

Chapter - 4

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ECONOMIC CHANGE AND IRRIGATION

- 4.1 Land Holding Pattern
- 4.2 Change in Cropping Pattern
- 4.3 Investment in Agriculture Inputs
 - 4.3.1 Use of Biochemical and Mechanised Inputs
- 4.4 Livestocks
 - 4.4.1 Income from Livestock
- 4.5 Non Farm Activities

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ECONOMIC CHANGE AND IRRIGATION

4.1 Land Holding Pattern

The availability of irrigation in agricultural sector brings about technological changes and thereby leads to improve the economic condition of farmers. In rural land is considered as main source of income.

Land holding pattern in the sample area shows the number of farmers across the various categories before the construction of dam and after the construction of dam.

Table No. 4.1
Classification of Farmers by Size of Owned Land

Categories	Construction of Dam	
	Before	After
Marginal farmers	13	27
Small farmers	19	27
Medium farmers	40	25
Big farmers	28	21

Source : Fieldwork

Table No. 4.1 shows that the number of marginal farmers increased after dam being constructed i. e. number increased from 13 to 27. Number of big farmers decreased after the construction of dam from 28 to 21. Number of medium farmers decreased tremendously after dam constructed from 40 to 25. Thus, after the construction of dam number of small and marginal farmers increased in the areas. Moreover,

total land was 889.30 acres before the construction of dam, which reduced to 631.89 acres after dam being constructed because large portion of land was used for dam. Consequently, some land has gone under the water, which in turn total land left for the cultivation was declined. Moreover, the construction of the dam caused subdivision and fragmentation of land. Before the dam, 37 farmers had not undertaken cultivation but after the construction, these farmers started cultivation. Moreover, the number of farmers holding the land upto $2\frac{1}{5}$ acres increased from 44 to 63 and number of farmers owning the land increased from $2\frac{1}{5}$ to 5 acres also increased from 14 to 26. Thus, there has been increased in number of marginal and small farmers in the area. However, number of big farmers owning land from 5 to $7\frac{1}{2}$ acres declined from 3 to 1. Thus, it was observed that small farmers including marginal ones who were not cultivated the land before the construction of dam, started to cultivate the land after the dam constructed because the availability of irrigation creates incentive in the minds of farmers to make use of land more commercially.

Consequently, area under cultivation increased from 140.74 to 158.96 acres, due to availability of irrigation facilities.

4.2 Changes in Cropping Pattern

Cropping pattern refers to the proportion of area under different crops at a point of time. A change in the cropping pattern means a change in the proportion of area under different crops. Cropping pattern is determined by natural factors like climate, soil conditions and rainfall etc.

It is observed from the table 4.1 that area under different crops declined after dam construction, which reduced from 889.5 acres to 671.89 acres. The important reason behind this is that the dam occupied some land.

