CHAPTER IV

IMPACT OF TULASHI DAM ON CROP PRODUCTION AND YIELD

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CHAPTER IV

4.1 INTRODUCTION

Since the agriculture is the basic economic activity in India the economic system is overall depending on the same. More than 70 per cent of the population is directly and indirectly depending on it for source of earnings and employment. However, Indian agriculture is greatly influenced by erratic rainfall of monsoon system. It is therefore, artificial source of irrigation are bases of Indian agriculture. The construction of dams increased production of cereal crops in respected river basin and command areas. The forth coming section deals with the crop wise productions of major crops grown in Tulasi river basin. The main crops growing in this region are Kharip Paddy, Nachani/Raggi, Sugarcane, Rabbi Rice, Groundnut, Sunflower, Jawar and Maize etc. It is relevant to obtain and analyze the pre project and post project statistics regarding to production of main crops to evaluate the impact of irrigation in this region. The detailed tables of individual village with an individual crop have been given in annexure.

4.2 PRODUCTION OF MAIN CROPS

While looking into the analysis of changes of production of main crops like Kharip Paddy, Nachani/Raggi, Sugarcane, Rabbi Rice, Groundnut, Sunflower, Jawar and Maize very distinguished observations are come out as follows.

Change Production of Kharip Paddy

Table 4.1 depicts that the production of Kharip paddy in pre project and post project period. In pre project period, out of total 581.20 quintals of paddy small farmers were produced 43.73% i.e. maximum proportion among the farmers. The smallest proportion of rice had been produced by large farmers i.e. only 11.36% to total. After the construction of an irrigation project the increment in the production of this crop is observed. The total production is reached up to 631.30 quintals; it means that near about 8.62% growth is occurred in pre project production of this crop. Out of total 631.30 quintals, small farmers are producing 44.42% followed by marginal, medium and large farmers respectively. Medium farmers are showing highest growth in their production i.e. 31.56% to pre project. It is noted that the land under this crop is being reduced after the execution of Tulasi irrigation project but due to the irrigation induced modern agriculture, production of this crop has been increasing in nature in this region.

Table: 4.1 Change in Production of Kharip Paddy (Composite) (Qu.)

Particulars	Pre-	Percent	Post-	Percent	Percent
of Farmers	Project	Share	Project	Share	Changes
Marginal	357.25	21.74	460.50	20.79	28.90
Small	815.08	49.61	1,005.00	45.38	23.30
Medium	320.26	19.49	515.90	23.29	61.09
Large	150.40	9.15	233.40	10.54	55.19
Total	1,642.99	100.00	2,214.80	100.00	34.80

Source: Based on field work data.



Figure: 4.1 Change in Production of Kharip Paddy (Composite)

Source: Based on field work data.

The situation of village Savarde regarding the production of Kharip paddy is analyzed. It is observed that the total production of this crop was 530.94 quintals of which largest per cent share had produced by small farmers i.e. 49.51%. Marginal farmers were having minimum per cent share i.e. about 90% total. The significant growth is observed in the production of this crop in post project period. The total production of Kharip paddy is becomes 891 quintals. Small farmers producing 374 quintals that is largest one where as small proportion of production of

this crop is belonging to large farmers' i.e. 135.90 quintals. In between pre and post project period about 67.87% growth in production of this crop has occurred and maximum growth is observed in the production of large farmers i.e. about 158%. Scenario of production of Kharip paddy in village Savarwadi in pre project period there was total production of 530.85 quintal of this crop. The small farmers were produced 52.86% to total i.e maximum per cent share, where as large farmers produced 31.90% to total i.e. minimum per cent share. After the implementation of an irrigation project the production of this crop is reached up to 692.20 quintals. Out of this total production here also small farmers contributing maximum per cent share i.e. 50% and minimum per cent share is belonging to large farmers i.e. 6.50%. Considerable growth is shown in the production of this crop in post project period. Total production has increased by about 30.39% and large proportion of growth is in the production of medium farmers'.

