

**Socio-Economic Survey Of A Sample Of Villages
In The Command Area Of Bhima (Ujani) Project
In Solapur District, Maharashtra State:**

Bench Mark Survey 1978-79

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INTRODUCTION

At the instance of the Command Area Development Authority, Bhima (Ujani) Project, Government of Maharashtra, we took up a Bench-Mark Survey of a sample of villages from the command area of Ujani Project. The survey was carried out in the year 1978-79 in the Agro-Economic Research Centre of the Central Ministry of Agriculture and Irrigation, located at the Gokhale Institute of Politics and Economics, Pune.

This report on the Bench-Mark Survey consists of the following: Chapter I describes the Objectives, Scope and Methodology used for the survey as also organization and conduct of fieldwork, time taken for various phases of the study, financial provision for the Study, limitations of data. In Chapter II we have given a brief description of the Ujani Irrigation Project and its command area followed by general information about the selected villages, in Chapter III. The demographic, social and economic features of the families and population in the sample villages are presented in Chapter IV. The economic resources in land, livestock, agricultural tools and implements as also the cropping pattern, agricultural production and other data on agriculture based on the Family Schedule is presented in Chapter V. This is followed by an analysis of the data collected from a sample of 240 cultivators regarding agriculture from the 16 sample villages in Chapter VI. The data on income, indebtedness, levels of living, assets and capital expenditure in land improvements is presented in Chapter VII. In the end, in Chapter VIII we have presented in a summary form the contents of the report.

(11)

I take this opportunity to thank the CADA staff for their co-operation in making available the required information and financial assistance for the conduct of the survey. It would not have been possible for me to complete this project without the assistance of the Research Staff, Field Inspector and Field Investigators. I like to acknowledge the assistance rendered by Shri K.P. Deo and Shri M.B. Jagtap in particular. I also gratefully acknowledge the assistance rendered by the staff in the data processing section, in particular Miss Kumud Barve and Miss Ratna Jog and Shri S.M. Kulkarni, Stenographer. Without their assistance, it would have been impossible for me to complete the study within the stipulated period of about fifteen months from the commencement of fieldwork.

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Chapter IOBJECTIVES, SCOPE AND METHODOLOGY

The Command Area Development Authority (CADA) for Ehima (Ujani) Project approached the Institute vide its letter dated 23rd March 1976 with a request to conduct a socio-economic survey of the villages in the command area of Ujani project. The objective of the proposed study was "to understand the social change and agricultural economy in the command area of the project and have adequate description of villages as also the prevailing conditions in the command area with a view to plan for its well being after the irrigation potential is created." The proposed study if it were to be carried out as per the detailed objectives would have required a Farm Management Study of a sample of cultivators from the command area of the Project as also a socio-economic survey of families from a sample of villages and considerable amount of data processing and statistical analysis for the purposes of projections into the future. The necessary exercise would have taken about three years. However, during the course of discussions the officers of the CADA stated that a bench-mark survey was to be conducted so that if in future, after an interval of five to ten years, a repeat survey is conducted it should be possible to measure the socio-economic impact of the irrigation project on the population from the villages included in the project. We made it clear that a bench-mark survey is different from the proposed survey if it were to be carried out as per the detailed objectives indicated in the note the CADA had sent vide its letter dated 23rd March 1976. Besides we stated that if a survey was to be carried out for the purpose stated in the note referred to above, it would take enormous time and considerable amount

of planning the survey. The officers of the CADA reiterated that a Bench Mark Survey is all that is to be conducted. Hence we wrote to the Administrator, CADA, on 7th May 1977 that we will be able to carry out a Bench Mark Survey. Subsequently we submitted a detailed research proposal for the conduct of the Bench Mark Survey and indicated therein that we will be able to conduct the survey in the year 1977-78. However, there was delay in receiving financial sanction and as such it was taken up in the year 1978-79. In the following sections we describe the objectives and scope of the Bench Mark Survey, methodology for the conduct of the study, organisation and conduct of fieldwork and time taken for various stages of the Survey.

Objectives and Scope of the Survey

In the research proposal we submitted to the CADA, the objectives of the study were defined as "to conduct a Bench Mark Survey to collect data which will facilitate measurement, at a future date, of socio-economic change arising out of irrigation facilities in the project area."

In economic terms changes in the years to come will get reflected in the economic indicators such as increased area under irrigation, changes in cropping pattern, increase in employment in agriculture, productivity, use of various inputs in agriculture and changes in income. Changes in distribution would be reflected in indicators of concentration of income and wealth. Decrease in self-sufficiency would result in presumably greater trading and transport activity in the project area or in relation to change in outside units. Thus most change, when irrigation facilities from the Ujani Dam are accepted by the cultivators, is likely to be reflected in various indicators. Hence it was considered

necessary to conduct Bench Mark Survey which would lead to estimation during the repeat survey of the impact of the irrigation project on the economy. In view of this, during the Bench Mark Survey, we decided to collect data regarding socio-economic conditions of the population, land ownership and utilisation, cropping pattern, irrigated crops, production, major inputs, marketing of agricultural produce, capital expenditure on farm in the year prior to the survey, livestock and agricultural tools and implements, trading and other non-agricultural occupations, employment pattern, income and indebtedness and such other items in respect of families from the selected villages. Besides, data from village records in respect of the selected villages regarding land utilisation, cropping pattern and irrigated crops, livestock, agricultural tools and implements, wells (a) in use and (b) not in use as also information regarding marketing and other facilities, village cooperatives and other institutions was considered essential for the purpose of the Bench-Mark Survey.

In the following we describe the methodology we used for the purpose of the Bench-Mark Survey which is confined to the command area of the Ujani Project and in particular to a sample of 16 villages from the command area,

Methodology

For the Bench-Mark Survey we designed a Family Schedule (specimen appears at the end of the Chapter) to collect information from all the families in the sample villages regarding land owned, leased in and leased out, land cultivated, land irrigated, cropping pattern, inventory of plough cattle and milch cattle, agricultural tools and implements and assets owned by the family. The schedule also sought information regarding non-agricultural occupation pursued by the family, if any, and demographic,

social and economic details of each of the family members, total family income during 1977-78, indebtedness, ownership of certain household goods to know about the levels of living and some questions to find out if the cultivators were aware of and had given thought to utilization of water for irrigation purposes that may become available from Ujani dam.

We also designed an Agricultural Enterprise Schedule (specimen given at the end of the Chapter) to be canvassed for a sample of 15 cultivators from each of the sample villages to note information for the year 1977-78 about the various inputs, cultivation practices, expenditure on farm enterprise, agricultural production and its disposal.

Besides, as stated earlier we decided to note information from the village records regarding land utilization, cropping pattern, livestock, agricultural tools and implements, etc. together with general information about the selected villages.

Selection of Villages

The CADA along with its letter dated 23rd March 1977 sent us a list of villages in the command area. It contained 193 villages from Madha, Malshiras, Mangalwedha, Mohel, Pandharpur and North Solapur talukas from Solapur district. We had first thought of selecting a 10 per cent sample of large, medium and small villages, from the command area by classifying the villages in three groups, namely, the villages located (a) nearer the dam, (b) in the central portion of the canal and (c) the villages at the tail-end of the canal as supply of water for irrigation and impact of irrigation facilities created by the dam may differ in the three areas. However, the CADA Chief stated that the supply of water will be about

the same everywhere upto the tail-end of the canal system. Hence we decided to take a ten per cent random sample of villages as described later in this paragraph.

We obtained a map of the command area wherein the villages in the command area were shown. We also tried to identify the 193 villages from the District Census Handbook, 1971 for Solapur district. As we were trying to identify the villages in the command area from the map and the Census Handbook we found that certain villages which were shown in the list did not appear on the map within the command area, whereas certain villages which did not appear in the list appeared on the map within the command area. The names, as they appeared in the list in respect of some of the villages, could not be found in the District Census Handbook. Hence we approached the CADA office at Pune to obtain a correct list. We were, however, told that such a list was not locally available and could be obtained from the Superintending Engineers at Solapur, Mangalvedha, Bhimanagar and Pandharpur. We, therefore, sent our staff towards the middle of April 1978 to obtain the lists of villages in the command area under the jurisdiction of each of the Superintending Engineers. During the visit to their offices by our staff we were given a list and were told that the list was more or less final but there was a possibility of some additional villages being included in the Project as well as a few of the villages already appearing in the list being dropped from the Project. Taking into consideration the time limit for the conduct of the Survey, we could not afford to wait until the final list was available. With the help of the lists of villages obtained from the offices of the Superintending Engineers we arranged all the villages in

the Project area in a descending order of their geographical area. The total geographical area of about 200 villages in the Project came to about 6 lakh acres. We then made three groups of villages in the Project, each consisting approximately one-third of the total geographical area and then proceeded to select by random selection method 10 per cent of the villages in each of the three groups. We obtained a sample of 16 villages.

When the fieldwork was in progress it was found that in three of the villages selected in the first instance, namely, Borgaon, Tandulwadi and Wagholi from Malshiras taluka, the cultivators were either receiving water from the Mira Canal System for irrigation purposes or were not likely to receive water for irrigation purposes from the Ujani Project. We, therefore, selected three other villages by the same method to substitute the three villages selected earlier. In Table No. 1.1 is given a list of the 16 sample villages where we finally carried out fieldwork for the Benchmark Survey. We have given some background information about the sample villages in the following Chapter.

Sample Survey of Cultivators Regarding Agriculture :
Selection of Cultivating Families

For the purpose of canvassing the Agricultural Enterprise Schedule, we adopted the following method. After canvassing the Family Schedule to all the families in the sample villages we noted the area cultivated by the agricultural families and arranged these families in a descending order of the area of their cultivated holding. The list was then divided into fifteen equal groups and from each group one family was randomly selected to give a sample of 15 cultivating families per sample village

Table No. 1.1 : Villages Selected for the Bench Mark Survey of the Villages in the Command Area of Ujani Project

Sr. No.	Village	Taluka
1.	Chandaj	Madha
2.	Shevare	"
3.	Umra Velapur	Malshiras
4.	Khomnal	Mangalwedha
5.	Marapur	"
6.	Bhoira	Mohel
7.	Shingoli	"
8.	Takali Sikandar	"
9.	Belati	North Solapur
10.	Pakani	"
11.	Adhiv	Pandharpur
12.	Badalkot	"
13.	Bhose	"
14.	Khed Bhalwani	"
15.	Mendhapur	"
16.	Shegaon	"

and a total sample of 240 cultivators from the 16 sample villages.

Fieldstaff and Fieldwork

For the purposes of fieldwork, we recruited to work as Field Investigators agricultural graduates, mostly from Solapur district who were familiar with the region to be surveyed. We wrote to the Mahatma Phule Krishi Vidyapeeth, Rahuri, to suggest names of a few agricultural graduates who may be interested in working as field investigators. We selected two agricultural graduates from out of the

list sent by the Vidyapeeth and two more from outside the list and gave them about a week's training at the headquarters. They were introduced to the fieldwork by the Field Inspector and Research Assistant. They were given detailed instructions about the manner in which information was to be collected by canvassing the Family Schedule and the Agricultural Enterprise Schedule. We decided to keep two Field Investigators in smaller villages and four investigators in bigger villages for the purpose of fieldwork. They were asked to check each other's work, particularly the schedules filled in by them to note and make good deficiencies, if any, and to obtain consistent information. The work of the Field Investigators was supervised and checked during their periodic visits to the sample villages by the Field Inspector, Research Assistant and the Senior Staff from the Institute.

Though the CADA informed us vide its letter dated 8th February 1978 that we should take up the work of the Bench-mark Survey on priority basis we could not start the work immediately. We needed at least about a month for preparatory work. Prior to that we needed some time to deal with the other work on hand. We took up the preparatory work from the beginning of April 1978, finalised the plan of investigation, designed the schedules and got the schedules printed by 15th April 1978. We also selected persons for carrying out fieldwork. As we were going through the preparatory work, the CADA informed us on telephone in the third week of April 1978 not to start the fieldwork until further communication. On 3rd May 1978 we were orally informed that we may go ahead with the conduct of the survey. Thereafter we asked the persons selected as field investigators to join the Institute and gave them training. This resulted in delaying the

commencement of fieldwork until the last week of May 1978.

The investigators accompanied by a Research Assistant commenced fieldwork in Pandharpur taluka from 24th May 1978. Since the agricultural graduates were temporarily appointed they were all the time looking for a better job elsewhere and some of them left our work after they found a job. In the process we had to appoint substitute when any of the investigators resigned and left the work. The fieldwork which mainly included filling in the Family Schedules for all the families and the Agricultural Enterprise Schedule for a sample of 15 cultivators was completed in the 16 villages by December 1978.

While we were processing the data and preparing an interim note we discovered in March 1979 that in one of the villages, namely, Mendhapur from Pandharpur Taluka, our fieldstaff had filled in only 329 family schedules. The 1971 Population Census data for village Mendhapur showed that there were 789 households in the year 1971 in the village. On enquiry our fieldstaff stated that after the 1971 Census, two hamlets which then formed a part of the village Mendhapur were now considered for administrative purposes as separate villages. Hence while canvassing the family schedule they confined only to those families which resided in Mendhapur and not in the two other hamlets. We decided to make good this omission and sent the field investigators again to the village to canvass the Family Schedule to all the families which stayed in Mendhapur of 1971. Finally, we ended up our fieldwork in Mendhapur in the last week of April 1979 with a tally of 809 families as against 789 households as per the 1971 Population Census. This unexpected development delayed the mechanical processing and tabu-

lation of data as also the drafting of the report by a couple of months; but we considered it necessary and unavoidable. The total number of Family Schedules we canvassed in 16 villages come to about 92 per cent of the 4003 households in these villages as per the 1971 Population Census.

We may mention here that in this investigation we appointed B.Sc.s in Agriculture to work as Field Investigators, hoping that they would prove better than the Arts or Commerce graduates, particularly in view of their knowledge of agriculture and familiarity with rural areas. Unfortunately, our experience was to the contrary. The Agricultural Graduates we had appointed as field investigators had a good Second Class or a First Class but most of them were unable to record intelligently replies to the questions in the Family Schedule and in the Agricultural Enterprise Schedule in correct, legible Marathi language. We found that they exhibited lesser understanding on their part of the socio-economic conditions and their performance did not come upto the performance of other Arts and Commerce graduates who were working as field investigators in other studies the Institute had taken up in rural areas.

Data Processing and Report Writing

We tabulated by hand the data collected in 240 Agricultural Enterprise Schedules in 16 villages. As regards the Family Schedule we used the ICL 40 Column (Punch Card) Unit Card System. We designed a suitable code design divided into twelve sub-card types to transfer the data on punched cards. While the fieldwork was more than half way through, we took up coding work and punching and verification of cards. In all we prepared about

43,000 punched cards. The machine tabulation was carried out mainly between May and September 1979. The drafting of the report was taken up in June and completed by the middle of September 1979. Thus the entire work of the study as we had originally visualised was completed within about fifteen months from the commencement of fieldwork.

Financial Provision

The CADA had sanctioned a sum of Rs. 50,000/- for the Bench-Mark Survey. As stated earlier we carried out the Survey in the Agro-Economic Research Centre of the Ministry of Agriculture and Irrigation, Government of India, located at the Gokhale Institute of Political and Economics, Pune. We utilised the entire sum of Rs. 50,000/- for the purpose of the Survey. In addition, we had to draw to a certain extent on the resources of the Agro-Economic Research Centre to complete the study.