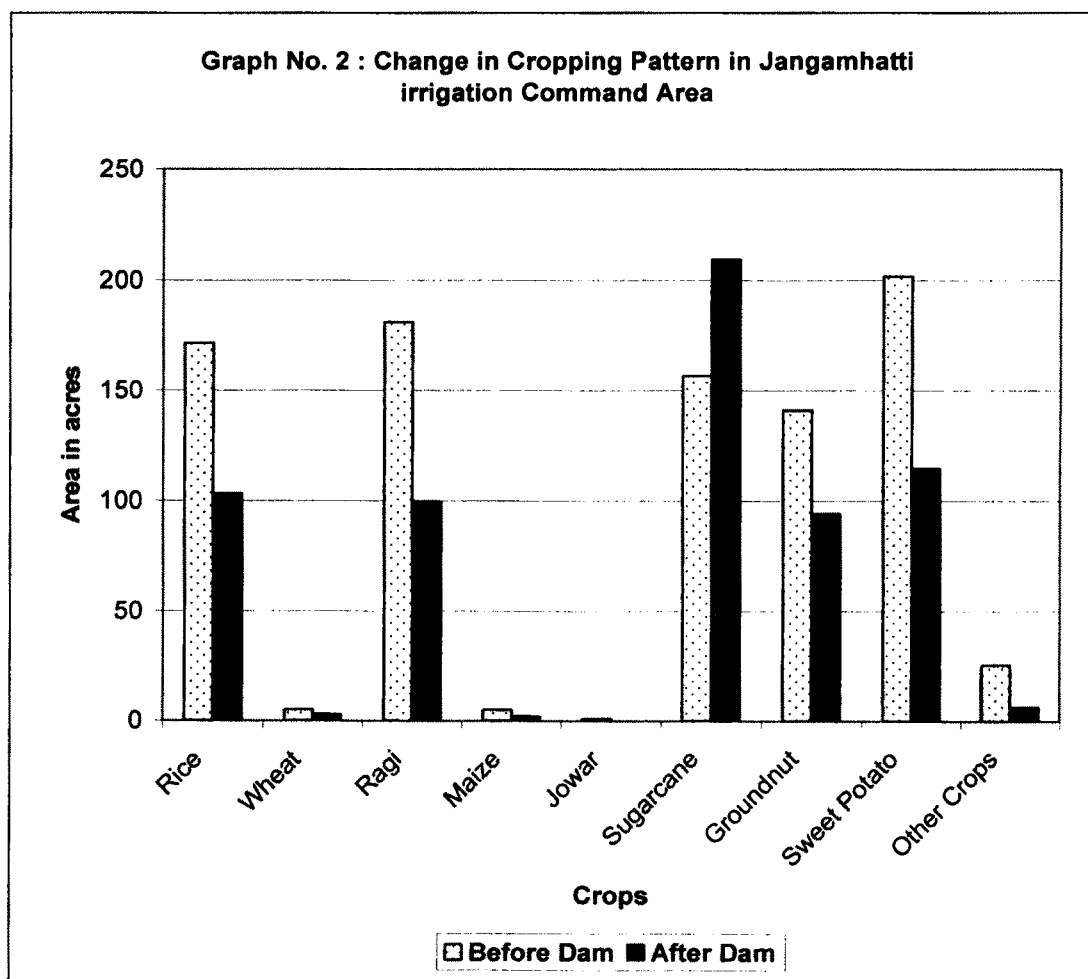
The area under cultivation of foodgrain declined from 363.53 acres to 207.68 acres. Area under rice crop declined from 171.43 acres to 103.15 acres. Area under ragi also decreased from 181.05 acres to 99.53 acres. The production of jowar is completely neglected by the farmers after dam. Thus, area under cultivation of rice, wheat, ragi, maize and jowar declined significantly. ✓

Due to the dam, irrigation facilities in the area increased remarkably. Consequently, area under sugarcane and other cash crops increased significantly. Area under cultivation of sugarcane increased from 156.62 acres to 209.25 acres, which occupied 50% of total area under cultivation of cash crops. The expansion of area under sugarcane occurred at the cost of other crops. Because in irrigated area, cultivators always keep in mind the relative profitability of each crop while allocating acreage under different crop. They prefer crops, which yield maximum income. Therefore, in the study area, sugarcane is dominant crop. ✓

Table No. 4.2
Change in Cropping Pattern in Jangamhatti Irrigation Command Area

Sr. No.	Crops	Before Dam		After Dam	
		Area (acres)	% of Area	Area (acres)	% of Area
A	Foodgrain				
1.	Rice	171.48	19.27	103.15	16.32
2.	Wheat	5	0.57	3	0.47
3.	Ragi	181.05	20.36	99.53	15.75
4.	Maize	5	0.57	2	0.31
5.	Jowar	1	0.11	-	-
	Total	363.53	40.88	207.68	32.86
B	Cash Crops				
6.	Sugarcane	156.62	17.60	209.25	33.11
7.	Groundnut	141.1	15.86	93.97	14.87
8.	Sweet Potato	201.6	22.66	114.62	18.13
	Total	499.32	56.12	417.84	66.12
C	Other Crops	25.75	2.89	6.37	1.0
	Grand Total	889.5	99.89	631.89	99.98

Source : Fieldwork



4.3 Investment in Agricultural Inputs

Out of total farmers, 62% farmers reported that they were benefited from the dam and 38% of farmers were not benefited and hence their economic conditions did not change. They were badly affected by the dam because they lost their land under the dam. It was observed from the table 4.2 that due to regular and uninterrupted supply of dam water causes increased in production and income of 62% farmers through technological changes that have been taking place in term of investment in agriculture input. In irrigated areas, traditional agricultural technology has been replaced by new one. Farmers are using modern inputs in their farms. However, there has no been complete change in agriculture. In fact, it is partial transformation in agriculture in the study area.