The above table 4.1 is enumerating the sum total production of Kharip paddy in selected sample villages. It is evaluated that the total production of this crop was about 1642 quintals in pre project period of which small farmers were having largest per cent share i.e. 49.61% followed by marginal farmers (21.74%), medium farmers (19.49%) and large farmers (9.15%) respectively. The irrigation development through Tulasi irrigation project has brought considerable change in the production of this crop. In post project period total production is become 2214.80 quintals, out of it here also small farmers occupying 1st position with 45.38% and large farmers contributing 10.54%. It is shown that about 34.80% growth occurred in total production of this crop. In post project period naximum growth is observed in production of this crop is belonging to medium farmers i.e. 61%.

Changes in Production of Nachani

The scenario of production of Nachani or Raggi crop grow in village Chande in pre project period the total production of this crop was

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96 quintals of which small farmers contributing large share i.e. 36.46% followed by medium farmers (27.08%), marginal farmers(23.96%) and large farmers(12.50%) respectively. In post project period there is negligible reduction has occurred in total production of Nachani, it becomes 91 quintals. Out of total 91 quintals small farmers are having 32.97%, medium farmers 29.67%, marginal farmers 19.78% and large farmers 17.58% production. It is a crop produced for domestic purpose in this region, large and medium farmers are showing slight growth in production.

Particulars	Pre-	Percent	Post-	Percent	Percent
of Farmers	Project	Share	Project	Share	Changes
Marginal	34.76	23.37	30.75	19.83	-11.54
Small	54.53	36.66	52.80	34.06	-3.17
Medium	39.04	26.25	43.38	27.98	11.12
Large	20.40	13.72	28.10	18.13	37.75
Total	148.73	100.00	155.03	100.00	4.24

Table:4.2 Change in Production of Nachani (Composite) (Qw)

Source: Based on field work data.

The pre-project production of Nachani in village Savarde dumala was 52.73 quintals. Out of which maximum share had produced by small farmers i.e. 37.04% followed by medium, marginal and large farmers respectively. The production of this crop has little bit increased in post project period, it becomes 64.03 quintals of which small farmers producing 35.61 quintals followed by medium, marginal and large farmers respectively. About 21% growth in the total production of raggi has shown in post project period. The maximum growth in the production of this crop is concerned to large farmers i.e. about 44% to pre project.



Figure: 4.2 Change in Production of Nachani (Composite)

Source: Based on field work data.

The sum total situation of selected sample villages located in the command area of Tulasi irrigation project regarding to production of Nachani is presented in table 4.2. At the outset, it is noted that this particular crop is not produced in village Savarwadi because this village is situated in lower part of Tulasi river basin a geo-environmental condition is not favorable to grow this crop in this region. The above table shows that in pre project period about 148 quintals Nachani had produced by total farmers in this region. Out of total production there were 36.66% share had owned by small farmers followed by medium farmers (26.25%), marginal farmers (23.3%) and large farmers (13.72%) respectively. After the improvement has been done in irrigation due the implementation of Tulasi irrigation project in this region slight growth is occurred in production of Nachani. Total production of Nachani in post project period is 155 quintal of which largest share has produced by small farmers i.e. 34.06%. Large farmers contributing minimum proportion in to the production i.e. 18.13%. The growth in the production of Nachani is concerned; maximum growth is shown in the large farmers' production in post project period i.e.37.75%, slight reduction has show in the production of small and marginal farmers'.

Changes in Production of Sugarcane

Sugarcane is well known cash crop of this region as well as it governed the economy of this region through sugarcane industries. In the present table effort is taken to enumerate the situation regarding to production of sugarcane in village Chande. It is observed that in pre project period 588.70 tons of sugarcane had been produced by farmers, out of which 219.12 tons were produced by small farmers followed by large farmers (198 tons), medium farmers (99 tons) and marginal farmers (72.58 tons) respectively. Implementation of Tulasi irrigation project has brought important change in the production of sugarcane in this region. In post project period the total production of this crop is reached up to 2784 tons, it means that more than three hundred per cent growth has occurred in it. Out of total production greatest per cent share is acquired by small farmer's i.e. 37.04%, followed by large farmers (23.71%), medium farmers (23.01%) and marginal farmers (16.25%) respectively. The largest growth in production is concerned to medium farmers i.e. 546.97%.