Limitations of the Data : Population and Area Cultivated as per the Bench-Mark Survey

Before proceeding to describe and analyse the data collected during the survey we like to indicate the coverage of the families in the sample villages during the course of fieldwork vis-a-vis the Population Censuses of 1961 and 1971. It was noted that we covered during the Survey 3,705 households which comes to about 92 per cent of the households reported in the 1971 Population Census in these villages. We may also consider the coverage during the Survey as against the number of households that were reported in the 1961 Population Census. In Table No. 1.2 we have given the 1951, 1961 and 1971 Census Population, the number of households as per the 1961 and 1971 Censuses and the number of families and population therein, as per the Survey in the sample

Table No. 1.2 : 1951, 1961 and 1971 population as per the Census, No. of Households : 1961 and 1971 Censuses and No. of families and Population as per the Bench-Mark Survey - 1978-79 in the Sample Villages

Taluka and Village	Census Population			Households in 1961 Census	Households in 1971 Census	Bench-Mark Survey	
	1951	1961	1971			No. of families	No. of persons
<u>Madha Taluka</u>							
1. Chandaj	628	906	1,155	128	158	123	819
2. Shevare	744	896	1,172	115	212	205	1,094
<u>Malshiras Taluka</u>							
3. Ura Velapur	689	863	864	149	144	155	797
<u>Mangalwedha Taluka</u>							
4. Khomnal	496	655	896	110	134	132	770
5. Marapur	854	1,085	1,238	185	286	211	1,274
<u>Mohol Taluka</u>							
6. Bheira	1,037	1,209	1,337	210	226	209	1,237
7. Shingoli	568	606	665	105	120	106	547
8. Takali Sikandar	1,042	1,052	1,222	180	227	204	1,241
<u>North Solapur Taluka</u>							
9. Belati	923	1,045	1,299	203	247	214	1,155
10. Pakani	1,264	1,460	1,789	276	329	215	1,279
<u>Pandharpur Taluka</u>							
11. Adhiv	788	1,003	1,112	191	194	191	1,093
12. Badalkot	176	231	489	42	59	86	520
13. Bhose	2,609	3,285	3,678	497	587	547	3,115
14. Khed Bhalwani	784	945	1,052	183	182	145	1,008
15. Mendhapur	3,363	4,228	4,828	1,975	789	809	4,539
16. Shegaon	537	728	861	127	139	153	811
Total for 16 villages	16,502	20,197	23,657	4,676	4,033	3,705	21,299

villages. We find that there were 4,676 households in 1961 in the sample villages. That is, between the two Censuses, 1961 and 1971, the number of households had declined by about 14 per cent. This did not seem plausible and could be due to possible misreporting in the case of village Mendhapur where the number of households in 1961 was reported as 1975 and less than half of it in 1971, that is, 789 households. The 1975 families in the Mendhapur had 4,228 persons in 1961 giving an average family size of 2.14 persons per family as against the average of 5.54 persons per family in the sample villages (excluding Mendhapur). Hence the number of households reported in the 1961 Census in respect of Mendhapur is considered as incorrect. In the 1971 Census Ura Velapur showed a decline of 5 families and Khed Bhalwani a decline of one family over the 1961 figures. The rest of the sample villages showed increase in the number of households in 1971 over 1961, the lowest increase being 2 per cent in the case of Adhiv and the maximum increase being 84 per cent in respect of Shevare. We could not trace any reasons for the abnormal reporting at Mendhapur and Shevare.

In four out of the 16 villages, namely Ura Velapur, Badalkot, Mendhapur and Shegaon, the number of households reported during the Survey was larger by about 6.5 per cent than the number of households in the 1971 Census. In other villages, the coverage during the Survey was less as compared to the 1971 households; it was about 86 per cent and varied between 98 per cent in Khonnal and Shevare and 65 per cent in the case of Pakani which is on the outskirts of the district headquarter, Solapur.

In the instructions issued to the field investigators as also during their periodic visits, the supervisory staff repeatedly asked the investigators to cover for canvassing the Family Schedule the sample villages with the help of 1971 Census list or the list of voters, if any, if available in the village. This would have enabled the investigators to make sure that they did not miss any of the families which were listed either in the 1971 Census or in the voters list. The field investigators stated that in most of the sample villages they could not obtain any such list. They also stated that some resident families had migrated elsewhere to work on the canal construction work and as such were not to be found in the sample villages at the time of the Survey. There is also a possibility that they might have missed some families residing on the outskirts or in remote hamlets of the sample villages. Village, Pakani and Belati are situated not far from Solapur city and many families went to the city for work. Hence our fieldstaff could not contact such families. It is unfortunate that all this resulted, as we have earlier noted, in lower coverage than what it should have been.

Next we consider the area under crops reported by the families in the sample villages vis-a-vis the area reported in the village records. It may be mentioned here that though we wanted to obtain the village records for the year 1977-78, which was the reference year of the Survey, the 1977-78 figures were not available in respect of the four villages from Malshiras and Mohol talukas and we had to be content with the records of 1975-76 crop acreage for these four villages.

In Table No. 1.3 we have shown the area under crops in the sample villages as reported in 1) the village

Table No. 1.1 : Gross Cropped Area as per the Village Records and the Bench-Mark Survey

Taluka	Village	Gross Cropped Area (in hectares) as per		
		the Village Records (1)	the Bench-Mark Survey (2)	(2) as % of (1) (3)
Madha	Chandaj	943.86	569.36	60.3
"	Shevare	867.19	618.32	71.3
Malshiras	Umra Velapur	902.43	416.68	46.2
Mangal-wedha	Khomnal	852.20	526.84	61.8
"	Marapur	797.66	981.20	123.00
Mohel	Bheira	1,424.85	1,037.84	72.8
"	Shingoli	328.17	312.40	95.2
"	Takali Sikan-dar	1,020.03	630.84	61.8
North Solapur	Belati	735.72	523.16	71.2
"	Pakani	968.12	847.64	87.6
Pandharpur	Adhiv	743.95	538.24	72.3
"	Badalkot	445.50	215.52	48.4
"	Bhose	3,113.54	1,320.80	42.4
"	Khed Bhalwani	572.65	699.28	122.1
"	Mandhapur	2,583.60	2,597.30	100.5
"	Shegaon	618.56	281.40	45.5
Total for 16 villages		16,918.03	12,117.68	71.6

records and 2) by the families during the Survey. It will be noted from the Table that the area under crops reported during the Survey came to about 72 per cent of the total area under crops in the sample villages as noted from the village records. As in the case of the coverage

of families in the sample villages, here also we found that in two villages the Survey figures exceeded those reported in the village records by about 23 per cent. At the other extreme, in four villages the area under crops reported during the Survey came to about 40 to 48 per cent of the area reported in the village records. Assuming that the village records are accurate the under-reporting during our Survey could be due to various reasons. Firstly, it could be due to omission of some families while canvassing the Family Schedule. Secondly, it could be due to inability of the cultivators to report the exact area. Thirdly, some of the cultivators from the villages adjoining the sample villages owned and cultivated land in the sample villages. Such cases had no opportunity of being included in the survey data. It could also be due to the fact that the year 1977-78 was not a particularly good agricultural year and in some of the villages the area cropped during 1977-78 must have been lower than what it is in a normal year.

Hence while considering the findings of the Benchmark Survey presented in the following chapters it has to be borne in mind that the number of families covered during the Survey formed about 92 per cent of the households reported in the 1971 Census and the area under crops reported by the families from the sample villages formed about 72 per cent of the area under crops shown in the village records.

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Bench-Mark Survey of Villages from the Command Area
of Bhima (Ujani) Project

(1) Family Schedule

1. Village	4. Name of the Head of Family (H.F.)	7. Investigator
2. Taluka	5. Sex	8. Supervisor
3. Serial No.	6. Caste-Religion	9. Date

Family Members	1	2
	3	4
	5	6

Name

Sex

Age

Relation with the H.F.

If Educand, in which class?

If non-educand, education
completed

If a non-earner, reasons
for not-earning

If earner, Main Occupation
income therefrom

First Subsidiary occupation
Income therefrom

Second Subsidiary Occupation
Income therefrom

If temporarily migrated during
the last twelve months,

Which place? Distance

In which season?

For how many days?

For what?

Type of work done

Earnings (cash) brought home

Grain and commodities
brought home.

II. Land owned, leased out and leased in (1977-78)
area to be noted from village records

Type	In the village	In other villages	Which vill- age?	Cash & share- rent paid	Cash & share- rent received
1. Owned land					
2. Of which					
a) Leased out on cash rent					
b) Leased out on share-rent					
c) Owner cultivated					
3. Leased in on cash rent					
4. Leased in on share-rent					
5. Total cultivated land (2a + 3 + 4)					
(5) Of which -	Permanent fallow	Current fallow	Irrigated	Dry	

III. Area irrigated in 1977-78 (in acres & gunthas) according to source of irrigation

Well irrigated by			Lift	Canal	Other source	Total irri- gated area
Diesel pump	Electric motor and pump	Leather or other water lift				

IV. Main Crop - Area, production and sales during 1977-78.

Crop	Irrigated area	Dry area	Production		Sales	
			Quantity	Rs.	Quantity	Place of sale
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
Total						

V. Improved varieties of seed, chemical fertilizers and insecticides and pesticides used during 1977-78

Use	Seed and feedings purchased	Chemical fertilizers	Insecticides and pesticides
-----	-----------------------------	----------------------	-----------------------------

- (1) For which crop
 (2) Which brand/mixture etc.
 (3) Purchases during the year (in Rs.)

VI. Some Household Goods

Type	No.	Type	No.
Table		Alarm clock	
Chair		Wrist watch	
Cupboard		Radio-Transistor	
Bed		Sewing machine	
Stove		Bicycle	
Lantern		Motor-cycle	
Petromax		Jeep	
		Electricity	

VII. Agricultural Implements and Livestock (1977-78)

Type	No.	Type	No.	Type	No.
Iron plough		Water-wheel (Iron)		Plough cattle: bullocks	
Wooden plough		Bullock-driven water-lift		Plough cattle: He-buffaloes	
Small wooden plough		Cart with two bullocks		Cows	
Big Harrow		Cart with one bullock		Calves	
Small Harrow large size		Horse driven cart		She-buffaloes	
Seed-drill large size		Boiling pan and other equipment for Gur Making		Young ones of she-buffaloes	
Seed-drill small size		Tractor		Goat	
Ree		Diesel Engine		She Goats and young stock	
Small-ree		Electric Pump		Sheep	
Leather-water-lifts				Poultry	

VIII. Non-Agricultural Occupation

- | | |
|-----------------------------------|----------------------------|
| (1) Occupation -
its nature | (5) Places of
purchases |
| (2) No. of employees | (6) Places of sale |
| (3) Products
manufactured/sold | (7) Through whom? |
| (4) Annual turnover Rs. | (8) Baluta receipts |

IX. Amount due to you and due to others by you

<u>Amount receivable</u>		<u>Amount payable</u>	
From whom?	Rs.	To whom?	Rs.

- 1.
- 2.
- 3.

X. Income of the family in 1977-78 (in Rs.)

A	Rs.	B	Rs.	C	Rs.
(1) Value of total agricultural produce (From IV)		(5) Non-agricul- tural occupa- tion		(11) Cash rent	
(2) Receipts from livestock products, milk, manure, etc.		(6) Wages		(12) Share rent	
(3) Eggs, wool, etc.		(7) Salary		(13) House rent	
(4) Vegetables grown in the kitchen-garden, fruits		(8) Cart-rent		(14) Godown rent	
		(9) Machine rent		(15) Pension	
		(10) Sale of water for irrigation		(16) Remittances	
		(10a) Other rent		(17) Other income	

Total (1) to (4)	Total (5) to (10a)	Total (11) to (17)
------------------	--------------------	--------------------

Total (A+B+C)

Has any of the family members
migrated permanently? If so, state

Name

Relation with the H.F.

Remittances in cash and
in kind (cloth, clothes,
feedgrains etc.) sent by
him during 1977-78

II. Land and other assets - A. Increase-decrease (Purchases, sales)
in 1977-78

	As on the date of visit of the investigator		Increase	Decrease	Reason
	No.	Rs.	Rs.	Rs.	
(1) Land					
(2) Residential house					
(3) Cattle shed					
(4) Shares					
(5) Deposits					
(6) Govt. securities					
(7) Amount insured and type of insurance					
(8) For non-agricultural occupation					
(9) Other					
Total					

B. Improvements during 1977-78

	Total expenditure	Value of inputs of material (including transportation)	Wages paid	Area operated for the improvement
	Rs.	Rs.	Rs.	
(10) Bringing fallow land under cultivation				
(11) Levelling & bunding				
(12) Constructing channel for canal water				
(13) Digging and constructing new wells				
(14) Repairs to old wells				
(15) Laying new orchards				
(16) Adding to irrigated acreage				
(17) Repairs to cattle sheds & sheds on the farm				
(18) Repairs etc. to residential house				
(19) Diesel Engine and Pump				
(20) Electric motor and Pump				
(21) Other expenses on improvements				
Total				

1. If you get water supply from Ujani Dam how much of your land will be brought under irrigation?

2. Which crops will you raise on irrigated land?

<u>Kharif</u>		<u>Rabi</u>		<u>Perennial</u>	
Crop	Area in acres	Crop	Area in acres	Crop	Area in acres

- 1.
- 2.
- 3.

3. What additional expenditure on land improvements or other items will have to be incurred to bring the land under irrigation?

Total	Item of Expenditure	Estimated Expenditure (Rs.)
-------	---------------------	-----------------------------

- 1.
- 2.
- 3.

4. How much of this requirement will be met from what you may get from the Government?

How much by borrowing?

How much from your own funds?

5. What will be the increase in current expenditure on agriculture due to cultivation of irrigated crops? How will you meet the additional expenditure?

6. You can irrigate more area if you take other crops instead of sugarcane. Give reasons for not taking other crops.

- (1) Because your total land holding is small Sugarcane cultivation will be profitable
- (2) Sugarcane crop gives better returns
- (3) Sugarcane is free from pests and diseases
- (4) Other reasons

7. Is there a well on your farm?

If in use, how many months in a year do you have enough water?

If not in use, is it repairable?

How much additional land will it irrigate, if repaired?

How much will the repairs cost?

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Bench Mark Survey of Villages from the Command Area
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1978-79

(2) Agricultural Enterprise Schedule

1. Village, Taluka	1. General Family Schedule No.	Investigator
2. Name of the Head of Family	2. Agricultural Enterprise Schedule No.	Supervisor
		Date

Expenditure which cannot be allotted cropwise	Amount Rs. Ps.
---	-------------------

1. Land Revenue paid on land owned
2. Land Revenue paid on land leased in
3. Rent paid for land leased in on cash/share rent
4. Permanent Farm Servants
5. Water-Cess
6. Wages paid from time to time - (a) In cash
(b) In kind (value of
products in Rs.)
7. Rent for Bullock Carts
8. Rent for Agricultural Tools and Implements
9. Rent for plough cattle (Bullocks and He-buffaloes)
10. Rent for Oil Engine
11. Fuel for Oil Engine
12. Repairs to Agricultural Tools and Implements
13. Expenditure on fencing
14. Baluta and Charity from Agricultural Produce
15. Other expenditure not allotable crop-wise

From crop-wise Expenditure	Amount Rs.
----------------------------	---------------

1. Seed-Seedlings
2. Manure
3. Chemical Fertilizers
4. Insecticides and Pesticides
5. Wages
6. Other expenses

Total Expenditure

Receipts

Rs.

-
1. Value of Agricultural Produce
 2. Income from Livestock
 3. Contribution of land-lord
 - (1) Seed-seedlings
 - (2) Manure
 - (3) Wages
 - (4) Other contribution
 - (5) Total
 4. Other Receipts
-

Total Receipts

 Agricultural Produce sold between 1st April 1977 and 31st March 1978

	1	2	3	4	5	6
--	---	---	---	---	---	---

1. Name of the product
(Grain, Fedder, etc.)
2. Quantity sold
3. Sale proceeds (in Rs.)
4. Month of sale
5. Place of sale
6. To whom?
7. Through whom?
8. How did you transport the goods for sale?
9. Expenditure on sale (in Rs.)
 - (1) Bags
 - (2) Filling charges
 - (3) Transport
 - (4) Octroi, etc.
 - (5) Commission, etc.
 - (6) Godown rent
 Total Expenditure
10. Net Sale Proceeds (in Rs.)