Table No. 4.2 showed that out of total farmers, majority of farmers i. e. 69% of farmers have made no investment in their land while only 31% of farmers invested in their land.

I have doubt about this finding!

Table No. 4.3

Response of Households about the Investment in agriculture

Sr. No.	Causes of Investment	Beneficiaries	Percentage
1	No investment	69	69.0
2	Irrigation	12	12.0
3	Tractors	8	8.0
4	Land leveling	2	2.0
5	Investment in land	1	1.0
6	Irrigation facility & tractors	8	8.0
	Total	100	100.0

Source: Fieldwork

The above table 4.2 shows that 12% of farmers invested in irrigation facility, 8% of farmers invested in purchasing tractors, 2% of farmers invested for land leveling, only 1% of farmers invested in purchasing of land and 8% of farmers opted for investment of irrigation and tractors.

Moreover, it was also observed that the farmers, those who have invested in agricultural inputs were concentrated in the range of Rs. one lakh to two lakh. Table No. 4.3 shows the classification of farmers on the basis of range of investment of irrigation facility and tractors.

Table No. 4.4
Actual Investment in Agriculture

(in Rs.)

Sr. No.	Actual Investment (Rs.)	Beneficiaries	Percentage
1	No investment	69	69.0
2	1 – 1,00,000	9	9.0
3	1,00,000 – 2,00,000	7	7.0
4	2,00,000 – 3,00,000	2	2.0
5	3,00,000 – 4,00,000	5	5.0
6	4,00,000 – 5,00,000	3	3.0
7	5,00,000 – 6,00,000	1	1.0
8	6,00,000 – 7,00,000	2	2.0
9	7,00,000 – 8,00,000	2	2.0
	Total	100	100.0

Source: Fieldwork

*It appears to be too high to
Kocher*

Thus, investment of 9% of farmers was upto Rs. 1,00,000, investment of 7% of farmers was between 1 to 2 lakh, and investment of 2% of farmers was between 2 to 3 lakh, investment of 5% of farmers was between 3 to 4 lakh. While investment of 3% of farmers was between

4 to 5 lakh, again investment of 1% of farmers was between 5 to 6 lakh and investment between 6 to 7 lakh and 7 to 8 lakh was made by 2% of farmers each in the study area.

Table No. 4.5
Perennial Water Supply for Agriculture

Sr. No.	Water Supply	Beneficiaries	Percentage
1	In adequate quantities	84	84.0
2	Not in adequate quantities	16	16.0
	Total	100	100.0

Source: Fieldwork

Irrigation facilities are of key important for agricultural development. It was observed that 84% of farmers got water supply for agriculture throughout the year. While 16% of farmers were not satisfied with the water supply. Because water supply was not made available in adequate quantities.

4.3.1 Use of Biochemical and Mechanised Inputs

The traditional agricultural practices are gradually being replaced by modern technology and farm practices in the region and a veritable revolution is taking place in this region.

Traditional agriculture relies heavily on indigenous inputs such as the use of organic manures, seeds, simple ploughs and other primitive agricultural tools, bullocks, etc. Modern technology, on the other hand, consists of chemical fertilizers, pesticides, improved varieties of seeds including hybrid seeds, agricultural machinery, extensive irrigation, use of diesel and electric power etc.

The new agricultural technology uses such resources like fertilizers, pesticides, agricultural machinery etc. which are produced outside the agricultural sector. As a result, industries supplying the modern farm inputs are growing at a rapid rate. Massive programmes of farm mechanization and irrigation have also led to an increase in the consumption of electricity and diesel in rural areas.

Availability of irrigation facilities promotes the use of biochemical and mechanised inputs in agriculture, thereby increase agricultural production, income through improvement in cropping pattern.

Use of Fertilizers

Application of chemical fertilizer in agriculture enhance yield of crops, thereby crop production. It was observed from Table No. 4.4 shows the classification of farmers on the basis of use of various type of fertilizers.