The situation of production of sugarcane in village Savarde Dumala analyzed and there were 407.43 tons of sugarcane had produced by total selected farmers of which large farmers were contributing maximum per cent share that is 34.53% whereas marginal farmers had lowest per cent share i.e. 16.16%. After the progress is done in perennial irrigation through Tulasi irrigation project, the production off this crop is tremendously increased. In post project period the total production of this crop is grown up to 2623.44 tons of which maximum per cent has owned by small farmers i.e. 34.67%. The lowest share of percentage is owned by marginal farmers i.e. 15.92% to total. More than 500% growth is occurred in production of this crop in post project period.

Scenario of Sugarcane production in Savarwadi is showing that near about 753 tons of sugarcane produced in pre project period of which major contribution had given by small farmers i.e. 45.52%. Minimum per cent share had covered by large farmers i.e. 7.65% to total. After the execution of irrigation project scenario of sugarcane production has considerably changed. The total production is reached up to 2510 tons, out of this small farmer producing 44.26% that is maximum share among the farmers. Less per cent share have owned by large farmers i.e. 10.04% to total production. Growth in the sugarcane production is concerned; about 233% growth is shown in total production, high proportion of growth is observed in the production of large farmers in post project period.

Ta	ble:4.3	Change in	Production	of Sugarcane	(Composite)) (40n.)
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Particulars	Pre-	Percent	Post-	Percent	Percent
of Farmers	Project	Share	Project	Share	Changes
Marginal	315.54	18.03	1,620.09	20.46	413.43
Small	692.92	39.62	3,052.02	38.54	340.46
Medium	344.38	19.69	1,632.07	20.61	373.92
Large	396.28	22.66	1,614.24	20.39	307.35
Total	1,749.12	100.00	7,918.42	100.00	352.71

Source: Based on field work data.

Figure: 4.3 Change in Production of Sugarcane (Composite)



Source: Based on field work data.

The consolidated table 4.3 representing the sum condition of selected sample village regarding to the sugarcane production in pre project and post project period. It is evaluated that there were about 1749 tons of sugarcane had produced by total farmers in pre project period. Out of this small farmers were produced 39.62% followed by large farmers (22.66%), medium farmers (19.69%) and marginal farmers

(18.03%) respectively. In post project period due to the availability of perennial irrigation land under this crop is significantly increased subsequently production is also increased and become 7918.42 tons. Out of this total production, small farmers producing 38.54%, and medium, large as well as small farmers producing about 20% respectively. Average above 300% growth is occurred in production of sugarcane in post project period.

Changes in Production of Rabbi Rice

The production of rabbi rice in village Chande is observed in pre project period that about 145 quintals of rice had produced by a farmer, of which 43.47% produced by medium farmers which is maximum one. Small, large and marginal farmers were producing 31%, 13.79% and 11.72% respectively. Mainly this crop is grown in post monsoon period, so it required enough water to sustain and to obtain desirable yield. It is shown that slight growth has occurred in the production of this crop after project period. Near about 221 quintals of rice is produced in post project period of which large farmers contributes maximum per cent share i.e. about 32% followed by marginal, medium and small farmers respectively. Growth in production of this crop is concerned; it is observed that about 52% growth has obtained in total production in post project period. Large farmers are showing highest growth i.e.255%, unexpectedly small farers and medium farmers are showing reduction in production.

The pre project and post project situation of rabbi rice production of village Savarde dumala describe in pre project period there were about 120 quintals of rabbi rice had been produced by total farmers of which about 40% rice was produced by medium farmers. Minimum per cent share had produced by marginal farmers i.e. 13.74% to total production. Rice production is being increased in post project period and it reaches up to 217.67 quintals. Out of total production large farmers covering largest per cent share i.e. 32.64% followed by marginal farmers (57%), medium farmers (50.2%) and small farmers (38.80%) respectively. Obtained growth in production of this crop is showing that, maximum growth is occurred in the production of marginal farmers i.e. 244% to pre project.