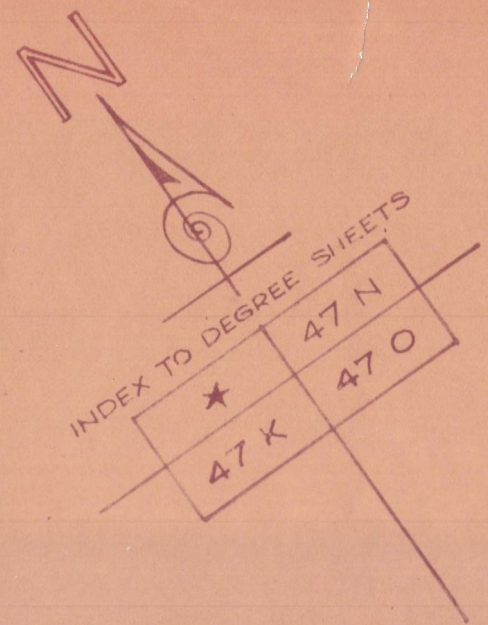
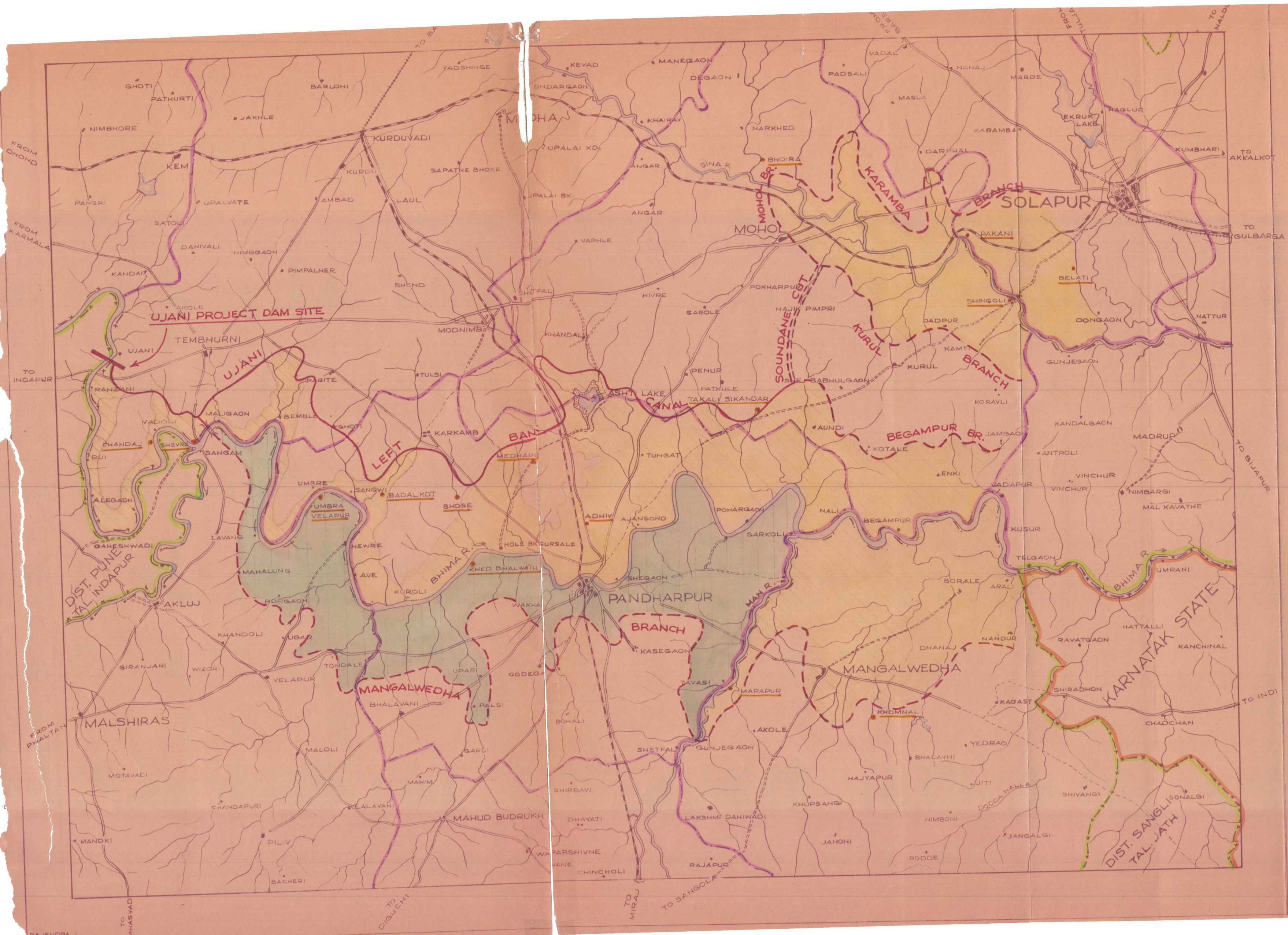
Main Crop : Area	Mixed Crop : Area	Proportion of the Mixture	Irrigated/Dry	Variety of the Main Crop

Inputs of Material			Quantity	Rs.

Seed - Farm preserved				
Seed - Purchased				
Seed for the mixed crop, if any				
Farm-yard Manure (No. of carts)				
Manure purchased (No. of carts)				
Which Chemical Fertilizers?				
Quantity and Price				
Insecticides and Pesticides				
Other Expenditure				
Main Crop : Produce				
Mixed Crop: Produce				
Fodder				

Disposal of Agricultural Produce : Given to				
Landlord		Baluts	Wages	Charity
Quantity	Rs.	Quantity	Rs.	Quantity
		Rs.		Rs.

Input of Labour	Area operated in acres & gunthas	Man-days		Female days		Wages paid in kind		
		Total	Of which hired	Total	Of which hired	Cash Rs.	Commodity or grain	Quantity Rs.
1st Ploughing								
2nd Ploughing								
Manure and its transport								
Spreading manure								
1st harrowing								
2nd harrowing								
Sowing/Planting seedlings								
Chemical Fertilisers and transport thereof								
Application of Chemical Fertilisers								
Hoeing								
1st weeding								
2nd weeding								
No. of waterings								
Watching the crop								
Main crop; harvesting								
Mixed crop : harvesting								
Main crop : processing for marketing/ consumption								
Mixed crop: processing for marketing/ consumption								
Total Expenditure								

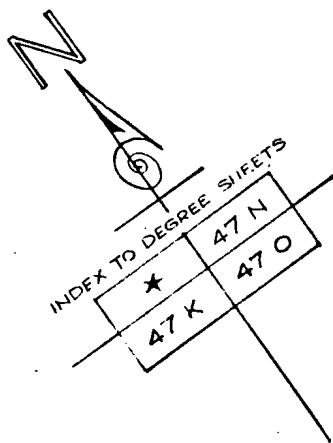


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








- 1 DAM SITE ————
- 2 PROPOSED CANAL ALIGNMENT MAIN ————
BRANCH ————
- 3 COMMANDED AREA ————
- 4 EXISTING IRRIGATION TANKS ————
- 5 TALUKA BOUNDARIES ————
- 6 DISTRICT BOUNDARIES ————
- 7 CANAL IN CUT ————
- 8 ACQUEDUCT ————
- 9 OVERLAPPED COMMAND ————
- 10 SAMPAL VILLAGES SELECTED FOR THE BENCH-MARK SURVEY ————

SCALE: 1" = 4 MILES

MAP SHOWING THE SAMPLE VILLAGES
SELECTED FOR THE BENCH-MARK
SURVEY OF VILLAGES IN BHIMA (UJANI)
PROJECT AREA



REFERENCES

- 1 DAM SITE ----- 
- 2 PROPOSED CANAL ALIGNMENT MAIN ----- 
- BRANCH ----- 
- 3 COMMANDED AREA ----- 
- 4 EXISTING IRRIGATION TANKS ----- 
- 5 TALUKA BOUNDARIES ----- 
- 6 DISTRICT BOUNDARIES ----- 
- 7 CANAL IN CUT ----- 
- 8 ACQUEDUCT ----- 
- 9 OVERLAPPED COMMAND ----- 
- 10 SAMPAL VILLAGES SELECTED FOR THE BENCH-MARK SURVEY ----- 
- MEDHAPUR

SCALE: 1" = 4 MILES

MAP SHOWING THE SAMPLE VILLAGES
SELECTED FOR THE BENCH-MARK
SURVEY OF VILLAGES IN BHIMA (UJA)
PROJECT AREA

BHIMA (UJANI) PROJECT

The Bhima Project at Ujani, hereinafter referred to as Ujani Project, in Madha taluka of Solapur district, is one of the larger irrigation projects in the country planned to harness the water of the river Bhima, a major tributary of the river Krishna. The project consisting of the dam and canal system lies wholly in Solapur district. As per the Summary Report for Project Appraisal,¹ within the irrigation command area there are 171 villages. The Government of Maharashtra started work on the dam in 1969 and expects to complete the work by 1980. At the beginning of the year 1978-79 during which the Bench-Mark Survey was taken up, a major part of the canal construction work still remained to be completed. The concrete LBC canal will consist of 126 kms. between Mohol and Karamba Branches and 28 kms. under Kurul Branch and 37 kms. under Begampur branch, that is in all 254 kms. The Bhima RBC will consist of 185 kms. Under the Scheme 75,550 ha. would be irrigated on the left bank side and 48,950 ha. on the right bank side, that is, in all 1,24,000 ha. The irrigation will be mostly by flow. About 9,500 ha. is planned to be brought under pump-lift scheme. 16,000 ha. served by RBC is at present under irrigation by the Mira Canal System which is in operation for a number of years. (Our sample of villages for the Bench-Mark Survey does not include villages from the 16,000 ha. served by the RBC. Only one out of the 16 sample villages received water for irrigation from the Bhima (Ujani) Project during the year 1977-78 for which data was collected during the Bench Mark Survey.)

1 The present Chapter is based on the Maharashtra Irrigation - CAD - Composite Project (Bhima), Summary Report for Project Appraisal, Project Preparation and Maintaining Cell, (Dept. of Agriculture); Ministry of Agriculture and Irrigation, Government of India, New Delhi. We have extensively quoted here from the Summary Report.

The total cost of dam, earthwork structures, lining, distribution system and buildings is estimated at Rs. 124.473 crores. Its phasing is shown in Table No.2.1.

Table No.2.1 : Bhima (Ujani) Project - Total Costs and Phasing of Expenditure in respect of Dam, Earthwork, Structures, Lining, Distribution System and Buildings

(Rs. in crores)

Item	Total cost	Till 31-3-77	Expenditure		
			During 1977-78	During 1978-83	Beyond 1983-84
	Rs.	Rs.	Rs.	Rs.	Rs.
1. Dam	35.730	30.750	2.500	2.480	-
2. Earthwork	26.037	11.955	4.300	9.782	-
3. Structures	18.402	2.250	1.610	13.072	1.470
4. Lining	22.630	-	1.100	21.530	-
5. Distribution system					
1) Earthwork and Structures	9.034	0.410	0.850	6.444	1.330
ii) Selective lining	7.440	-	-	5.950	1.490
5. Buildings	5.200	-	1.600	1.600	2.000
Total	124.473	45.365	11.960	60.858	6.290

The physical programme of completion of irrigation infrastructure consisting of the Left Bank Canal (LBC) and the Right Bank Canal (RBC) is shown in Table 2.2. The two canals are expected to irrigate per year 1,24,500 ha. of land after the project is completed.

Climate and Soil

The climate in the project area is sub-tropical with three distinct seasons namely Kharif or wet Season between 1st July and 14th October, the Rabi or winter season between 15th October and the end of February and the Summer

Table No.2.2 : Physical Programme of Completion of Irrigation Infrastructure

('000 ha.)

	1977-78	1978-79	1979-80	1980-81	1981-82	82-83	83-84
1. LBC	2.75	7.50	20.80	25.10	19.40	-	-
2. ABC	-	-	-	12.00	8.00	11.20	17.75
3. Total	2.75	7.50	20.80	37.10	27.40	11.20	17.75
4. Cumulative Total	2.75	10.25	31.05	68.15	95.55	106.75	124.50

season between 1st March and 30th June. The average rainfall in the command area is 586 mm. varying from a maximum of 710 mm. in Solapur taluka to a minimum of 515 mm. in Malshiras taluka. About 90 per cent of the rainfall is in the Kharif season. Mean daily temperature varies from 39.7° C. in May to 12.9° C. in December.

The soils are formed by the disintegration of basalt, a basic volcanic rock and are mostly of residual type. Near the river banks, transported soils are also met with. The distribution of soil as per the classification of soils on the basis of drainable media as shallow, medium and deep is as follows :

Type	Depth of Soil Cover over drainable area	% area
Shallow	A) Less than 22.5 cm	15
	B) 22.5 cm. to 45 cm.	31
Medium	45 cm to 240 cm	24
Deep	Above 240 cm	30
		100

The depth of soil increases as one approaches from the main canal to the Bhima river.

Agro-climatically the entire district except Akkal-
 kot falls in the rainfall shadow zone. The district
 witnesses recurrent scarcity conditions. The Paradasani
 Committee (1960), the Irrigation Commission (1962) as also
 the Sukhathankar Committee (1973) recognised the entire
 district except the irrigated tracts as drought-prone.
 The State Government is carrying out in Solapur district
 various types of works such as soil and water conservation,
 dry land farming and livestock, forest and pasture develop-
 ment under the Drought Prone Areas Programme. Besides
 works are also taken up and employment provided to the
 rural population in the district under the Employment
 Guarantee Scheme of the Government of Maharashtra. Except
 Malshiras, the remaining five talukas to which 15 out of the
 16 sample villages belong, are included in the D.P.A.P.
 In the report of the Fact Finding Committee, Government of
 Maharashtra, 1960, all the talukas from Solapur district are
 classified as drought zone. However, the Second Irrigation
 Commission, Government of India, 1972 excluded Malshiras
 taluka from drought zone as the percentage of irrigated area
 to net sown area in Malshiras taluka exceeds 30.

Groundwater resources

The Summary Report on Project Appraisal states that
 "the groundwater development in the area is steadily increas-
 ing. The average density of wells which is 5 per sq.km. is
 expected to increase rapidly. ... The water table is
 generally lower than 3 metres below ground level in the
 monsoon or immediately after the monsoon. In 30 per cent
 of the total wells under the Bhima left bank canal (exclud-
 ing the branches), 14 per cent under its branches (Kural
 and Karamba) and 16 per cent under Bhima right bank canal,
 the depth of water rises above three metres in the monsoon.

There is considerable scope for exploiting ground water presently through though there is no danger to the crop due to the high water table."

Command Area Development Authority

The Government of Maharashtra set up in 1974 a Command Area Development Authority (CADA) for Bhima (Ujani) Project (along with four other CADA) to bring about, along with the construction of engineering infrastructure, simultaneous development of the command area, improvements to existing drainage and communication system and expansion of marketing facilities. Special emphasis has been placed in project formulation on seeking solutions to the problems peculiar to the drought-prone areas. These relate to a) conservation of the limited water resources by appropriate water allocation planning by introduction of irrigation system, management techniques and by construction of an all-lined canal network, to minimise seepage and operational losses and b) by increasing the cropping intensity by a comprehensive programme of on-farm development and development of agricultural supporting services and c) development of a credit programme tailored to the needs of area. The Government of India has sought I.D.A. assistance in financing Bhima Irrigation and CAD Project.

The Summary Report for Project Appraisal observes that "lying very close to the Bhima area are the well developed irrigated areas served by Mira and Khadakwasla canal systems, under operation for more than 20 years. These and a large number of wells in the command area have provided the cultivators adequate opportunities to learn package of modern practices of irrigated agriculture,. The cultivators in the adjoining areas are very progressive and are growing bumper crops year after year. The farmers

are well oriented towards farming associations and have formed very strong and progressive co-operative societies, e.g. in the Command area under the Mira Canal system at Malinagar, about 400 farmers have joined together and formed a society for distribution of water to the cultivators in about 2,000 ha. after obtaining it from the Government on volumetric basis. ... They have also formed a co-operative society for growing sugarcane and producing sugar. The progressive nature of the cultivators and their hard working habits will enable rapid spreading of modern technology in irrigated agriculture and water management."

Programme of Development

The Project formulated for the development of the command area of Ujani project includes:

- a) Completion of the LBC and RBC, provision of distributory canal system including lining of canal to irrigate 1,04,000 ha. area.
- b) Improvements to 295 Km. of the existing roads and construction of about 184 Km. of new roads in the command area.
- c) On-farm development (CAD) covering 74,000 ha.
- d) Strengthening of Extension Services
- e) Improvements to drainage in about 23,000 ha. and lining of water courses and field channels in about 28,000 ha.
- f) 8 new market centres.
- g) Procurement of equipment and vehicles for the above programme.
- h) Provision of facilities for monitoring of project benefits and conducting modernisation studies.

Organisation of the CADA

The Government of Maharashtra in the Department of Agriculture, have created the necessary organisation through the CADA. The development works is the responsibility of a specially constituted Board working under the Chairmanship

the of the Minister for Agriculture. Representatives of the various departments of the State Government, Collector, President and Chief Executive Officer of the Zilla Parishad form the Board which meets 3 to 4 times a year to take broad policy decisions. A full time Administrator looks after day to day matters. He also acts^{as} a Member-Secretary of the Board. The Board and the Administrator are assisted by an Executive Committee (EC) formed under the chairmanship of a senior Minister of the region. The EC meets once a month. The Administrator is the Secretary of the EC as well. He is assisted by a small staff which consists of officers from irrigation, agriculture, revenue and co-operation departments. The irrigation system is operated and managed by the Executive Engineers who are responsible to provide agricultural supporting services to the cultivators in co-ordination with the Zilla Parishads, credit institutions and other departments working in the Command Area.

The cropping pattern for the command area is decided by a special sub-committee under the Chairmanship of the Vice-Chancellor, Ra M.P. Krishi Vidyapeeth, Rahuri, Dist. Ahmednagar, of which the Administrator is the Member-Secretary.

The close inter-linking of the various facilities of the various departments operating in the command area are brought about by the Cabinet Sub-Committee, Board, Executive Committee, CADA Commissioner and Administrator. This organisational structure and the Committee for fixing cropping pattern has enabled for the functioning of the Authority in a smooth and efficient manner.

The maintenance of the irrigation infra-structure down the irrigation outlet and of the main drains will be responsibility of the irrigation department. The water

course, field channels and field drains will be maintained by the cultivators. Under the Maharashtra Irrigation Act, 1976, sufficient powers have been vested in the Canal Officers for the maintenance of on-farm works by the beneficiaries. In case of default, the maintenance can be done by the Government of Maharashtra and costs recovered from the beneficiaries.