Table No. 4.6

Classification of Households on the basis of Use of Fertilizers

Sr. No.	Fertilizers	Beneficiary	Percentage
1	Organic	1	1.0
2	Chemical	4	4.0
3	Organic, chemical and compost	40	40.0
4	Chemical, compost	38	38.0
5	Organic, chemical	17	17.0
	Total	100	100.0

Source: Fieldwork

It was observed from table 4.4 that only organic fertilizers was used by 1% of farmers and chemical fertilizers was used by 4% of farmers, organic, chemical and compost fertilizer used commonly by 40% of farmers. Moreover, 38% of farmers used chemical and compost fertilizers, further 17% of farmers used organic and chemical fertilizers. Hence, in the region agricultural production have realised the significance of use of fertilizers. In fact, of the total households, it was noticed that nearly 98% farmers had technical knowledge of agricultural production, cropping pattern, scientific use of inputs and marketing of agricultural commodities.

Moreover, farmers also used various inputs like electric pumps, diesel engine, tractors, trailer etc. in agriculture. Along with modern inputs, farmers in the study areas also use other equipment for agriculture. These equipments are plough, iron bullock cart.

4.4 Livestocks

Animal husbandry has assumed a much broader role in overall economy than so far envisaged as an integral part of expanding and diversified agriculture. This sector currently accounts for over 25% of gross value of agricultural output. India's vast livestock population offers tremendous potential for meeting domestic demand for milk, egg, meat, wool etc. This sector has also begun to be regarded as a source of new employment, especially for marginal and small farmers and agricultural labourers by offering subsidiary occupation to supplement family income.

The significance of livestock sector in the region arises also because of its assistance to tackle the serious problems of unemployment and underemployment for weaker section in the region and for providing subsidiary occupation for income generation. It also plays a dominant role in dry land agriculture particularly in the semi arid and arid areas of the region. Animal husbandry and dairy development are being used as a poverty eradication measures i. e. to provide additional employment and increase family income of the rural poor.

Thus, the livestock sector plays an important role in the socio-economic development of the region.

Out of 100 farmers 49 farmers owned animal ¹ ranged from 1 to 3, 30 farmers had 4 to 6 animals and five had possessed animals more than 7.

Table No. 4.7

Classification of Farmers on the basis of Possession of Animals

Sr. No.	No. of Animals	Farmers	Percentage
1	No Animals	8	8.0
2	1 – 3	49	49.0
3	4 – 6	38	38.0
4	7 – 11	5	5.0
	Total	100	100.0

Source: Fieldwork

Moreover, it also observed that only ten farmers had cows and 71 farmers owned buffalows for the milk production. Thus, in this area cow buffalows are used for milk production. Because in the market the

price of buffalows milk is higher as compared to cows milk. Therefore, majority of farmers had owning buffalows rather than cows.

4.4.1 Income from Livestock

The 87% of farmers reported that they are earning income from the livestock, only 13% of farmers reported that they are not earning from livestock.

Table No. 4.8
Income from Livestock

Sr. No.	Income (per month in Rs.)	Beneficiaries
1	Upto Rs. 500/-	24
2	501 to 1000	43
3	1001 to 2000	14
4	2001 and above	6
	Total	87

Source: Fieldwork

Income from livestock is very important subsidiary source of income for the majority of farmers. Monthly income from animal was given in table No. 4.6. It was observed that 24 farmers earned income upto Rs. 500 from milk while 43 farmers earned income between Rs. 501 to Rs. 1000. Thus, 67% of farmers got income upto Rs. 1000, 14 farmers got income between Rs. 1001 to 2000 and 6 farmers earned income above Rs. 2001. Thus, level of income from dairy depends upon number of farmers they owned and yield of milk.

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4.5 Non-farm Activities

Beside agriculture and subsidiary occupation, some farmers in the region are engaged in non-farm activities. These non-farm activities include grocery shops, tailoring, transport, grinding mill and jobs in sugar factories and educational institutes. Out of 100 households, 13 households were engaged in non-farm activities.

Thus, as a result of involvement in agricultural activities, subsidiary occupation and non-farm activities, majority of farmers (42) have reported that their fixed asset has increased. Moreover, it was also reported that majority of the farmers were in the opinion that their children should not work in agriculture, rather they should start a dairy occupation or get involved in non-farm activities.