Particulars	Pre-	Percent	Post-	Percent	Percent
of Farmers	Project	Share	Project	Share	Changes
Marginal	81.16	17.62	228.07	27.42	181.01
Small	146.94	31.89	197.22	23.71	34.22
Medium	161.90	35.14	204.08	24.54	26.05
Large	70.70	15.35	202.40	24.33	186.28
Total	460.70	100.00	831.77	100	80.54

Table:4.4 Change in Production of Rabbi Rice (Composite) (Qu.)

Source: Based on field work data.





Source: Based on field work data.

The rabbi rice production in village Savarwadi shown that total production of this crop was 195.10 quintals in pre project period out of which small farmers were, produced 72.90 quintals that was high among the farmers. Medium, marginal and large farmers were produced about 25%, 24% and 12.81% to total respectively. It is observed that in post project period the rice production is considerably increased and it becomes 392.23 quintals, out of this 30.19% share is produced by small farmers and lowest per cent share is pertaining to large farmers i.e. 15.37%. About 101% growth is occurred in production of this crop in post project period. Marginal farmers are showing largest per cent changes in production of this crop that is 133% to pre project.

The sum total of rice production in sample villages is given in table 4.4 shows that in pre project period, the total rice production was 460.70 quintals. Out of which medium farmers had greatest per cent shared i.e. 35.89% followed by small farmers (31.89%), marginal farmers (17.62%) and large farmers (15.35%). It is noted that this particular crop is grown for subsistence purpose therefore the cultivation of this crop is based on need of the people. In post project period the total production of rice is 831.77 quintals, out of which marginal farmers contributing maximum per cent share i.e. 27.42%. The minimum per cent share to total pertains to the large farmers i.e. 24.33%. Near about 80% growth is shown in total production after project. The highest growth observed in the production of marginal farmers i.e. 186%.

Changes in Production of Groundnut

Groundnut is oil seeds grown in this region. In present section an attempt as made to study the production of groundnuts in selected sample villages. The situation of village Chande in pre project period about 55 quintals of groundnut were produced by farmers of which large farmers produced 18 quintals and occupied 1st position, medium, small and marginal farmers were produced 17.70, 12.30 and 7.50 quintals respectively. Tremendous change has observed in the production of this crop after the implementation of an irrigation project in this region. The total production is reached up to 135.85 quintals of which small farmers are producing about 32%, large farmers having 30.92%, marginal farmers 22.52% and medium farmers 14.35% respectively. About 144% growth is occurred in production of this crop in post project period.

The production of groundnut in Savarde dumala showing that in pre project period about 53.65 quintals of groundnut were produced by farmers of which large farmers were having largest share i.e. 35.79% followed by medium, small and marginal farmers respectively. After the execution of Tulasi irrigation project the groundnut production is increased by about 195% and reached up to 158 quintals. Out of total

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production maximum per cent share have produced by large farmers i.e. 29.32%. The small farmers got 2nd position in production of this crop with having 25.96% production to total. The occurred growth in production of this crop is concerned, marginal farmers showing maximum growth i.e. about 314% to pre project. The production of groundnut in village Saverwadi is showing that about 51 quintals of groundnut were produced by farmers in pre project period. Out of total production 29.16% were produced by large farmer's i.e. largest one, minimum per cent share was produced by marginal farmers (20.3%). In post project period significant change has occurred in production of this crop, the total production becomes 201 quintals of which small farmers produced 42.04% followed by marginal, large and medium farmers respectively. As far as growth is concerned about 292% of total production is increased in post project period. The maximum growth is occurred in the small farmers' production i.e. about 671% to pre project.

Table:4.5 Change in Production of Groundnut (Composite) (Qu)

Particulars	Pre-	Percent	Post-	Percent	Percent
of Farmers	Project	Share	Project	Share	Changes
Marginal	25.35	15.81	109.10	22.01	330.37
Small	33.94	21.16	169.46	34.19	399.29
Medium	48.96	30.53	92.60	18.68	89.13
Large	52.14	32.51	124.44	25.11	138.67
Total	160.39	100.00	495.60	100.00	209.00





Source: Based on field work data.