For better cultivation of land under the cultivable command area, the Government of Maharashtra, under the provisions of the Maharashtra Irrigation Act, 1976, can regulate the kind of crops that can be sown, planted or grown and their sowing, planting and growing during specified periods on the lands coming within the cultivable command area of the canal. Also it can fix a ceiling on the area of the crops to be grown on the land.

Proposed Strengthening and Organisation of Extension Services

For successful running of the project, the Project Report states, "it is necessary to provide a fully trained agricultural extension organisation entirely staffed by the members of the agriculture department and which would act on behalf of the Administrator of CADA in agricultural matters and at the same time be under the technical supervision of their own department. In Bhima project, there will be two Deputy Directors from agriculture wing. Each Deputy Director of Agriculture would require two Extension-cum-Information Officers and as such there will be four Extension-cum-Information Officers in the Project. In addition, there will be one Agricultural Officer, one Agricultural Supervisor, 10 Agricultural Assistants and other clerical staff for one Irrigation Unit. In all, there will be 16 Irrigation Units in the project. It is very important that qualified agricultural staff should be

transferred from the Zilla Parishad and the remaining requirements recruited from either the agricultural universities or seconded to the Project by the staff of agriculture department."

Farmers' Organisations

"In the State of Maharashtra, the Farmers' Organisations are the Cooperative Societies, the village Gram Panchayats, the farmers discussion groups and the Village Irrigation Committees. These organisations help the community in the various activities for agricultural production work in the rural areas of the district and the project. Duties of village irrigation committees in the command area are primarily those of the supply of inputs, credit, maintenance of water supply below each outlet as well as organisation of the rotational irrigation distribution system."

Demonstration Farms

"Two demonstration farms are proposed for the command area. These will be located in the Bhima command area and will concentrate on crop demonstrations, cropping patterns, methods of land preparation, demonstration of farm implements, irrigation practices and crop protection measures. Provision has been made for the construction of buildings, quarters and purchase of equipments, etc."

Input Supply Services

The existing facilities for the supply of chemical fertilizers, pesticides and seed under the supervision of the Department of Agriculture and Zilla Parishad will be fully utilised.

Present Cropping Pattern

In Table No. 2.3 is shown the present and future cropping pattern with or without irrigation.

**Table No.2.3 : Cropping Pattern: Maharashtra Irrigation
- CAD Composite Project (Bhima)**

	P	F1	F2	F3
	%	%	%	%
<u>Kharif</u>				
1. Paddy	0.5	0.5	3.0	4.0
2. Jowar	-	-	15.0	15.0
3. Green Manure	-	-	10.0	10.0
4. Groundnut	3.0	3.0	10.0	10.0
5. Cowpea	5.8	5.8	-	-
6. Bajra	7.2	7.2	-	-
Kharif C.I.	16.5	16.5	38.0	39.0
<u>Rabi</u>				
1. Wheat/Maize	1.8	1.8	19.0	20.0
2. Jowar	67.6	71.6	28.0	28.0
3. Gram	2.4	2.4	4.0	4.0
4. Safflower	6.1	6.1	-	-
Rabi C.I.	77.9	81.9	51.0	52.0
<u>Hot Weather</u>				
1. Groundnut	3.0	3.0	18.0	18.0
2. L.S. Cotton	1.5	1.5	5.0	6.0
3. Maize/Jowar	0.7	0.7	-	-
H.W.C.I.	5.2	5.2	23.0	24.0
<u>Perennial</u>				
1. Sugarcane	0.4	0.4	6.0	8.0
Total Crop intensity	100.0	104.0	118.0	123.0
P	- Present			
F1	- Future without project			
F2	- Future with project with irrigation infrastructure only			
F3	- Future with project with irrigation infrastructure plus C.A.D.			

"The crops grown currently in the project area are, paddy, jowar, groundnut, cowpea and bajra during the kharif season, mainly wheat/maize jowar and gram during the rabi and in the hot weather season, long staple cotton, maize and jowar are grown. Sugarcane is also grown in the command area. Due to the erratic rains during the kharif season, in the command area, jowar is grown in a large area as a rabi crop and utilises most of the residual soil moisture by being sown in late September and early October. 'Bajra' is grown principally on shallow soils in the lower rainfall areas. Rice cultivation is mainly done in the low lying areas. Groundnut is another important crop which accounts for 3 per cent of area both in the hot weather season and during the kharif season. Oil-seeds, principally safflower etc. are grown as inter-crops with rabi jowar."

"Crop yields are usually low and vary from year to year. Table No. 2.4 in respect of the area covered by the irrigation infrastructure and in Table No. 2.5 in respect of the area covered by the CAD. The use of inputs are low for all crops and especially cash crops such as sugarcane. The number of wells in operation is about 9 wells per sq.miles. The tank and well irrigation are in progress to a small extent and the cultivators are familiar with the irrigated farming."

Future Cropping Pattern

"In the absence of the project, the cropping intensity may improve slowly from year to year. The yields of crops will also increase slightly due to the use of improved varieties, increased inputs, improved cultivation techniques and some increase in the irrigation potentials through digging of surface wells etc."

**Table No.2.4 : Area covered by the Irrigation Infrastructure (44,500 ha.)
Maharashtra Irrigation - CAD Composite Project (Bhima)**

Crops and Season	Present			Future without project			Future with Project		
	Area	Yield (tonnes/ha)	Production (tonnes)	Area	Yield (tonnes/ha)	Production	Area (ha)	Yield (Tonnes/ha)	Production (tonnes)
Kharif									
1. Paddy	235	1.70	400	235	1.80	423	1335	3.0	4005
2. Sorghum	-	-	-	-	-	-	6675	1.25	8344
3. Green Manure	-	-	-	-	-	-	4450	-	-
4. Groundnut	1410	0.50	705	1410	0.60	846	4450	0.70	3115
5. Cowpea	2725	0.20	545	2725	0.30	817	-	-	-
6. Pearl Millets	3385	2.00	6700	3385	2.20	7447	-	-	-
Rabi									
1. Wheat & Maize	845	0.50	422	845	0.60	507	8455	1.00	8455
2. Sorghum	31770	0.30	9530	33650	0.458	15440	12460	1.25	15575
3. Gram	1130	0.35	396	1130	9.50	565	1780	0.70	1246
4. Safflower	2865	1.00	2865	2865	1.10	3150	-	-	-
Hot Weather									
1. Groundnut	1410	0.50	705	1410	0.60	846	8010	0.70	5610
2. L.S. Cotton	705	0.80	565	705	1.00	705	2225	1.50	8338
3. Maize/Sorghum	330	0.90	297	330	1.00	330	-	-	-
Perennial									
1. Sugarcane	190	80.00	15200	190	85.00	16150	2670	100.00	267000
Total irrigable area	47000			47000			44500		
Total cropped area	47000			48880			52510		
Cropping intensity	100.0			104.0			118.0		

Assumed that 6% of the land will be required for roads, canals, drains and water courses leaving 44,500 ha. on completion of project.

Table No.2.5 : Present and Projected Cropping Patterns, Yields and Productions.
Full Package Area (80,000 ha.)
Maharashtra Irrigation - CAD Composite Project (Bhima)

Crops & Season	Present			Future without Project			Future with Project		
	Area (ha)	Yield (tonnes/ha)	Production (tonnes)	Area (ha)	Yield (tonnes/ha)	Production (tonnes)	Area (ha)	Yield (tonnes/ha)	Production (tonnes)
Kharif									
1. Paddy	430	1.70	730	430	1.80	774	3200	5.00	16,000
2. Sorghum	-	-	-	-	-	-	12000	2.50	30,000
3. Green Manure	-	-	-	-	-	-	-	-	-
4. Groundnut	2580	0.50	1290	2580	0.60	1548	8000	1.40	11,200
5. Cowpea	4990	0.20	998	4990	0.30	1497	-	-	-
6. Pearl Millets	6190	2.00	12380	6190	2.20	13618	-	-	-
Rabi									
1. Wheat & Maize	1550	0.50	775	1550	0.60	930	16000	2.80	44,800
2. Sorghum	58135	0.30	17440	61575	0.45	27710	22400	2.00	44,800
3. Gram	2065	0.35	722	2065	0.50	1032	3200	1.30	4,160
4. Safflower	5250	1.00	5250	5250	1.10	5775	-	-	-
Hot weather									
1. Groundnut	2580	0.50	1290	2580	0.60	1548	14400	1.40	20,160
2. L.S. Cotton	1295	0.80	1035	1295	1.00	1295	4800	2.00	9,600
3. Maize/Sorghum	600	0.90	540	600	1.00	600	-	-	-
Perennial									
1. Sugarcane	335	80.00	26800	335	85.00	28475	6400	150.00	9,60,000
Total irrigable area	86,000			86,000			80,000		
Total cropped area	86,000			89,440			98,400		
Cropping intensity	100.0			104.0			123.0		

Assumed that 7% of land will be required for roads, canals, water-course and bunds leaving 80,000 ha. of irrigated land on completion of project.

"However, under the project, 106750 hectares would be provided with irrigation water by the end of the year 1982-83 and by the year 1983-84 the complete area of the project i.e. 1,24,500 hectares will be brought under irrigation. By the year 1982-83, some 80,000 hectares of this irrigated area would be subject to the full package CAD on farm development works which would include provision of field channels upto each farm, farm drains and land shaping and grading to specified norms."

"It is expected that the traditional and well adapted sorghum will remain the principal foodgrain crop. Hybrid varieties of sorghum viz. CSH 1 and 5 are expected to provide the bulk of sowing in kharif and in the rabi, a high proportion will be local improved varieties which are, by and large, preferred by the farmers for home consumption and for fodder for cattle. Even the practice of ratoon is also followed by most of the farmers. The sorghum crop in the kharif season is not usually delayed for sowing as shoot fly and sorghum midge may cause problems if kharif sowing are too late, Striga may also cause problems if there is no break in the rotation. This problem is, however, reduced by planting non-cereal, follow-on crops (oilseeds and pulses) and by rabi sorghum following fallow. The yields under the project at full development would be approximately 2.00 tons with on-farm land development."

"Cotton is another important crop which would bring good income to the farmers. With well established long staple varieties such as H.4 and Varlaxmi, it is important for planting to start in May for insect control purposes and to avoid retardation of boll development due to the onset of lower temperatures towards the end of October. This requires that storage water may be available for pre-

irrigation and planting in May before the onset of kharif rains in June. In case of cotton, the projected yield would be about 2.00 tons per hectare with full package development. Sugarcane is another very important crop which will occupy an area of 8,700 hectares when the project is fully developed with irrigation and CAD by the year 1982-83 and its total yield is estimated at 869260 tons and by the year 1983-84 it is expected to go upto 907000 tons. The more commonly used varieties of sugarcane crop in this area is Coimbatore 740. Other important varieties may also be introduced by the Bahuri Agricultural University through research on this crop, suiting to this region."

"Groundnut will be another important crop which will find a major place in the projected cropping patterns at the full development of the project area which will increase immensely in near future. Such an increase is attributed to the crop being more remunerative than other crops like pearl millets and cowpeas etc., the area under which crops is likely to diminish in the near future. The crop is only successful, when there is assured irrigation. Major area sown is during the rabi season, as during the kharif season, the assured irrigation is not available and the rains are very erratic. However, at the fulfilled development of the command area, area under this crop will be about 18,675 hectares during the kharif season and about 34,850 hectares in the rabi season as the jowar crop is also successfully grown during this season in the Maharashtra State, whereas it is not the case with other parts of the country."

Arrangements for Agricultural Credit

"The Maharashtra State Co-operative Land Development Bank Ltd. (LDB), Bombay, and the Commercial Banks (CBs) are

the main sources of long term investment credit for agriculture in the State. The co-operative credit system which is organised on three tier basis with the Maharashtra State Co-operative Bank Ltd. at the apex level, the District Co-operative Central Banks (DCCBs) at the intermediate level and the primary Agricultural Credit Societies (PACS) at the village level is the main source of short-term (upto one year) and medium-term (1-5 years) credit to the farmers in the State. The CBs operating in the State play a supplementary role to that of the co-operatives. Non-institutional sources such as individuals, commission agents also extend credit facilities to the farmers, though in a limited way."

Rehabilitation Programme for Ensuring Flow of Funds

"Restoring eligibility to the LDB sub-branches or to the co-operatives for advancing loans, either through share capital contribution from the Government or through temporary relaxation of the regulatory norms prescribed by the Reserve Bank, would not by itself help flow of funds for on-farm development and production under the project, unless measures are taken to restore eligibility for loans of a large number of farmers in the area who have become ineligible on account of non-repayment arising from crop failures and other related causes. The effect of successive droughts which visited the area since 1970-71 on the productive and repaying capacity of the farmers had been, on the whole such that the conversion of short-term overdue loans into medium-term loans (3-5 years) undertaken in 1972-73 under the Reserve Bank approved scheme ~~was that~~ had little effect on improving the eligibility of defaulting members for loans. One drawback of the scheme was that the conversion of loans was limited to a maximum period of five years. The second limitation was that no production programme was developed to help improve the productive capacity of the farmer in support of such a rehabilitation

loan. Thus even when loan repayment period was prolonged there was no guarantee that his productivity would improve."

"If the benefits under the Project are to flow to the targeted group of farmers, many of whom are small/marginal farmers and are at present handicapped on account of past arrears, a credit programme tailored to their special needs seems necessary."

Financing Producers

"The land development work in the project area would be carried out under the provisions of the Bombay Land Improvement Schemes (BLIS) Act, 1942. A simple procedure has been prescribed under the Act for the purpose of notification of land improvement schemes, consideration of objections thereon raised by the farmers and making it binding on the concerned farmers after the objections are cleared. The Maharashtra Land Development Corporation (MLDC) would carry out work relating to Land-shaping, land-levelling, construction of field channels and other related items as specified in the project on the lands of the beneficiaries. It enjoys certain advantages in terms of BLIS Act, one of them being that any dues in respect of land development work remaining unpaid by the farmers according to schedule can be recovered by it as arrears of land revenue. Also, any amount of instalment payable by the owners/occupants of land to the MIDC shall receive priority, second only to that of land revenues."

"Apart from authorising MIDC to carry out land shaping work in the specified survey numbers, the consent bonds which would be executed by the farmer in favour of the banks, would bind the signatory farmer to pay the proportionate amount of expenditure incurred on the work to the MIDC, as also to pay to the financing bank for and on

behalf of the MIDC the instalment due on the loan obtained in respect of land shaping work.*

Based on the consent bonds executed by the owners/occupants of lands in their favour, the financing institutions would identify the farmers who are eligible and those who are not eligible for bank loans, as per the normal standards, and make available funds to MIDC on behalf of the eligible farmers. There would be no financing of the ineligible farmers, but the MIDC would be provided funds by the ARDC against the Government guarantee through the financing banks, from out of the special loan fund created for the purpose. The GOI, GOM and ARDC would make contributions to this fund in the ratio of 50:25:25 to meet the cost of development in respect of ineligible farmers.

GOM and ARDC would draw up a banking plan allocating the area under the project among different participating banks, taking into account their organisation in the area and the eligibility for providing loans to the farmers, including short-term loans. In drawing up the banking plan, the need for the same institution providing, as far as possible, the entire credit needs would be taken into account. Wherever PACS are reorganised, they would be called upon to undertake processing of applications for long-term credit as agents of the LDB.

Cost Benefit Analysis

In the Summary Report on Project Proposal the cost benefit ratio has been worked out which comes to 1.63 inclusive of operational and maintenance costs and 1.66 exclusive of these costs. The Report estimates an increase of about 74 per cent over the existing employment of man-days in the command area. The Report also estimates that

the incremental value of crop production, as per the proposed cropping pattern, will come to about Rs. 8,850 per hectare and will make the large number of small farmers viable in their farm activities.

The Report contains details of cost-benefit analysis, rate of return on investment and estimates of employment generation. However, we have refrained from going into all these details as these estimates are likely to change with revised estimates of costs of construction and agricultural inputs, value of agricultural produce and several other factors. The object of the present Bench-Mark Survey is to provide a picture of the socio-economic conditions prior to the introduction of water for irrigation purposes from Ujani project, so that it should be possible to measure at a future date socio-economic change arising out of irrigation facilities in the project area. Hence, we have given in this Chapter a brief account of the Ujani project as background information.

Chapter III
THE SAMPLE VILLAGES

The sample of 16 villages consisted of six villages from Pandharpur taluka, three villages from Mohol taluka, two villages each from Madha, Mangalwedha and North Solapur talukas and one from Malshiras taluka. These are the six talukas in which are located all the villages which will benefit from water for irrigation purposes from the Ujani project. We have already given in Table No. 1.2 information regarding the Census Population at the 1951, 1961 and 1971 Censuses and also at the time of the Bench Mark Survey carried out in 1978-79 in these villages. We noted data regarding the occupational classification of the population as per the 1971 Population Census as also information regarding Land Utilisation, Cropping Patterns, Livestock, Agricultural tools and implements etc. from the Village Records. We have presented the data on these aspects at appropriate places. In the present Chapter we give information about location and some general information about the sample villages; however, before we do so we note some information about the sample villages from the Population Census and village records.

