Meeting of the association not held regularly | 1.53 | 1.60 | 1.57 | II |
| 3 | G.P./Village not consulted adequately before programme implementation | 1.55 | 1.50 | 1.53 | III |
| 4 | Inadequate funds to cover all activities | 1.48 | 1.58 | 1.53 | IV |
| 5 | Transparency not maintained | 1.43 | 1.61 | 1.52 | V |
| 6 | Committee members not selected with common agreement | 1.57 | 1.45 | 1.51 | VI |
| 7 | No regular review meeting | 1.51 | 1.47 | 1.49 | VII |
| 8 | Approach to complete targets only | 1.51 | 1.44 | 1.48 | VIII |

| | | | | | |
|----|--|------|------|------|-------|
| 9 | Problems and difficulties not discussed in the meeting | 1.41 | 1.53 | 1.47 | IX |
| 10 | Problems and difficulties not taken care at field situation | 1.40 | 1.50 | 1.45 | X |
| 11 | Implementation not done with full knowledge of everybody | 1.31 | 1.54 | 1.43 | XI |
| 12 | No revolving fund for SHG activities | 1.25 | 1.60 | 1.43 | XII |
| 13 | Monopoly of the committee members | 1.40 | 1.42 | 1.41 | XIII |
| 14 | Insufficient funds for training and other educational activities | 1.41 | 1.40 | 1.41 | XIV |
| 15 | No adequate programme for farm women | 1.31 | 1.47 | 1.39 | XV |
| 16 | Inadequate leadership to maintain the assets | 1.42 | 1.34 | 1.38 | XVI |
| 17 | Volunteers and Secretary not selected properly | 1.36 | 1.40 | 1.38 | XVII |
| 18 | Exhaustive proforma in reporting | 1.37 | 1.43 | 1.36 | XVIII |
| 19 | No permanent approach to each programme | 1.29 | 1.48 | 1.34 | XIX |
| 20 | Not encouraging harmony among people | 1.40 | 1.25 | 1.33 | XX |
| 21 | Not liasoning properly with related organisations | 1.31 | 1.29 | 1.30 | XXI |
| 22 | Priorities not towards poverty alleviation | 1.32 | 1.26 | 1.29 | XXII |

| | | | | | |
|----|--|------|------|------|-------|
| 23 | No compulsion for contribution to development fund | 1.34 | 1.24 | 1.29 | XXIII |
| 24 | Insufficient demonstration | 1.30 | 1.20 | 1.25 | XXIV |
| 25 | Insufficient attempt for self employment | 1.20 | 1.23 | 1.22 | XXV |
| 26 | Users and Self Help Groups not formed properly | 1.26 | 1.16 | 1.21 | XXVI |
| 27 | No sustainable programming | 1.14 | 1.02 | 1.08 | XXVII |

(Maximum obtainable Score – 2)

The constraints mentioned in the table are very pertinent which may affect effective implementation of the Watershed Development Programme to achieve the end results. It is therefore suggested that the project officials should realise the essentialities of all these factors and take appropriate steps to solve these constraints for effective implementation of the programme leading to all round development of the watershed as a whole.

The following suggestions were made from the study to minimise the constraints.

1. Planning

- (i) Simplifying the proforma with easy understanding for reporting
- (ii) Adequate programme for farm women
- (iii) Priorities towards poverty alleviation
- (iv) Maximum thrust for self employment
- (v) Sustainable programming

2. Programme implementation

- (i) Implementation with full knowledge of the watershed people
- (ii) Sufficient demonstration to develop knowledge and skill competency

- (iii) Permanent approach to each programme
- (iv) Flexibility in implementation
- (v) Prior arrangement of inputs and materials

3. Funding pattern

- (i) Adequate funds to cover all activities
- (ii) Revolving fund facilities for SHGs activities
- (iii) Sufficient funds for training and other educational activities

4. Monitoring and Evaluation

- (i) Regular review meeting
- (ii) Approach for sustainability and stability of the programme
- (iii) Immediate action on problems and difficulties
- (iv) Establishing good harmony among people
- (v) Ensuring team spirit among project personnel
- (vi) Friendly approach by the project personnel

5. Maintenance of assets

- (i) Developing skill competency in operation and maintenance
- (ii) Select leaders to guide in maintaining assets
- (iii) Provision of funds towards repair and maintenance

6. Institutional arrangement

- (i) GP/ Village to be consulted sufficiently prior to implementation
- (ii) Watershed Committee members to be selected with common agreement
- (iii) Proper selection of secretary and Volunteers
- (iv) Mandatory contribution to development fund
- (v) Users groups and Self Help Groups to be selected properly