The consolidated table 4.5 presenting the sum total situation of selected sample villages regarding to the groundnut production. It is evaluated that in pre project period there were about 160 quintals of groundnut produced, of which large farmers contributed maximum per cent share i.e. above 60% followed by medium small and marginal farmers respectively. After the completion of Tulasi irrigation project in this region the significant growth has obtained in production of this crop. The total production reached up to 495 quintals, out of which small farmers have produced 169.46 quintals i.e. maximum one and medium farmers contributes less proportion in production i.e. 92.60 quintals. Near about 209% growth is observed in the total production in post project. Maximum growth in production of groundnut is pertaining to small farmers i.e. 399%.

Changes in Production of Sunflower (Oil Seeds)

Sunflower is oil seeds as well as newly introduced crop produced in this region are explaining the situation of sunflower production in village Chande. It is shown that in pre project period, there were completely ignored this crop by farmers so production of this crop was nil. After the availability of irrigation facility farmers turned towards this crop. In post project period, near about 10 quintals of sunflower produced by total farmers, out of which medium farmers producing 51.75% followed by large farmers (33.23%) and medium farmers (5.17%) respectively. It is observed that inconspicuously small farmers are not getting this crop. The situation of sunflower production in village Savarde Dumala is evaluated in pre project period, farmers had totally ignored this crop therefore production of this crop was absent. In post project period due to the availability of irrigation facility, farmers prefer to cultivate this crop. In post project period, near about 12.16 quintals of sunflower produced by total farmers, out of which large farmers producing 45.64% followed by medium farmers (29.61%), small farmers (12.91%) and marginal farmers (11.84%) respectively. It is

observed that, trend of production is reduced from large farmers to marginal farmers respectively.

The scenario concerned to sunflower production in village Savarwadi is reported that, farmers had totally ignored this crop in pre project period therefore production of this crop was absent. After the implementation of Tulasi irrigation project, farmers prefer to cultivate this crop. In post project period, near about 36.80 quintals of sunflower produced by total farmers, out of which medium farmers contributes 46.20% followed by large farmers (22.83%), small farmers (17.93%) and marginal farmers (13.04%) respectively.

Particulars	Pre-	Percent	Post-	Percent	Percent
of Farmers	Project	Share	Project	Share	Changes
Marginal	0.00	0.00	7.74	13.13	0.00
Small	0.00	0.00	8.17	13.86	0.00
Medium	0.00	0.00	25.77	43.72	0.00
Large	0.00	0.00	17.27	29.30	0.00
Total	0.00	0.00	58.95	100.00	0.00

Table: 4.6 Change in Production of Sunflower (Composite) (Qu)

Source: Based on field work data.





Source: Based on field work data.

The composite table 4.6 describes the sum total production of sunflower in selected sample villages. It is shown that, farmers had totally ignored this crop in pre project period therefore production of this crop was absent. This crop is grown in rabbi season therefore it required water to sustain. Tulasi irrigation project creates favorable situation to cultivate this crop in this region so farmers prefer to cultivate this crop. In post project period, near about 58.95 quintals of sunflower produced by total farmers, out of which medium farmers contributes 43.72% followed by large farmers (29.30%), small farmers and marginal farmers (13.86%) and (13.13%) respectively.

Changes in Production of Jawar

The production of Jawar in village Chande, it is shown that in pre project period only 6 quintals of Jawar were produced by farmers. Out of these total medium farmers were producing 66.67% and marginal farmers 33.33% respectively. This particular village is located in upper part of Tulasi river basin and intensive precipitation with sloppy terrain does not support to enhance this crop in this region. In post project period farmers are rigorously tilting towards cash crops like as sugarcane and sunflower hence this crop is totally ignored.

Situation regarding to Jawar production in village Svarde Dumala is that about 18.73 quintals of Jawar were produced by farmers, of which large farmers were contributing maximum share i.e. 35.50% followed by small farmers (24.03%), marginal farmers (20.29%) and medium farmers (20.18%) respectively. The production of this crop is increased after the execution of an irrigation project. In post project period, total production of this crop is reached up to 48.39 quintals of which large farmers are having 32.55% i.e. maximum one. Small farmers, marginal farmers and medium farmers are contributing 30.81%, 20.25% and 16.39% to total respectively.