The Population Census data show that between 1951 and 1961 the population in the sample villages increased by 22.4 per cent and between 1961-1971 by 23.2 per cent. As per the 1971 Census, the sex ratio was 108 males to 100 females. The number of females was less than the males in all the sample villages. It was noted that the larger proportion of males in the total population was not necessarily a characteristic of the larger villages as even the smallest village also had a Male:Female ratio of 122:100. The occupational classification of the 1971 Census

Population of the sample villages is given in Table No. 3.1. It reveals that in the male population 55.8 per cent were earners while only 12.1 per cent of the females were earners. There is reason to believe that female earners are not correctly reported in the 1971 Census as the female earners at Shegaon and Shingoli formed only about one and two per cent respectively of the female population in these villages. Except about 3 per cent of the female earners, the rest of them were classified as cultivators or agricultural labourers. Among the male earners, 58 per cent were cultivators and 29 per cent were agricultural labourers, about 4 per cent were in livestock, orchards, etc. The remaining, about 9 per cent of the total, were mainly in manufacturing (3.3%) and services (2.9%), followed by construction (1.3%) and Trade (0.7%). The population of earners in non-agricultural occupations was higher than the average for the sample villages in two villages, namely, Pakani (22.0%) and Shevare (21.5%), possibly because they are adjacent to Solapur city and Tembhurni town respectively.

As per the village records about 90 per cent of the land in the sample villages is classified as cultivable land. However, the net cropped area came to about 42.0 per cent of the cultivable land. This proportion varied between 21 to 40 per cent in the case of sample villages from Pandharpur taluka and varied between 64 per cent to 96 per cent in the case of the villages from the remaining talukas. This means that land surface in the sample villages is not extensively used. In Table No. 3.2 we have presented data regarding land utilisation in the sample villages based on the village records. It is noted from the Table that the area double-cropped formed 2.8 per cent of the net area sown. The area sown more than

Table No. 3.1 : 1971 Census Population at the Selected Villages

Taluka and Village	Occupied Residential Houses	Number of Households	Total Population			Total Workers- I to IX	
			P	M	F	M	F
1	2	3	4	5	6	7	8
<u>Madha Taluka</u>							
1) Chandaj	158	158	1155	581	574	327	244
2) Shevare	212	212	1172	604	568	330	47
<u>Malshiras Taluka</u>							
3) Umra Velapur	135	144	864	455	409	266	26
<u>Mangalwedha Taluka</u>							
4) Khomnal	124	134	896	460	436	259	72
5) Marapur	276	280	1238	624	614	360	175
<u>Mohol Taluka</u>							
6) Bhoira	226	226	1337	694	643	411	113
7) Shingoli	120	120	665	352	313	180	7
8) Takli Sikandar	227	227	1222	615	607	339	98
<u>North Solapur Taluka</u>							
9) Pakani	357	320	1789	928	861	484	60
10) Belati	246	247	1299	657	642	376	84
<u>Pandharpur Taluka</u>							
11) Adhiv	181	194	1112	578	534	336	88
12) Badalkot	59	59	489	269	220	163	54
13) Bhose	584	587	3678	1932	1746	1061	85
14) Khed Bhalwani	178	182	1052	530	522	308	29
15) Mendhapur	929	789	4828	2552	2276	1403	186
16) Shegaon	138	139	861	441	420	241	5
Total for 16 villages	4150	4033	23657	12272	11385	6844	1373

contd.

Table 3.1 : (contd.)

Taluka and Village	I Cultiva- tors		II Agricul- tural Labour- ers		III Live- stocks, Orchards etc.		IV Mining, Quarry- ing		V Manufac- turing, etc.		VI Construc- tion		VII Trade and Commerce		VIII Transport, Storage & Communica- tions		IX Other Services		X Non- Workers	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Madha Taluka																				
1) Chandaj	164	7	146	237	5	-	-	-	4	-	-	-	3	-	-	-	5	-	254	330
2) Shevare	185	9	74	34	-	-	-	-	21	-	29	-	1	-	10	-	10	4	274	521
Malshiras Taluka																				
3) Umra Velapur	184	-	64	25	3	-	-	-	10	1	-	-	1	-	-	-	4	-	189	383
Mangalwedha Taluka																				
4) Khomnal	149	40	72	32	31	-	-	-	4	-	1	-	-	-	-	-	2	-	201	364
5) Marapur	233	97	71	74	26	-	-	-	7	4	1	-	4	-	2	-	16	-	264	439
Mohol Taluka																				
6) Bhoira	232	3	157	109	-	-	-	-	11	-	-	-	2	-	-	-	9	1	283	530
7) Shingoli	112	2	38	5	16	-	-	-	-	-	2	-	3	-	4	-	5	-	172	306
8) Takli Sikandar	210	11	87	78	14	-	-	-	11	8	1	-	-	-	-	-	16	1	276	509
North Solapur Taluka																				
9) Pakani	262	6	115	50	1	-	-	-	15	1	33	-	6	2	29	1	23	-	444	801
10) Belati	132	3	187	80	2	-	-	-	23	-	14	-	3	-	1	-	14	1	281	558
Pandharpur Taluka																				
11) Adhiv	173	1	151	87	-	-	-	-	4	-	-	-	4	-	-	-	4	-	242	446
12) Badalkot	149	43	14	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	106	166
13) Bhose	552	35	292	35	123	10	-	-	32	-	2	-	12	2	3	-	45	3	871	1661
14) Khed Bhalwani	182	1	85	28	13	-	-	-	13	-	3	-	1	-	-	-	11	-	222	493
15) Mendhapur	925	26	341	151	14	-	-	-	73	5	5	-	13	2	2	-	30	2	1149	2090
16) Shegaon	155	4	71	-	-	-	-	-	1	-	1	-	6	1	-	-	7	-	200	415
Total for 16 villages	3999	288	1965	1036	248	10	-	-	229	19	92	-	59	7	51	1	201	12	5428	10012

Table No. 3.2 : Land Utilisation in the Sample Villages

Source : Village Records

Taluka and Village	Cultivable land %	Net Cropped area as % of cultivable land	Uncultivable land %	Land under Public use %	Total Area Hectares 100% =
<u>Kadha Taluka</u>					
1) Chandaj	71.4	98.3	25.0	3.6	1,299.91
2) Shevare	83.1	93.5	15.9	1.0	1,138.77
<u>Malhiras Taluka</u>					
3) Ura Velapur	83.5	86.5	12.1	4.4	1,249.98
<u>Mangalwedha Taluka</u>					
4) Khonnal	90.0	73.3	5.8	4.2	1,291.82
5) Marapur	84.4	77.5	8.3	7.3	1,219.38
<u>Mohol Taluka</u>					
6) Bhoira	94.1	72.5	1.4	4.5	2,087.46
7) Shingoli	92.9	82.3	2.8	4.3	429.02
8) Takali Sikandar	94.7	68.8	3.8	1.5	1,565.17
<u>North Solapur Taluka</u>					
9) Belati	92.5	76.8	2.0	5.5	1,034.63
10) Pakani	91.3	64.8	3.5	5.2	1,635.58
<u>Pandharpur Taluka</u>					
11) Adhiv	93.6	30.6	0.5	5.9	2,595.55
12) Badalkot	90.4	26.5	7.6	2.0	1,857.67
13) Bhose	95.2	37.4	2.8	2.0	8,742.45
14) Khed Bhalwani	93.0	25.4	6.1	0.9	2,426.80
15) Mendhapur	89.5	21.9	5.0	5.5	13,207.44
16) Shegaon	84.9	39.7	12.0	3.1	1,837.61
Total for 16 villages	90.5	42.9	5.6	3.9	43,619.24

than once in Solapur district is also about the same, namely ^{2.5}~~21.9~~ per cent.

In Table No. 3.3 we have given percentage distribution of area under different crops in A) the six talukas and B) in the sample villages therein. It will be noted from the Table that jowar is the main crop and the area thereunder varied between 47 per cent in Mangalwedha taluka and 71 per cent in Pandharpur taluka. Jowar was also the major crop in the sample villages; however, the area under jowar in the sample villages in Malshiras and North Solapur talukas was as high as 90 per cent as against about 51 per cent for Malshiras taluka and 61 per cent for North Solapur taluka where the sample villages are located. Wheat (except in Malshiras taluka where it formed 6.5 per cent of the total cropped area) and other cereals formed a very low proportion in the total cropped area.

The next important crop was pulses and the area thereunder varied between about 13 per cent in Pandharpur and Malshiras talukas and a little over 20 per cent in Madha and Mohol talukas. In the sample villages in Malshiras and North Solapur talukas it was less than 3 per cent while in the rest of the sample villages the area under pulses formed about 20 per cent of the cropped area.

Among the oilseeds, safflower occupied more area than groundnut. The area under oilseeds ranged between about 12 per cent in Madha taluka and about 4 per cent in Malshiras and Pandharpur talukas. In the sample villages from Mohol and Pandharpur talukas the area under oilseeds was about 10 per cent.

Sugarcane occupied about 10 per cent of the cropped area in Malshiras taluka but in other talukas as also the

Table No. 3.3 : Percentage Distribution of Area under Different Crops in A) the Six Talukas of Solapur District during 1974-75 and B) the Sample Villages therein

Sr. No.	Crops	Madha		Malshiras		Mangalwedha		Mohol		North Solapur		Pandharpur		Total for 16 villages
		A	B	A	B	A	B	A	B	A	B	A	B	
		%	%	%	%	%	%	%	%	%	%	%	%	%
1.	Wheat	2.3	0.8	6.5	0.8	2.2	2.6	2.9	4.2	3.2	0.4	2.2	1.8	2.0
2.	Jowar	56.8	59.4	51.0	90.5	47.2	58.0	55.0	60.2	61.0	92.4	71.1	63.4	66.5
3.	Bajra	3.4	3.6	6.8	-	19.4	7.1	2.1	0.2	1.4	0.2	3.4	0.9	1.6
4.	Other Cereals	1.7	0.3	2.3	0.3	1.4	4.2	3.5	2.2	3.3	1.2	2.0	1.9	1.8
5.	Pulses	20.5	23.6	12.9	2.7	18.3	18.9	23.2	20.8	16.5	1.7	12.9	20.3	17.8
6.	Sugarcane	0.5	0.1	9.8	0.4	0.5	0.6	0.8	0.5	2.3	2.4	1.6	1.0	0.9
7.	Other food Crops	1.8	-	1.0	-	1.2	-	3.3	-	2.6	-	0.9	-	-
8.	Fibre crops	0.3	0.2	4.0	0.7	0.8	0.6	0.4	1.1	0.8	0.1	0.6	0.1	0.4
9.	Safflower	9.3	9.9	2.5	-	6.2	2.7	5.6	8.1	4.0	1.0	2.8	7.0	6.1
10.	Groundnut	1.9	1.4	1.2	4.4	0.8	1.9	1.3	0.8	2.5	0.4	1.3	0.6	1.0
11.	Other Oilseeds	0.9	0.5	0.4	-	0.9	0.6	1.0	0.5	1.6	-	0.4	0.1	0.2
12.	Other Crops	0.6	0.2	1.6	0.2	1.1	2.8	0.9	1.4	0.8	0.2	0.8	2.9	1.7
		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	(hectares)	-112244	-1811	-85122	-902	-82637	-1650	-83991	-2773	-39380	-1704	-117188	-8078	-16918

Source : 1. Socio-Economic Review and District Statistical Abstract of Solapur District, 1975-76, Directorate of Economics and Statistics, Government of Maharashtra, Bombay.

2. Village Records for the Sample Villages.

sample villages including those in Malshiras taluka, it formed less than 2 per cent of the cropped area. Cotton accounted for even a smaller percentage.

To conclude, the area of the Ujani Project as also of the sample villages is predominantly jowar area, followed by pulses and oilseeds, mainly grown as rainfed crops.

1. Chandaj

Village Chandaj from Madha Taluka is situated about 6 Kms. from Adhegaon which is on a bus route. It is about 20 Kms. from Kurduwadi, the nearest town and railway station. River Bhima flows not far from the eastern boundary of the village. The river water is used for drinking and other purposes. There is a Gram Panchayat and a primary school which meets in a single room. The village did not have such facilities as a Post Office, electricity, medical facilities, or a weekly market. The nearest post office is at Adhegaon, about 6 Kms. from Chandaj. The nearest veterinary facilities are available at Teabhurni.

There is a Collective Farming Co-operative Society with 14 members, four of whom are from a neighbouring village. Of the total land of the Society, 141.88 acres, 20.45 acres is permanent fallow. There are two wells which can be repaired and used for irrigating about 12 acres of land. The Society will need in that case two oil-engines. This was the only village from among the sample villages which received water from the Ujani canal for the first time in 1978-79. Nearly 300 acres, that is, about 22 per cent of the cropped area was irrigated by the Ujani canal. Among the sample villages, Chandaj reported the maximum proportion of cultivable land under crops, the net cropped area forming 96.3 per cent of the total cultivable land. At the same time Chandaj was the only

village which had 25 per cent of the total land reported as uncultivable, whereas in most of the other sample villages it was less than 10 per cent and only two villages had about 16 per cent and 12 per cent respectively of the total village land classified as uncultivable. Jowar (45.6%), Pulses (35%) and Oilseeds (15.2% mainly Safflower) are the main crops.

2. Shevare

Shevare, the other village from Madha taluka, is about 10 Kms. from Tembhorni on Tembhorni-Akluj road accessible by a Kachha road. The village is located on the left bank of Bhima river. On the other side, there is a confluence, Bhima-Nira, at Marsinhapur village. The nearest bus stop is at Sangam village on the other side of the river in Malshiras taluka, on the bus route from Akluj to Sangam. The nearest railway station is Kurduwadi, about 36 Kms. away from the village. River water is used for drinking and other purposes. There is a Gram Panchayat, a Co-operative Credit and Service society and a Reading Room. There is a Post-Office at Marsinhapur. The nearest medical facilities are at Tembhorni. The electricity supply has reached the village but the villagers have not availed of the facility. There is a school upto the 7th standard. The total number of students during the year of the Survey was 239. Among these 104 were girl students. As per the village records Jowar (74.3%), Pulses (11%) and Oil Seeds (8.2% mainly Safflower) are the main crops.

3. Umra Velapur

The village is situated in Malshiras taluka on the bank of Bhima. In fact about 9 per cent of the village

land is classified as under the river Bhima. This land is cultivated after the floods recede and is known as 'Malai' (cream) land. The nearest bus stand is at Shreepur (Borgaon) and the nearest railway station is Pandharpur. One can reach the village on bicycle or bullock cart from Shreepur, about 10 Kms., as the buses do not ply upto the village. There is a Gram Panchayat and a Primary School upto the 4th standard with 55 boys and 3 girls as students. About 22.8 ha. of land is irrigated by Mira Canal. River water is used for drinking and other purposes and can also be used for irrigation if arrangement is made for lift irrigation. About half the soil is classified as black, about one-third as light and the remaining as uncultivable. The main crops are jowar (90.5%) and safflower (4%). There are no facilities such as Post Office, medical aid, electricity, flour mill, co-operative society or a weekly market.

4. Khomnal

Khomnal from Mangalwedha taluka is situated at a distance of 4 Kms. from Mangalwedha, the taluka headquarters and is connected by a Kachha road. The bus stand is at Mangalwedha and the nearest railway station is Pandharpur, about 30 Kms. from the village. Mangalwedha is also the nearest Post Office, market, medical centre etc. There is a Primary School with 40 boys and 31 girls enrolled as students at the time of the Survey. There is a Gram Panchayat and a Multipurpose Co-operative Society. The supply of electricity has reached the village and some families use it for domestic purposes, the flour mill for commercial purposes and farmers for irrigation by means of electric pump-sets. About one-fourth of the land is black-soil, about half is medium and the remaining

one-fourth is light soil. Jowar (58.7%) and other food crops (15.4%) account for about three fourths of the cropped area. Pulses (16%) and Oilseeds (5.8%) are the other main crops.

5. Marapur

The village is situated at a distance of 10 Kms. from Mangalwedha, the taluka headquarters and on the border of Mangalwedha and Pandharpur talukas. One has to walk about 5 Kms. from Mallewadi which is on Pandharpur-Mangalwedha bus route. The nearest railway station is Pandharpur and the nearest Post Office is at Tavashi, a few Kms. from the village. There is a Primary School in the village upto the 4th standard and two more Primary Schools in hamlets at Aswevadi and Yadav-vasti, both upto the 3rd standard. There is a Gram Panchayat in the village. The village received electricity in 1967-68. The supply is used for domestic purpose by 11 families, for a flour mill and for irrigation with electric pump-sets. The land is black or reddish. There are more than 100 wells in the village. Well water is saltish, hence river water is used for drinking purposes. The well water as also a lift on River Man is used for raising various irrigated crops like sugarcane, paddy, gram, etc. though village records did not show much of irrigated crops. The cropping pattern at Marapur is similar to the cropping pattern in Khonnal, the other sample village from Mangalwedha taluka.