7. Functioning of the association

- (i) Regular Meeting of the association
- (ii) Maintaining transparency in the decisions
- (iii) Discussing problems and difficulties in the meeting
- (iv) Avoiding monopoly of the committee members
- (v) Liaisoning with stakeholders for resource mobilisation

OBJECTIVE – VII

Suggestions based on the findings for effective implementation of the programme

Approximately, 70 million hectares of land in India is classified as degraded lands and the majority falling in undulating semi-arid areas where rainfed farming practised. It is estimated that about 5433 tons of surface soils with around 10 million tons of plant nutrients are lost annually in India. Application of sound and comprehensive programme of soil and water conservation within the natural boundaries of a watershed is termed as watershed management. Watershed development offers an eco-friendly way that is both cheap and effective in arresting and indeed reversing the degradation of our natural resources. It involves and encourages the direct participation of people at the local level who take an avid interest in seeing the programme to fruition and beyond.

The Government of India has implemented nation wide massive and nicely designed programme for rainfed areas under the banner of Watershed Development Programme. All possible factors have been considered for effective implementation of the programme making all round developments of the watershed as a whole. Soil and water conservation work along with various aspects of agricultural production have been emphasised in the programme. Field functionaries and watershed people were trained sufficiently to have the clear understanding of the guideline and operational procedures in achieving the end results. The guideline has also been circulated mentioning the duties and responsibilities of the stakeholders in effective implementation of the programme. In spite of all efforts, several constraints have been observed in the study which needs immediate attention for effective implementation of the programme. The following suggestions were therefore worked out based on the findings of the study which may be analysed for effective implementation of the programme.

1. Institutional arrangements

- i. Detail discussion with G.P/Village prior to implementation
- ii. Clear understanding of the people about objectives and guideline
- iii. Selecting committee members with common agreement
- iv. Proper selection of Secretary and volunteers
- v. Appropriate formation of various users and Self Help Groups

2. Community organisation

- i) Developing leadership among people
- ii) Establishing good cooperation and coordination among people
- iii) Establishing good harmony among people
- iv) Negotiation and mediation in conflicts
- v) Developing interest among people

3. Functioning of Watershed Association

- i) Registered before programme implementation
- ii) Approve accounts, monitor and review progress
- iii) Regular meeting of the Association
- iv) Discussion on problems and difficulties
- v) Maintaining transparency on all activities
- vi) Close liason with related developmental departments

4. Programme designing

- i) Adequate programme for each family
- ii) Optimum utilisation of resources
- iii) Sufficient attempt for self employment
- iv) Priority towards poverty alleviation
- v) Adequate programme for farm women

- vi) Sustainable programming
- vii) Detail discussion over consolidated action plan before finalisation

5. Programme implementation

- i) Implementation with the knowledge of the people
- ii) Permanent approach to each programme
- iii) Sufficient demonstrations to develop skill competency
- iv) Close supervision by Watershed Development Team members
- v) Regular review of the progress
- vi) Timely use of inputs and materials

6. Funding pattern

- i) Adequate funds to cover all activities
- ii) Sufficient revolving fund for SHG activities
- iii) Adequate funds for training and educational activities
- iv) Skill competency of people on accounting and reporting

7. Monitoring and Evaluation

- i) Participatory evaluation of the progress
- ii) Immediate action on field problems
- iii) Timely technical guidance
- iv) Close supervision and monitoring
- v) Documentation of each activity
- vi) Regular meeting by Watershed Development Team

8. Maintenance of assets

- i) Developing leader to guide for maintenance of assets
- ii) Capacity building of service providers for repair and maintenance of assets
- iii) Sufficient mobilisation to raise development fund

- iv) Optimum use of assets
- v) Cooperation and coordination of people in use of the assets

9. Technological backstopping

- i) Regular training for updating knowledge and skills
- ii) Continuous flow of information
- iii) Active involvement of the project personnel
- iv) More involvement of the District Watershed Advisory Committee
- v) Exposure visit for confidence development
- vi) Immediate action on field problems

10. Credit and finance

- i) Facilitating for required credit
- ii) Timely disbursement of loan
- iii) Fixing installments as per the capabilities
- iv) Insurance coverage

11. Infrastructure support

- i) Ensuring power supply
- ii) Custom hiring service on farm implements
- iii) Motivating for developing own infrastructure
- iv) Liasoning for subsidy facilities

12. Policy consideration

- i) Good linkage with related stakeholders
- ii) Regular meeting with the stakeholders
- iii) Exploring external resources
- iv) Emphasis on solving problems

The suggestions screened out from the findings of the study are very pertinent and essential for the development of tribal people living in watershed area. It is therefore suggested that the District Watershed Advisory committee, the nodal agency and project personnel should analyse the essentialities of these suggestions and take appropriate measures for effective implementation of the Watershed Development Programme for the development of the watershed as a whole and tribal people in particular.