Near about 158.36% total production is increased in post project period. Situation concerned to Jawar production in village Svarwadi is reported that about 16.40 quintals of Jawar were produced by farmers, of which small farmers were contributing maximum share i.e. 36.59% followed by marginal farmers (25.61%), medium farmers (25%) and large farmers (12.80%) respectively. The production of this crop is increased after the implementation of an irrigation project. In post

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project period, total production of this crop is reached up to 24.55 quintals of which small farmers are producing 42.77% i.e. maximum one. Marginal, medium farmers and large farmers are contributing 22.40%, 21.38% and 13.44% to total respectively. Near about 49.70% total production is increased in post project period

Particulars	Pre-	Percent	Post-	Percent	Percent
of ranners	riojeci	Silare	Floject	Share	Changes
Marginal	10.00	24.31	15.30	20.98	53.00
Small	10.50	25.53	25.41	34.84	142.00
Medium	11.88	28.88	13.18	18.07	10.94
Large	8.75	21.27	19.05	26.12	117.71
Total	41.13	100.00	72.94	100.00	77.34.

Fable:4.7	Change in	Production of Jawar	(Composite) (Qu))
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Source: Based on field work data.

Figure: 4.7 Change in Production of Jawar (Composite)



Source: Based on field work data.

The composite table 4.7 highlighting the sum total of production of Jawar in selected sample villages located in command area of Tulasi irrigation project. In pre project period there were about 41 quintals of Jawar produced by farmers. Out of which medium farmers were showing 28.88%. Small, marginal and large farmers were showing 25.53%, 24.31% and 21.27% respectively. In post project period the scenario regarding to production of Jawar considerably changed, it becomes 72.94 quintals. Out of which small farmers are contributing 34.84% i.e. maximum one followed by large farmers (26.12%), marginal farmers (20.98%) and medium farmers (18.07%). As far as growth in production of this crop is concerned, small are obtaining 142% growth in post project period.

Changes in Production of Maize

Maize is grown in lower reaches of Tulasi river basin. The table 4.8 depicts the situation of Savarwadi concerned to maize production. It is observed that about 52 quintals of maize had produced, out of which maximum per cent share was acquired by small farmers i.e. 34.68%, followed by large farmers (26.90%). Marginal and medium farmers were having same share i.e. 19.21% to total respectively. Tulasi irrigation project brought change in the production of this crop. In post project period the production of this crop is reached up to 59 quintals of which small farmers obtaining largest per cent share i.e. 29.52%. Production of this crop is slightly increased in post project period.

Table:4.8 Change in Production of Maize (Composite) (Qu.)

Particulars	Pre-	Percent	Post-	Percent	Percent
of Farmers	Project	Share	Project	Share	Changes
Marginal	10.00	19.21	11.64	19.58	16.40
Small	18.05	34.68	17.55	29.52	-2.77
Medium	10.00	19.21	14.40	24.22	44.00
Large	14.00	26.90	15.86	26.68	13.29
Total	52.05	100.00	59.45	100.00	14.22





Source: Based on field work data.

4.3 YIELD OF MAIN CROPS

In this particular section an effort is taken to study and obtain fruitful statistics regarding to the average yield of major crops growing in command area of Tulasi irrigation project. Basically yield of cash crop is directly or indirectly affecting the economy of concerned farmers. It is also related to the required input provision to sustain, grow and flourish particular crop in their raising period.

Changes in Yield of Kharip Paddy

Table 4.9 enlighten the per hectare average yield of Kharip paddy in sample villages. It is shown that in pre project period the average yield of this crop was very low i.e. 26.14 quintals. Among the categories of farmers, large farmers were showing maximum yield i.e. about 30.35 quintals followed by marginal, small and medium farmers respectively. After the development of irrigation, drastic change has occurred in the yield of this crop. The average yield of paddy is about 44 quintals per hectare; marginal farmers are showing 50.50 quintals i.e. highest among the farmers. The per cent changes in the yield of this crop are shown that, on an average about 70% change is occurred in post project period. The maximum change is occurred in the yield of medium farmers i.e. 81.33 %.