6. Ehoire

The village Ehoire from Mohol taluka is situated on the bank of river Sina, few kilometres from Malik Peth, the nearest railway station. Though Mohol and Markhed are the nearest places for State Transport buses, it is

very difficult to reach these places during monsoon as one has to cross two rivers to reach there. One has to walk about 10 Kms. from Mohol, the taluka headquarter, to reach the village. The village has no Post Office or medical facilities. There is a school upto the 6th standard, the number of students at the time of the Survey being 68 boys and 32 girls. There is a Gram Panchayat. The Co-operative-Credit Society in the village had 235 members and was functioning actively at the time of the Survey.

The soil is of better quality than in most of the sample villages. Jowar accounts for about two-thirds of the gross cropped area. The village had acquired name in Mohol market for Jowar and had received award for a couple of years for giving the maximum levy (600 bags of jowar) in Solapur district. It was reported that the yield of Jowar is better as the soil is rich but the villagers kept telling that the yields have declined since the drought in 1972. The other important crops are pulses (16.6%) and oilseeds (11.0%).

The villagers stated that it will be possible to irrigate land if lift irrigation facilities on River Sina become available. There is a tank on the border of the village but it irrigates land in the neighbouring villages and not from Ehoire. The supply of electricity is available.

It was noted from the village records that of the 378 Khatedars, 166 resided in the neighbouring villages, namely, Narkhed, M Khumeshwar, Hingni, Diksal, Mohol, Ghatne, Bhanbewadi and Ankoli.

7. Shingoli

This village from Mohol taluka is situated on Solapur-Mangalwedha road. Solapur is the nearest railway station

about 16 Kms. from the village. The Sina flows on the eastern boundary of the village. A bridge was constructed on the river in 1973. The river water is used for drinking and other purposes. It was told that there was a community pump for lift irrigation but due to mismanagement it was not functioning. The villagers feel that it is possible to construct a Vasant-Bandhara on the river to benefit both Shingoli and a neighbouring village Tirhe, but no notice has been taken thereof by the Government. There was a tank in the village but since it caused damage to some of the cultivators on the lower side, it was destroyed and is no longer available for irrigation purposes. About half the area is black soil and the remaining is light soil, locally known as 'Malran'. The villagers stated that underground water can be had at a depth of 8 metres, however, it is not possible to construct wells as the soil is not hard enough.

There is a Primary School upto the 4th standard with two teachers. There were 76 boys and 41 girls enrolled as students in 1978-79. There are no other public institutions or facilities in the village - not even a Gram Panchayat. Electricity is used for 3 domestic and two electric pump-sets. The villagers entertain the pilgrims who go to Pandharpur every year on the occasion of Ashadhi Ekadashi.

Of the 70 Khatedars in the village, 47 resided at the neighbouring villages Taradgaon and Tirha. The main crop is Jowar (70.0%) followed by Pulses (16.2), Oil-seeds (11.0%).

8. Takali Sikander

The village from Mohol taluka is 12 Kms. away from the bus stand at Penur, 16 Kms. from Mohol railway station

and 25 Kms. from Pandharpur. It is on the bus route between Pandharpur and Pulaj. There is a school upto the 7th standard with 11 teachers and 153 boys and 121 girls as students. There is a Gram Panchayat, a small dispensary, a Co-operative Credit Society and a Multi-Purpose Co-operative Society. Water from wells is used for drinking purposes. Electricity is used for 12 domestic connections, 2 flour mills and 46 electric motors and pumps. Of the 328 Khatedars 85 Khatedars resided ⁱⁿ the neighbouring village. In this village next in importance to Jowar (51.5%) are Pulses (30.4%).

9. Belati

This village from Solapur taluka is situated at a distance of 4 Kms. from the Solapur-Mangalwadha road and about 5 Kms. from Bale railway station. The nearest Post Office is at Pathari, 3 Kms. from the village. There is a Health Centre in the village. The Bank of Baroda adopted this village in October 1979 and has obtained 20 Jersey cross-breed cows from Bangalore for the villagers.

There is a Primary School upto the 6th Standard with 6 teachers and 110 boys and 90 girls as students. There are 15 domestic connections and 10 connections for electric motors and pumps for irrigation purposes.

The total irrigable area is 100 ha., about 10 per cent of the total village land. The village benefits from Hipparga canal. However, the fieldstaff reported that there was no water in the canal at the time of the survey. Among the sample villages, this village reported a large area under sugarcane, being 64.66 ha. Of the 200 Khatedars, 39 Khatedars belonged to the neighbouring villages while 17 Khatedars from the village cultivated

land in the neighbouring villages. Jowar occupied as much as 88 per cent of the cropped area and Sugarcane 5 per cent, the largest proportion of the total cropped area among the sample villages.

10. Pakani

Village Pakani from Solapur taluka is situated about 4 Kms. from the Solapur-Pune highway about 16 Kms. from Solapur. The railway station at Pakani is 1 Km. from the village. The river Sina flows on the western boundary of the village. About 1 Km. from the village a Lift Irrigation Scheme on the Sina is being developed which will benefit 23 Khatodars and irrigate about 75 ha. of land.

There is a Post Office, Gram Panchayat and Godown. There is a school upto the 7th standard with 8 teachers. 195 boys and 130 girls were enrolled as students at the time of the survey. The nearest medical facilities, both for humanbeings and livestock are at Solapur, about 17 Kms. from the village.

Electricity is used for 24 domestic and 5 institutional connections, as also for a flour mill, 22 street lights and 16 electric motors and pumps. During the Emergency, the Government constructed 16 huts for the landless.

River water is used for drinking purposes. Besides, an electric motor and pump is being installed on a community well for supplying water for drinking purposes.

Of the 297 Khatodars, 20 belonged to the neighbouring villages, 7 Khatodars from Pakani cultivated land in the neighbouring villages.

Of the 45 wells in the village, only 15 wells are in use. The villagers stated that water is available at 5 metres but it is difficult to construct pucca wells

as the soil is loose. As in Belati, Jowar is the most common crop accounting for 95.8 per cent of the gross cropped area.

Villages from Pandharpur Taluka

11. Adhiv

The village lies on the Pandharpur-Barshi highway, about 6 Kms. from Pandharpur, the taluka headquarter as also the nearest market, bus depot. At Adhiv, about 2 Kms. from the village proper is the nearest railway station. There is a Gram Panchayat and Multi-purpose co-operative society. There is a Primary School upto 5th standard with 4 teachers. At the time of the Survey, there were 100 boys and 26 girls enrolled in the school.

There are 2 flour mills in the village, one operated with a diesel engine and the other with electricity. Electricity is also used for 42 electric pump-sets for irrigation purposes. Water from wells is used for drinking purposes. The villagers depend upon Pandharpur for medical and other facilities.

About one-sixth of the land is black soil and the remaining is light soil. Of the 202 Khatedars, 50 Khatedars belong to the neighbouring villages. 12 cultivators from Adhiv cultivated land in the adjoining villages. Jowar (59.9%) and Oil-seeds (31.2%) together account for more than nine-tenth of the cropped area.

12. Badalkot

The village is situated on the bank of river Bhima about 10 Kms. from Karkamb. There is a bus service from Pandharpur, about 30 Kms. from the village, to Karkamb. There is a Primary School upto the 4th Standard with 55 boys and 5 girls, the proportion of girl-students being the

lowest in this village. For Post Office, medical facilities, etc. the village depends upon Karkam. The 1971 Census Population of the village shows Male:Female ratio as 3:2, which is rather unusual for this region. This is the smallest among the sample villages.

Out of the 86 families in the village, 46 families belong to the Phase Paradhi (a Scheduled Tribe) community. The villagers suffered severe losses during the floods a few years prior to the Survey. It was understood that the Government gave about 80 ha. of forest land to the 35 Phase Paradhi families. They have formed 'Paradhi Sanaj Co-operative Farming Society'. These families have accommodated the remaining 11 families from the community in cultivation of the land. The produce is distributed equally on a per capita basis to all the 46 families. The production during the year 1977-78 on about 80 ha. of land was 200 bags of jowar which was shared by the 46 families. The Government had given 35 bullocks, i.e., one each per member, for cultivation. However, during the drought of 1972 some of the bullocks died of starvation and other had to be sold.

Jowar accounts for 68.4 per cent, Pulses 8.6 per cent and Oil-seeds 13.7 per cent of the total cropped area.

13. Bhose

Bhose is the second largest among the sample villages with 547 families in respect of whom we had canvassed family schedule. The village is connected to Pandharpur about 16 Kms. away and almost every hour there is a bus from Pandharpur as the buses for Karkamb, Tembhorni or Fatwardhan Kuroli run via Bhose. The nearest railway station is Babbulgaon, 7 Kms. from the village. There is a Post and Telegraph Office, weekly-market on Sundays, veterinary

dispensary, medical clinic, Family Planning Centre, Co-operative Credit Society with 435 members and Gram Panchayat. One of the village leaders was ^{at} ~~of~~ the time of the Survey, the Sabhapati of the Pandharpur Taluka Panchayat Samiti. There is a high school upto the 10th Standard with 15 teachers and 384 students of whom 135 are girls. In the Primary School there are 15 teachers including 5 female teachers. The total number of students is 467 which includes 315 boys and 152 girls. There are 165 domestic connections and about 260 electric motors and pumps for irrigation purposes. There are 7 floor mills in the village, a grain shop and other shops. There are 14 temples and a Masjid, in the village. The villagers receive piped water supply from 5 boring wells.

Of the total cultivable area about 13 per cent, i.e. 370 ha. is classified as irrigable area. Irrigated Jowar 140 ha. and Sugarcane 58 ha. are the main irrigated crops. In the total cropped area Jowar (59.7%), Pulses (26.2%) and Oil-seeds (6.8%) accounted for about 93 per cent of the cropped area.

14. Khed Bhalwani

The village is situated at a distance of about 6 Kms. from the Pune-Pandharpur road, about 20 Kms. from Pandharpur. The nearest railway connection is at Pandharpur. There is a school upto the 7th Standard with 4 teachers and 98 students - 75 boys and 23 girls. There is a flour mill in the village which is run on electricity but the electric power is not used for irrigation purposes. There are 6 domestic connections. There is a Gram Panchayat and a Co-operative Society. For Post, medical aid and such other facilities, the villagers have to go to Pandharpur.

Of the total land in the village, about 95 per cent is classified as cultivable. River Bhima flows on the northern boundary of the village and the cultivators feel that it will be possible to introduce lift irrigation schemes on the river to irrigate some land in the village. At present only about 5 ha. are irrigated by a lift on Bhima. Besides, water from Mira canal is available for irrigating about 40 ha. of land. About one-fifth of the cultivable land is black soil while the rest of the land has inferior, light soil. Jowar is the main crop (64.6%) followed by Rk Pulses (29.0%).

15. Mendhapur

This is the largest among the sample villages, both areawise and populationwise. It is situated about 6 Kms. from Pandharpur-Barshi road and about 25 Kms. from Pandharpur. There is a Gram Panchayat, Post Office and a Multi-Purpose Co-operative Society. The families belonging to Mang Community have formed a Rope-Makers' Co-operative. The 72 families of Mang Community in this village form the third largest group, the first two being Maratha (454 families) and Dhangar (93 families). The State Transport buses ply upto the village from Pandharpur. The village is known for supply of milk and also Khava made therefrom. There is a school upto the 7th Standard with 8 teachers - one of them a female. There are 325 students - 225 boys and 100 girls. There is no supply of electricity to the main village. However, at one of the hamlets, there are 35 electric motors and pumps. The main village has about 40 per cent of the total population and the remaining in three hamlets, namely, Pandharswadi, Jadhavwadi and Chilachiwadi.

Jowar (65.3%), Pulses (14.3%) and Oil-seeds (11.3%) account for more than ix ninetenths of the cropped area.

16. Shegaon

Village Shegaon (Dunala) is situated on the bank of river Bhima. Pandharpur, the taluka headquarters, and the holy temples are on the other bank of Bhima. The village can be reached by a ferry from the ghats near the Pandharpur temples or by road, about 5 Kms. from the town. Naturally the villagers depend upon Pandharpur for communication by bus, railway or post, telegraph and telephone, marketing, medical facilities and for high school and college education. The supply of electricity is available. There is a Gram Panchayat, a Multi-purpose Co-operative Society and a Primary School. There are 160 students - 97 boys and 63 girls in the primary school. At Gursale, about 10 Kms. from the village the Vithal Sahakari Sakhar Karkhana and at Puluji, about 25 Kms. from the village, the Bhima Sahakari Sakhar Karkhana were being set up at the time of the Survey. Some of the villagers go to Pandharpur in search of non-agricultural employment at the brick-kilns, saw-mills, lathes etc. The Government of Maharashtra has rehabilitated some of the families whose lands were submerged in Ujani dam.

It was reported that about 60 persons obtain on auction the sandy banks of the river for cultivating cucumber, water-melon and other gourds. The Minor Irrigation Department of the State Government operates a Lift Irrigation Scheme. About one-fifth of the cultivable land is classified as irrigable. From the Family Schedule canvassed during the Survey it was noted that 4.6 cultivators irrigated 157.2 ha. by lift irrigation and 5 cultivators irrigated 20.5 ha. by canal water. Jowar accounts for a little over three-fourths of the cropped area.

Chapter IVPOPULATION AT THE SAMPLE VILLAGES

We have already noted in the introductory chapter the population at the sample villages at the time of the 1951, 1961 and 1971 Population Censuses. For various reasons, stated in the section on 'Limitations of the Data' in Chapter I, the population in the 3,705 families covered during the Bench Mark Survey, namely 21,437 persons, came to about 90.6 per cent of the 1971 Population Census of the sample villages. In the present Chapter we shall consider castewise as well as occupational distribution of families, followed by size of family, family composition as reflected by the relation of the family members with the head of family, agewise distribution of the population, educational status and earner status. In respect of the non-earners, we shall consider the reasons for not earning while in the case of earners we shall consider their main and subsidiary occupations. The other economic features of the population such as their landholding, ownership of assets, income, indebtedness, levels of living etc. will be considered in the chapters to follow.

Castewise Distribution of Families in the Sample Villages

In the publications of the population decennial Censuses, castewise information is not available. However, it is useful to know the caste composition in rural areas in order to see economic inequalities among different castes and their demographic, economic and social conditions. Hence, wherever possible we have given in the present report castewise data. To begin with, in Table No. 4.1 we have given castewise distribution of families in the

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**Table No. 4.1 : Castewise Distribution of Families
in the Sample Villages**

Caste/Caste Group	No. of Families	Percentage
Brahmin	39	1.05
Maratha	1870	50.50
Mali	150	4.04
Dhangar	387	10.44
Lingayat	100	2.70
<u>Artisan Castes</u>		
Sutar (42), Kumbhar (30), Lohar (16), Koshi (5), Sonar (3), Kasar (2), Teli (2), Other Artisan Castes (13)	113	3.05
<u>Service Occupation Castes</u>		
Nhavi (46), Dhobi (21), Gurav (21), Jongam (6), Koli-Bhel (41)	135	3.64
<u>Scheduled Castes</u>		
Mahar (252), Mang (183), Chambhar (83), Dhor (13), Kotwal (1), Bhangi (1), Nav-Budha (1), Caste not stated (107)	641	17.30
<u>Scheduled Tribes</u>		
Phase-Paradhi (48), Kaikadi (36), Lamoni (21), Vadar (10), Gopal Joshi (7) Other Condensing Tribes (20) <i>Wandariya</i>	142	3.83
<u>Other Hindus</u>		
Gujar (2), Wani (4), Vaishya (1), Other Hindus (35)	42	1.13
Muslims	86	2.32
Total :	3,705	100.00

sample villages. For the sake of discussion relating to the main occupation, size of holding and other variables we have grouped some of the castes into appropriate groups such as the Artisan Castes, Service Occupation Castes, Scheduled Castes and Scheduled Tribes. It will be noted from the Table that all the families, except about

2.3 per cent families of Muslims found in 12 out of the 16 sample villages, were of Hindus. The Marathas formed the largest single group accounting for half the total number of families. The Mali families, 4 per cent of the total, were concentrated in Takli-Sikandar, Bhose and Mendhapur and a few in four other villages.

The Brahmins, one per cent of the total, were spread over nine villages and the trading communities similarly scattered also formed about one per cent in the total.