Particular	Pre-Project Quintals/Hectares	Post-Project Quintals/Hectares	% change
Marginal Farmers	28.00	50.50	80.36
Small Farmers	22.10	38.90	76.02
Medium Farmers	24.10	43.70	81.33
Large Farmers	30.35	45.15	48.76
Average Yield	26.14	44.56	70.47

Table: 4.9 Yield of Kharip Paddy (Composite)





Source: Based on field work data.

Table 4.10 highlighting the yield of Nachani. It is shown that in pre project period the average yield of this crop was low i.e. 24.48. Among the categories of farmers, large farmers were having greatest yield i.e. about 25.13 quintals followed by medium, small and marginal farmer. Due to the development of irrigation project in this region, the production of this crop is increased. The average yield of Nachani is about 44 quintals per hectare in post project period. Among the categories of farmers, large farmers are showing 50.50 quintals i.e. highest among the farmers. The per cent changes in the yield of this crop in post project is concerned, on an average about 58% change is observed. The maximum change is occurred in the yield of large farmers i.e. 59.59 %.

Particular	Pre-Project Quintals/Hectares	Post-Project Quintals/Hectares	% change
Marginal Farmers	23.80	37.78	58.74
Small Farmers	24.40	38.86	59.26
Medium Farmers	24.59	38.14	55.10
Large Farmers	25.13	40.13	59.69
Average Yield	24.48	38.73	58.20

 Table: 4.10 Yield of Nachani (Composite)



Figure: 4.10 Change in Yield of Nachani (Composite)

Source: Based on field work data.

The scenario regarding to the yield of sugarcane cash crop is presented in table 4.11 that is observed that in pre project period the average yield of this crop was considerably low i.e. 54.82 tons per ha. Among the categories of farmers, small farmers were producing largest yield i.e. about 57 tons followed by medium, large and marginal farmers. Profoundly sugarcane is a perennial crop and without perennial irrigation it is very difficult to obtain desired yield, therefore due to the construction of irrigation project in this region, the production of this crop is significantly increased. The average yield of sugarcane is reached up to 77 tons per hectare in post project period. Among the categories of farmers, large farmers are obtaining 83.03 tonss i.e. highest among the farmers. The obtained growth in the yield of this crop in post project is concerned, on an average about 41% change is observed. The maximum change is occurred in the yield of marginal farmers i.e. 59.59 %.

Particular	Pre-Project Tons/Hectares	Post-Project Tons/Hectares	% change
Marginal Farmers	49.08	73.28	49.31
Small Farmers	57.21	75.03	31.15
Medium Farmers	56.88	78.02	37.17
Large Farmers	56.09	83.03	48.03
Average Yield	54.82	77.34	41.09

Table:4.11 Yield of Sugarcane (Composite)



Figure: 4.11 Change in Yield of Sugarcane (Composite)

The situation regarding to the yield of rabbi rice crop is enumerated in table 4.12. It is shown that in pre project period the farmers were obtain 24.48 quintals per ha of rabbi rice. It is observed that among the categories of farmers, large farmers had got largest yield i.e. about 25 quintals followed by medium, small and marginal farmers. It is fact that rabbi rice required period water supply in their growing period, therefore irrigation project provides ground to enhance yield of this crop in this region, production. The average yield of rabbi rice is reached up to 38.73 quintals per hectare in post project period. Among the categories of farmers, large farmers are obtaining 40 quintals i.e. highest among the farmers. The occurred growth in the yield of this crop in post project is concerned, on an average about 58% change is observed. The maximum change is observed in the yield of large farmers i.e. 59.69 %.

Particular	Pre-Project Quintals/Hectares	Post-Project Quintals/Hectares	% change
Marginal Farmers	23.80	37.78	58.74
Small Farmers	24.40	38.86	59.26
Medium Farmers	24.59	38.14	55.10
Large Farmers	25.13	40.13	59.69
Average Yield	24.48	38.73	58.20

Table:4.12 Yield of Rabbi rice (Composite)

Source: Based on field work data.



Figure: 4.12 Change in Yield of Rabbi Rice (Composite)

Source: Based on field work data.