The artisan caste families of Sutar (42 families) and Lohar (16 families), though essential for services to the cultivating families, were not to be found in some of the villages. The families belonging to some service occupations such as Bhavi (46), Dhobi (21), Chambhar (83), Kumbhar (30) were noticed only in some of the villages.

The largest group, next to Marathas, was that of families of Dhangar caste found in all except two villages. They accounted for 10 per cent of the total families in the sample villages.

The families of Mahar (252 families in 15 villages) and Mang castes (183 families in 13 villages) together accounted for about 12 per cent of the total families. All the 13 families of Dhor caste resided in Bhose.

Among the nomadic tribes (Vimukta Jati) 46 out of the 48 Phase-Paradhi families were at Sadalkot and one each at Pakani and Adhiv. Similarly, 20 out of 21 Lamani families resided at Belati and the remaining family at Shevare.

Main Occupation of the Head of the Family

We have presented in Table 4.2 data regarding the main occupation of the head of the family in respect of

**Table No. 4.2 : Main Occupation of the Heads of Families
in the Sample Villages**

Main Occupation	No.	Main Occupation	No.
Cultivators	2,536	Domestic Servants	11
Agricultural Rent Receivers	9	Barbers	19
Cattle Raising	5	Washermen	3
Goat and Sheep Rearing	3	Tea-shop	4
	----- 2,553 -----	Tamasha etc.	3
Annual Farm Servants	9	Priests	8
Agricultural Labour	271	Medical Doctor	1
Non-Agricultural Labour	259	Other Services	3
Labour	142		----- 52 -----
	--- 681 ---	Salaried job (Private)	10
Butcher	1	Nurse/Health Visitor	1
Flour Mill	2	Service	18
Oil-Seed Crushing	2	Teachers	24
Tailors	5	Government Service	38
Footwear Making and Repairing	9	Police	1
Roap making	1	Village Workers	14
Blacksmiths	7	Service in Gram Panchayat	18
Coppersmith	1	Service in Post and Telegraph Office	7
Carpenters	16	Service in Sugar Factory or other factories	12
Basket Makers	4		--- 143 ---
Masons	5	Dependent on rent, interest etc.	1
Other Manufacturing	2	Dependent on remittances	4
	--- 55 ---	Educands	4
Grocers	9	Household work	2
Dairy	3	Beggars	4
Pan-Bidi	1	Alimony	1
Firewood Depot	1		--- 16 ---
Cloth Shop	3	Not working due to old age, etc.	184
Transport by Truck	1		--- 200 ---
Boatmen	3		--- 200 ---
	--- 21 ---	Total Families	--- 3,705 ---

the families in the sample villages. Normally the main occupation would be the one which brings the maximum income but it may also be associated with prestige or hereditary occupation which the respondent may state as the main occupation irrespective of whatever income it fetched. We may state here that the main occupation in the present study means the one the respondent considered as his/her main occupation.

Agriculture was reported as the main occupation by 75 per cent of the total families in the sample villages. The next largest reported main occupation was labour - agricultural as well as non-agricultural. As stated elsewhere the field investigators did not note precisely whether the main occupation was agricultural or non-agricultural labour and often stated merely 'labour'. We shall, therefore, take into account together all those families which reported 'labour', 'agricultural' and/or 'non-agricultural labour'. These 672 families form about 18 per cent of the total families. Thus if along with the cultivators we take into account the families which reported labour as the main occupation and also those who depended on agricultural rent, cattle raising or sheep rearing, we find that these families account for 94 per cent of the total families in the sample villages. Thus hardly six per cent of the families considered non-agri-cultural occupation/service as the main occupation. ^{reporting} Those Manufacturing and repairing and trading as their main occupation together formed 2 per cent of the total families. The remaining 4 per cent of the total families were mainly in salaried jobs of the local self-government, State Government or Central Government or in private institutions, like schools. Only about one per cent reported such service

occupations as of barber's or washerman's as their main occupation.

The information regarding the main occupation of the head of the family thus brings home the predominant share of agriculture and labour in the rural economy of the region surveyed.

Caste and Main Occupation of the Family

It is interesting to see the extent to which the families consider their hereditary or traditional occupation as the main occupation of the family. We have presented in Table No. 4.3 data regarding castes and family main occupation. We shall examine the data regarding the main occupation of the family in respect of some of the major castes/caste-groups in the sample villages.

Brahmins

Of the 39 families, two-thirds reported agriculture, though it is not the caste occupation of this community. 8 families reported salaried jobs as the main occupation. Of the remaining 5 families, two were engaged in trading; one depended on agricultural rent and two did not report any occupation due to old age.

Marathas

This is a community devoted to cultivation. Of the 1870 families, 81 per cent reported agriculture, 9 per cent reported agricultural/non-agricultural labour and 1 per cent reported livestock etc. as the main occupation. 3 per cent of the families reported salaried jobs as the main occupation. Of the remaining about 6 per cent, that is 125 families, 5 were engaged in manufacturing, 5 in trading, one in transport and 2 in service occupations. 11 families depended upon unearned income while in respect

Table No. 4.3 : Caste and Family Main Occupation as reported by the Families in the Sample Villages

Caste/ Community	Agriculture	Labour	Manufacturing	Trading and Transport	Service Occupations	Salaried Jobs	Old age of head of family or unearned income	Total
Brahmin	28	-	-	1	1	8	1	39
Maratha	1,527	171	5	6	2	55	104	1,870
Mali	118	17	-	-	-	4	11	150
Dhangar	310	41	1	3	-	13	19	387
Lingayat	79	7	1	2	-	8	3	100
Artisan Castes	53	18	21	2	1	7	11	113
Service Occupation Castes	63	18	1	3	37	5	8	135
Scheduled Castes	221	348	15	-	8	29	20	641
Scheduled Tribes	87	36	8	1	1	5	4	142
Other Hindus	23	6	1	2	-	3	7	42
Muslims	44	19	2	1	2	6	12	86
	2,553*	681	55	21	52	143	208	3,705

* Includes 9 families reporting receipt of cash/share rent from Agriculture, 5 families reporting Cattle raising and 3 families reporting Goat/sheep rearing as the main occupation.

of 101 families, the head of the family, due to old age, did not report any occupation as the main occupation of the family,

Mali

This community is known in the State as consisting of progressive cultivators. Of the 150 families, 79 per cent reported agriculture and 11 per cent reported agricultural labour as the main occupation of the family. Of the remaining 10 per cent, i.e. 15 families, 11 families did not report any main occupation as the head of the family did not work due to old age while 4 families reported salaried jobs as the main occupation,

Dhangar

There were 387 families, 80 per cent of them reporting agriculture, 11 per cent reporting agricultural/non-agricultural labour and 3 per cent reporting salaried jobs as the main occupation of the family. Due to old age, heads of about 5 per cent families did not report any occupation as the main occupation of the family. Of the remaining, one family reported cattle breeding, another reported masonry, 3 reported grocery or other shop as the main occupation. One head of the family was an educand and reported it as the main occupation of the family. It is important to note that none of the families from this community, which is known for sheep rearing, reported sheep rearing as the family occupation,

Lingayat

Of the 100 families of lingayats, 79 considered agriculture, 7 considered agricultural labour and 8 considered salaried jobs as their main occupation. Due to old age of the head of the family, three families did not report any occupation as the main occupation. Two families considered trading and one family reported carpentry as the main occupation of the family.

Artisan Castes

In this group we have included Sonar, Koshti, Kumbhar, Lohar, Sutar, Kasar and Teli and other artisan castes. Of the 113 families in this group, 46 per cent reported agriculture and 16 per cent reported labour as the main occupation. It is important to note that except 13 out of 42 Suḵar families and 7 out of 16 Lohar families i.e. 18 per cent of the total families in the group, which were engaged in traditional occupations of carpenters and blacksmiths respectively, none of the families from the artisan castes reported the caste/hereditary occupation as the main occupation of the family. In respect of 9 per cent of the families no occupation was reported as the main occupation due to old age of the head of the family, Six per cent of the families reported salaried jobs while the remaining 5 per cent reported trading or other occupations.

Service Occupation Castes

We have included herein Dhobi, Nhavi, Gurav, Jangam and Koli castes, in all 135 families. Nearly half of them reported agriculture and 14 per cent reported labour as the family main occupation. 18 out of 46 families of Nhavi caste reported barber's i.e. their caste-occupation as the main occupation of the family. Similarly, 3 out of 21 families of Dhobi community reported washing clothes which is the caste/hereditary occupation as their main occupation. So also 5 out of 27 families belonging to Gurav and Jangam castes reported their caste occupation, namely priest, as the main occupation. 11 families from the Koli community reported hereditary occupations, namely, supplying water for domestic use and three more families reported transport by small boat as their main occupation. Thus 40 out of 125 families, i.e. 32 per cent of the total families in the group reported their caste/hereditary

occupation as the family main occupation. The remaining 4 per cent of the families were engaged in salaried jobs or other occupations.

Scheduled Castes

In this group we have included Mahar, Mang, Chambhar, Dhor, Bhangi and other scheduled caste families, in all 641 families. Of the 252 families in the Mahar community 50 per cent of the families reported labour, 38 per cent reported agriculture and 6 per cent reported salaried jobs, as the main occupation of the family. About 4 per cent of the families did not report any occupation as the main occupation of the family. Among the remaining about two per cent, three families reported carpentry, cattle rearing and religious work respectively as the main occupation while the fourth family reported depended on alimony.

In the Mang community dependence on cultivation of land was lesser still as only 14 per cent of the families reported agriculture as the main occupation. As many as 76 per cent of the families reported labour as the main occupation. Among the other occupations reported were Rope-making 2 families and Tailoring, Carpentry, Masonary and goat rearing one family each.

The Chambhars, 83 families and Dhors 13 families, reported only 8 families in footwear-making/tanning. 61 families (53 of Chambhars and 8 of Dhors) reported agriculture and 17 families reported labour as the main occupations. 4 families reported salaried job and 2 families reported service occupation as the main occupation while 4 families did not report any occupation as the main occupation of the family.

Among the 109 families belonging to the other scheduled castes only one-third reported agriculture as the main occupation; while 58 per cent reported labour as the

main occupation, 4 per cent reported salaried jobs and the remaining, about 5 per cent of the total families, reported other occupation in trading etc.

Scheduled Tribes

Phase Paradhi, Laman, Kaikadi, Wadar, Gondhali, Gopal Jeshi and other tribes are considered in this group consisting of 142 families. The Phase Paradhi community at Badalkot had formed a Co-operative Farming Society and 46 out of 48 families in the community reported agriculture as the main occupation. Of the 21 families of Lamans, 19 reported casual labour and 2 families reported agriculture as the main occupation. Of the 36 families belonging to Kaikadi community 19 reported agriculture, 8 reported labour and 4 reported basket-making as the main occupation, 2 families reported salaried jobs as the main occupation. One family head was an educand and the remaining 2 families did not report any occupation as the main because the head of the families did not work due to old age. Of the remaining 27 families from this group, 17 reported agriculture, 5 reported labour, 2 reported salaried job and one each reported carpenter's, grocer's and priest's as the main occupation.

Muslims

44 out of 86 families, i.e. 51 per cent reported agriculture and 19 families, i.e. 22 per cent reported labour as the main occupation. 7 per cent reported salaried jobs and 2 families reported tailoring as the family main occupation. 14 per cent of the families did not have any occupation as the main occupation of the family,

Caste and Main Occupation

To conclude we may note that on the whole 68 families reported agriculture and 18 per cent of the families

reported labour as the main occupation of the family though agriculture formed a larger proportion in the advanced communities while labour formed a major proportion among the scheduled castes and scheduled tribes. Except some of the families of Sutar (Carpenters), Lohar (blacksmiths), Koli (Fishermen), Nhavi (barbers), Gurav and Jengam (Priests) communities most of the families from the artisan and service occupation caste groups did not consider their caste/hereditary occupation as the main occupation. There were a few instances (one Lingayat, one Mahar and one Mang family) where carpentry was reported as the main occupation by families belonging to the castes other than that of Sutar community. The sample villages thus represent an area predominated by agriculture and labour with insignificant trading or manufacturing activity and without significant mobilisation from caste/hereditary occupation except the pursuit of agriculture or labour irrespective of the caste.

Sex-Ratio

The 3,705 families in the sample villages reported 21,437 persons consisting of 11,705 males and 9,732 females. The sex-ratio, that is the number of females per 1000 males, came to 831 females per 1000 males. This ratio is considerably lower than the sex ratio for Solapur district as per the 1971 Population Census, which was 933 females per 1000 males. We do not have any information to throw light on the lower sex-ratio at the sample villages as compared to the district ratio, the only similarity in both being more males than females.

Adult-Non-Adult Population

For the sake of analysis we have divided the population into adult and non-adult groups. The adults include

those who were 15 years old or more and the non-adults who were 14 years old or below that age at the time of the survey. The composition of the male/female, adult/non-adult population was as follows :

	<u>No.</u>	<u>Per cent</u>
Male adults	7,140	33.3
Male non-adults	4,565	21.3
Female adults	5,925	27.6
Female non-adults	3,807	17.8
Total	----- 21,437	----- 100.0

It will be noted from the data that the sex-ratio in the adult and non-adult population, namely 829 and 833 respectively, is not different from the overall sex-ratio for the total population in the sample villages.

Family Size

The 3,705 families in the sample villages consisted of 21,437 persons. The average family size came to 5.785 persons per family. The unimember or two member families accounted for less than one-tenth of the total families. The families with 3 to 7 persons each accounted for 71 per cent of the total families. The families with 8 to 11 per cent formed about 15 per cent of the total families. The remaining about 5 per cent of the total families had double or more than double the average family size.

Relation of the Family Members with the Head of Family

We shall now consider the family composition as reflected by the relation of members in the family with the Head of Family. We have given in Table No. 4.4 distribution of total population according to its relation with the heads of families. It will be seen from the Table that most of the families consisted of the head of the

family, together with some direct relatives such as husband/wife, parents, sons and daughters, and grandsons, and granddaughters, nephews and nieces and daughter-in-law which together account for almost the entire population. Only about 4 per cent of the families reported females as head of family. Son-in-law, brother-in-law and other male and female relation together accounted for less than one per cent of the total population. We have earlier noted that the average family size was about 5.8 persons which also supports the observation that most of the families were composed of the direct blood relations of the heads of families.

Age-wise-Distribution

Table No. 4.4 : Distribution of Male/Female Population According to Relation with the Head of Family

Relation with the Head of Family	Male	Female
Head of the family himself/herself	3,563	125
Husband/wife	28	3,278
Father/Mother	125	567
Son/Daughter	6,206	3,158
Grandson/Grand-daughter	869	707
Brother/Sister	641	178
Brother-in-law/Sister-in-law	2	293
Son-in-law/Daughter-in-law	21	1,207
Nephew/Niece	186	151
Other Relation	64	68
Total :	11,705	9,732

Agewise Distribution

In Table No. 4.5 we have given the percentage distribution of male-female and total population in different age-groups. The proportion of non-adults in the male as also the female population is about the same, namely, 39 per cent, of the total male and female population. Large difference is found in the age-group 15-19 years where the male population formed 10.8 per cent of the total as against 7.6 per cent of the total in the case of the female population. The difference is made good by slightly higher proportion in the subsequent age-group in the female population vis-a-vis the male population.

Table No. 4.5 : Percentage Distribution of Male/Female Population According to Age

Age-Group	Male	Female	Total
	%	%	%
0 - 5	11.3	12.3	11.7
5 - 9	14.6	15.1	14.9
10 - 14	13.1	11.7	12.5
15 - 19	10.8	7.6	9.4
20 - 24	8.6	9.5	9.0
25 - 29	8.2	8.9	8.5
30 - 34	6.4	6.6	6.5
35 - 44	10.7	11.0	10.8
45 - 59	10.0	11.2	10.5
60 and above	6.3	6.1	6.2
Total	100.0	100.0	100.0
	-11,705	-9,732	-21,437

Educational Status

At the time of the Bench-Mark Survey, about 86 per cent of the population reported in the Family Schedule was not either in schools or taking higher education. These included children below the school going age who formed 11.2 per cent of the total population. The remaining 14 per cent were educands, that is going to school or taking higher education. We have presented in Table No. 4.6 data regarding non-educands and X in Table No. 4.7 data regarding educands.

Non-educands, that is those who were not continuing education at the time of the Survey, ^{also} include children below the school going age as well as those who were above the school-going age but could not read or write i.e. illiterate. The illiterate were found among the adults as also non-adults, both male and female. The illiterate formed 56.8 per cent of the total population in the sample villages, the children going below the school ^{going} age formed 11.2 per cent and the literate, either educands or non-educands, accounted formed 33 per cent. The illiterate, if we exclude children below school going age from the total population, formed 63.9 per cent and the literates 36.1 per cent.