The table 4.13 describes the yield of groundnut in selected sample villages. It is evaluated that in pre project period the farmers were had 14.50 quintals per ha yield of groundnut. It is observed that among the types of farmers, large farmers had pursued largest yield i.e. about 15 quintals followed by medium, small and marginal farmers. In post project period due to the availability of water for irrigation, the yield of this crop is increased. The average yield of groundnut is reached up to 33.11 quintals per hectare in post project period. Among the farmers, large farmers are having yield of 35.56 quintals i.e. maximum among the farmers

As far as growth in the yield of this crop is concerned, about 121% yield has been increased in post project period.

Particular	Pre-Project Quintals/Hectares	Post-Project Quintals/Hectares	% change
Marginal Farmers	13.79	30.70	122.63
Small Farmers	13.98	32.84	134.91
Medium Farmers	14.83	33.32	124.68
Large Farmers	15.38	35.56	131.21
Average Yield	14.50	33.11	121.29

Table:4.13 Yield of Groundnut (Composite)



Figure: 4.13 Change in Yield of Groundnut (Composite)

Source: Based on field work data.

Above table 4.14 stressing the yield of sunflower oil seeds in sample villages located in command area of Tulasi irrigation project. It is shown that in pre project period the farmers were totally ignored this crop. With the introduction of irrigation through Tulasi irrigation project, farmers are turning towards cultivation of this crop. The average yield of sunflower is about 15.28 quintals per hectare in post project period. Among the categories of farmers, medium farmers are showing yield of 17.30 quintals i.e. greatest one, followed by large farmers (17.30 qu), marginal farmers (15.66 qu) and small farmers (10.73 qu) respectively.

Particular	Pre-Project Quintals/Hectares	Post-Project Quintals/Hectares	% change
Marginal Farmers	0.00	15.66	0.00
Small Farmers	0.00	10.73	0.00
Medium Farmers	0.00	17.41	0.00
Large Farmers	0.00	17.30	0.00
Average Yield	0.00	15.28	0.00

Table:4.14 Yield of Sunflower (Composite)



Figure: 4.14 Change in Yield of Sunflower (Composite)

Source: Based on field work data.

The table 4.15 is concerned to the yield of Jawar. It is shown that in pre project period the average yield of this crop was low i.e. 12.33 quintals. The highest yield of this crop was belonging to medium farmers and marginal farmers i.e. 15.66 quintals, followed by large and small farmers respectively. After the execution of irrigation project in this region, the yield of this crop is considerably increased. The average yield of Jawar becomes about 17 quintals per hectare in post project period. Among the categories of farmers, large farmers are showing 17.50 quintals i.e. highest yield. The per cent changes in the yield of this crop in post project is concerned, on an average about 37% change is observed. The maximum change is occurred in the yield of small farmers i.e. 93 %.

Particular	Pre-Project Quintals/Hectares	Post-Project Quintals/Hectares	% change
Marginal Farmers	15.66	17.00	8.56
Small Farmers	8.66	16.74	93.30
Medium Farmers	15.66	17.00	8.56
Large Farmers	9.33	17.50	87.57
Average Yield	12.33	16.97	37.66

Table: 4.15 Yield of Jawar (Composite)



Figure: 4.15 Change in Yield of Jawar (Composite)

Source: Based on field work data.

Table 4.16 is regarding to the yield of maize. It is observed that in pre project period the average yield of this crop was 9.88 quintals. The highest yield of this crop was belonging to medium, marginal and large farmers i.e. 10 quintals per hectares and small farmers were having 9.50 quintals. After the implementation of irrigation project in this region, the yield of this crop is slightly increased. The average yield of maize becomes about 12 quintals per hectare in post project period. Among the categories of farmers, large farmers are showing 12.2 quintals i.e. highest yield. The per cent changes in the yield of this crop in post project is concerned, on an average about 21.27% change is observed. The maximum change is occurred in the yield of small farmers i.e. 23.27%.

Particular	Pre-Project Quintals/Hectares	Post-Project Quintals/Hectares	% change
Marginal Farmers	10.00	12.00	20.00
Small Farmers	9.50	11.70	23.16
Medium Farmers	10.00	12.00	20.00
Large Farmers	10.00	12.20	22.00
Average Yield	9.88	11.98	21.27

Table:4.16 Yield of Maize (Composite)



Figure:4.16 Change in Yield of Maize (Composite)

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