Among the non-educand literate male adults, most of them had taken education upto primary school. About 38 per cent had education upto the 4th standard, another 36 per cent had studied between 5th to 8th standard and 20.8 per cent had studied between 8th and 11th standard. The remaining, only about 5 per cent, had passed the S.S.C. examination or taken college or technical education.

In the female adult non-educands, the literates formed only 10.7 per cent as against 41.2 per cent in the

Table No. 4.6 : Distribution of Male/Female, Adult/Non-adult Non-Educand Population, the Sample Villages Classified According to Their Educational Achievement

	Male Adult	Male Non-Adult	Female Adult	Female Non-Adult	Total
Below school-going age	-	1,316	-	1,082	2,398
Illiterate	4,001	1,247	5,259	1,670	12,177
Upto 4th Std.	1,061	107	327	190	1,685
5th to 8th Std.	999	62	234	70	1,365
9th to 11th Std.	585	8	58	3	654
S.S.C. Pass	27	-	3	1	31
College Education	53	-	1	-	54
Graduate	77	-	8	-	85
Post-Graduate	3	-	-	-	3
Technical Education	2	-	1	-	3
Total	6,808	2,740	5,891	3,016	18,455

Table No. 4.7 : Distribution of Male/Female, Adult/Non-Adult Educands in the Sample Villages classified According to Level of Education

	Male Adults	Male Non-Adults	Female Adults	Female Non-Adults	Total
Upto 4th Std.	14	2,278	2	623	1,917
5th to 8th Std.	57	439	8	155	659
9th to 11th Std.	185	105	18	13	321
S.S.C.	5	1	-	-	6
College Education	60	-	5	-	65
Graduate	3	-	-	-	3
Post-Graduate	5	-	1	-	6
Technical Education	3	2	-	-	5
Total	332	1,825	34	791	2,982

case of male adults. Only 2 per cent of the literate female adult non-educands had passed the S.S.C. examination or taken college or technical education as against 5.7 per cent in the male-adult literate non-educands.

The higher percentage of illiterates in the adult population and among the literates, a lower percentage of those who had higher education in the case of male adults, is something not unexpected. However, the fact that even among the non-adult-male and female non-educands, leaving aside the non-adults below the school going age, the illiterate formed about 87 per cent among the boys as well as girls is something quite disturbing. In spite of the existence of primary schools in all the sample villages it is unfortunate that a large proportion of the children remained illiterate. Hardly ten per cent of the children were reported as earners. We do not know what prevented the parents of these large number of children from ^{sending them} taking education at least upto the primary 4th standard. The Educands, that is, those who were either in school or taking higher education, formed about 15.7 per cent, if we exclude the children below the school going age from the total population. Among the male/female, adult/non-adult population their proportion was as follows :

	Educands as % of the <u>total</u>
Male Adults	4.6
Male Non-adults	83.0*
Female Adults	5.7
Female Non-adults	29.0*

Total	15.7*

* After deducting from the total those below the school-going age.

If we take into consideration the adult males and females, the fact that only about 5 per cent of them were educands again shows that not many of the adults pursued higher education. Among the non-adults it is heartening to note the high percentage of the boys going to school but the position in respect of girls is discouraging. Less than one-third of the non-adults girls of school-going age were in schools at the time of the Survey. One has to wait and see whether with increase in irrigation facilities due to water from Ujani Canal and consequent rise in yield and income from agriculture, employment opportunities that might be generated due to intensive irrigated agriculture, the proportion of educands, particularly the female-non-adults increases in the years to come.

Earners Status

The male/female, adult/non-adult population classified as earners and non-earners is shown below:

	<u>Earners</u>	<u>Non-Earners</u>	<u>Total</u>
Male adults	6,419	721	7,140
Male non-adults	363	4,202	4,565
Female adults	4,689	1,236	5,925
Female non-adults	256	3,551	3,807
	-----	-----	-----
	11,727	9,710	21,437

It is found that the earner:non-earner ratio is 55:45. The population of non-earners among the male and female adults was 89.9 and 79.1 per cent respectively. In the non-adult population among the males and females the corresponding proportion was 8.0 and 6.7 per cent respectively. In the following sections we shall consider the reasons for not earning in the case of non-earners,

Reason for Not-Earning in the Case of Non-Earners

In Table No. 4.8 we have given a distribution of male/female, adult/non-adult non-earners according to reasons for not-earning. As is to be expected in the non-adult population, the reason for not-earning was either they were not old enough to work or they were studying in schools. In the male adult population, apart from the two reasons stated above, old age was another reason for not earning. It was more so in the case of female adults. It is important to note that 50 male adults, that is less than one per cent of the total male adults and only 2 female adults reported themselves as unemployed. Among the female adult non-earners, household work was the reason for not working reported by about half of them. In the case of less than 0.3 per cent, physical disability being crippled was the reason for

Table No. 4.8 : Distribution of Male/Female, Adult/Non-adult Non-Earners According to Reasons for Not Earning

Reason	Male		Female		Total
	Adult	Non-Adult	Adult	Non-Adult	
1. Not old enough	22	2,363	12	2,612	5,009
2. Studying	311	1,767	32	784	2,894
3. Old Age (60 years and above)	269	-	497	-	766
4. Household work	2	-	566	78	646
5. Unemployed	50	-	2	-	52
6. Crippled	15	2	10	-	27
7. Sickness	1	-	-	-	1
8. Not stated	51	70	117	77	315
Total :	721	4,202	1,236	3,551	9,710

not earning. We shall now proceed to consider the earners.

Earners

In the 3,705 families in the sample villages, there were 11,727 earners, on an average 3.2 earners per family. The composition of the earners was as follows :

	<u>No.</u>	<u>Per cent</u>
Male adult earners	6,419	54.7
Male non-adult earners	363	3.1
Female adult earners	4,689	40.0
Female non-adult earners	256	2.2
	<u>11,727</u>	<u>100.0</u>

Age-wise Distribution

The Age-wise distribution of earners is shown in Table No. 4.9. It will be noted from the Table that the work force was confined to ages 15 to 59 which had 90 per cent of the total earners. Except for the fact that the female earners accounted for a smaller proportion, namely 42.2 per cent, than the male earners namely 57.8 per cent,

Table No. 4.9 : Percentage Distribution of Male/Female Earners According to Age

<u>Age-Group</u>	<u>Male Earners</u>	<u>Female Earners</u>	<u>Total Earners</u>
	<u>%</u>	<u>%</u>	<u>%</u>
5 to 9	0.1	0.2	0.2
10 to 14	5.2	5.0	10.1
15 to 19	13.9	11.2	25.7
20 to 24	13.6	15.6	29.2
25 to 29	13.8	15.5	29.3
30 to 34	11.0	11.6	22.6
35 to 44	18.4	19.6	38.0
45 to 59	16.7	17.3	34.0
60 and above	7.3	3.8	11.1
<u>Total</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>

the distribution of the male and female earners in different age-groups is more or less similar but for the last age-group. The female earners in the age-group 60 years and above formed only 3.8 per cent of the total female earners as against 7.3 per cent in the case of male earners.

Relation with the Head of Family

We have given in Table No. 4.10 distribution of male/female earners according to their relation with the head of family. This is more of sociological interest but it also shows that practically all the earners are direct blood relation of the head of the family. Almost 94 per cent of the head of families were earners. Such relations as brother/sister, brother-in-law/sister-in-law, son-in-law, nephew/niece and other relations formed only 8 per cent of the total earners.

Table No. 4.10 : Distribution of Male/Female Earners According to Relation with the Head of Family

Relation with the Head of Family	Male	Female
Head of the family himself/herself	3,361	110
Husband/wife	26	2,842
Father/Mother	1,746	213
Son/Daughter	2,719	430
Grand-son/Grand-daughter	58	31
Brother/Sister	507	66
Brother-in-law/Sister-in-law	2	232
Son-in-law/Daughter-in-law	19	995
Nephew/Niece	25	7
Other Relation	19	19
Total :	6,782	4,945

Educational Status and Education

Only 33 per cent out of 11,727 earners were still pursuing their education as follows :

<u>Educational Qualification</u>	<u>Male Earners</u>	<u>Female Earners</u>
Upto 4th Standard	5 non-adults 2 adults	1 non-adult
5th to 8th Standard	4 non-adults 5 adults	-
9th to 11th Standard	1 non-adult 9 adults	-
College Education	1 non-adult 5 adults	-
	----- 11 non-adults & 21 adults	----- 1 non-adult

The overall educational qualifications of the earners are shown in Table No. 4.11. It is important to note that as many as 58 per cent of the male adult earners and 89 per cent of the female adult earners, that is on the whole 71 per cent of the earners, were illiterate. 12 per cent of the earners had studied upto the 4th standard, another 16 per cent had studied above the 4th and upto the 11th standard and the remaining only about one per cent, had studied above the S.S.C. level. The attainment of the female earners was lower than that of the male earners and even the male earners had, most of them, not taken high school or higher education.

It is also important to note that among the non-adult earners who were in the age-group 5-14 years and were of the school going age, 70 per cent of the male non-adult earners and 78 per cent of the female non-adult earners were illiterate.

Earners Classified According to Their Main and Subsidiary Occupation

We have noted earlier that there were 11,727 earners in the sample villages. Some of them, about 2.6 per cent

Table No. 4.11 : Distribution of Non-Educand Earners According to their Educational Achievement

Educational Qualification	Male Adult	Male Non-Adult	Female Adult	Female Non-Adult	Total
Illiterate	3,716	246	4,196	200	8,358
Upto 4th Std.	1,020	52	277	29	1,378
5th to 8th Std.	973	46	179	24	1,222
9th to 11th Std.	554	8	30	2	594
S.S.C. Pass	26	-	2	-	28
College Education	42	-	1	-	43
Graduate	63	-	4	-	67
Post-Graduate	2	-	-	-	2
Technical Education	2	-	-	-	2
Total :	6,398	352	46,893	255	11,694

of the total, did not consider any occupation as the main occupation. About 39 per cent of the total earners reported a subsidiary occupation. Only 35 male adults, 8 female adults and 2 female non-adults reported second subsidiary occupation. The position may be summed up as follows :

	Total No. of Earners	Reporting No Main Occupation	Reporting a Subsidiary Occupation	Reporting Two subsidiary Occupations
Male adults	6,419	88	2,625	35
Male Non-Adults	363	13	88	-
Female adults	4,689	200	1,729	8
Female Non-adults	256	8	97	2
Total	11,727	309	4,539	45

Male Adult Earners

We have given in Table No. 4.12 distribution of the male/female adult earners as also male/female non-adult earners according to their main occupation as also subsidiary occupation. We shall first consider the male adult earners and their main occupation. It will be noted from the Table that three of the male adults were not working, one was a pensioner, the second depended upon remittances and third reported old age as the main occupation. Besides, 88 persons did not consider any occupation^{as} their main occupation but followed an occupation which they considered as subsidiary. Out of the remaining 6,328 earners, 71 per cent were engaged in cultivation of land. As for the labourers, as stated earlier, the field investigator often did not record specifically agricultural or non-agricultural labour. If we consider those reporting labour, agricultural labour and non-agricultural labour together, we find that such earners formed about 18 per cent of the total. Those who reported cattle raising, sheep rearing and poultry farming formed 2 per cent of the total. Thus, those engaged in agriculture, labour and livestock occupations together formed about 92 per cent of the total earners. The next largest group was to be found in salaried earners who accounted for about 5 per cent of the total. The remaining, only about 3 per cent of the total male earners, reported manufacturing, trading, transport and service occupations as their main occupation.

Female Adult Earners and Male and Female Non-Adult Earners

We shall now consider the female adult earners as well as the male and female non-adult earners together. The occupation reported as the main occupation by the female adult earners and male and female non-adult earners

Table No. 4.12: Total Frequency of Male Adult, Female Adult and Non-adult Farmers in Different Occupations Reported as Main and Subsidiary Occupation

Occupation	Male Adults			Female Adults			Non-Adults		
	Main	Subsidiary	Total	Main	Subsidiary	Total	Main	Subsidiary	Total
<u>Agriculture, Livestock and Fishing</u>									
Cultivation of Land	4,489	72	4,561	3,339	36	3,375	346	5	351
Agricultural Rent Receiver	2	-	2	-	-	-	-	-	-
Annual/Monthly Farm Servant	24	6	30	1	1	2	-	-	-
Casual Agricultural Labour	328	569	897	333	466	799	33	32	65
Agricultural & Non-Agricultural Labour	100	82	182	70	58	128	4	3	7
Non-Agricultural Labour	483	860	1,343	393	615	1,008	65	73	138
Labour	248	704	952	251	482	733	25	33	58
Cattle Raising	38	13	51	9	10	19	47	9	56
Rearing Goat/Sheep	87	36	123	27	26	53	66	28	94
Poultry Farming	7	3	10	5	-	5	3	-	3
Fishing	5	3	8	3	-	3	1	-	1
Wood-Cutting	-	-	-	-	-	-	-	-	-
Sub-Total	5,811	2,348	8,159	4,431	1,094	6,125	590	183	773
<u>Manufacturing</u>									
Butcher	1	2	3	1	-	1	-	-	-
Flour Mill	6	11	17	-	-	-	-	-	-
Dairy Products	-	2	2	-	-	-	-	-	-
Tailor	12	32	44	3	6	9	-	1	1
Roap Making	3	15	18	3	8	11	-	1	1
Footwear Manufacturing/Repairing	9	12	21	4	1	5	1	-	1
Blacksmith	8	8	16	4	3	7	-	-	-
Coppersmith	1	-	1	1	-	1	-	-	-
Goldsmith	1	2	3	-	1	1	-	-	-
Potter	2	3	5	-	3	3	-	-	-
Carpenter	19	39	58	4	6	10	1	-	1
Basket Weaving	4	1	5	4	-	-	-	-	-
Mason	13	6	19	1	-	1	-	-	-
Other Manufacturing	5	1	6	1	-	1	1	-	1
Sub-Total	84	134	218	26	28	50	3	2	5
<u>Trade and Transport</u>									
Grocer's Shop	24	28	52	-	2	2	-	2	2
Sweetmeat Shop	-	3	3	-	1	1	-	-	-
Dairy	4	6	10	-	4	4	-	-	-
Fish-Mutton Shop	-	3	3	-	-	-	-	-	-
Pan-Bidi Shop	1	-	1	-	-	-	-	-	-
Bangles Shop	-	2	2	-	-	-	-	-	-
Firewood Depot	1	2	3	1	-	1	-	-	-
Vegetable Shop	-	7	7	-	3	3	-	-	-
Cloth Shop	3	-	3	-	-	-	-	-	-
Wholesale Trader	1	2	3	-	-	-	-	-	-
Other Shops	-	5	5	-	-	-	-	-	-
Bicycle Hire and Repairer	1	-	1	-	-	-	-	-	-
Bullock Cart Transport	1	3	4	-	-	-	-	-	-
Truck Transport	5	2	7	-	-	-	-	-	-
Boatman	6	4	10	-	-	-	-	-	-
Sub-Total	47	67	114	1	10	11	-	2	2

Continued...

Table No. 4.12 - Continued:

Occupation	Male Adults			Female Adults			Non-Adults		
	Main	Subsidiary	Total	Main	Subsidiary	Total	Main	Subsidiary	Total
Occupation not-stated	88	-	88	200	-	200	21	-	21
Sub-Total	91	2	93	206	2	208	21	-	21
TOTAL:	6,419	2,660	9,073	4,689	1,737	6,426	619	187	806

Table No. 4.12 - Continued:

Occupation	Male Adults			Female Adults			Non-Adults		
	Main	Subsi- diary	Total	Main	Subsi- diary	Total	Main	Subsi- diary	Total
Service Occupations									
Supplying water for domestic use	14	6	20	-	-	-	-	-	-
Barber	29	18	47	-	-	-	-	-	-
Washermen	3	2	5	3	-	3	1	-	1
Tea Shop	7	2	9	2	-	2	3	-	3
Tamasha/Darveshi	4	-	4	3	-	3	1	-	1
Priest	10	8	18	1	1	2	-	-	-
Medical Doctor	1	1	2	-	-	-	-	-	-
Lawyer	-	1	1	-	-	-	-	-	-
Other Occupations	5	4	9	-	1	1	-	-	-
Sub-Total	73	42	115	9	2	11	5	-	5
Salaried Jobs									
Private	21	11	32	4	-	4	-	-	-
Nurse/Health Visitor	1	-	1	-	-	-	-	-	-
Teacher	51	6	57	5	-	5	-	-	-
State Government Service	77	8	85	2	1	3	-	-	-
Police	7	-	7	-	-	-	-	-	-
Village Official/worker	15	14	29	-	-	-	-	-	-
Gram Panchayat/zilla Parishad	39	10	49	3	-	3	-	-	-
Post and Telegraph	11	4	15	-	-	-	-	-	-
Sugar/Other Factories	39	2	41	-	-	-	-	-	-
Details not-stated	52	12	64	2	-	2	-	-	-
Sub-Total	313	67	380	16	1	17	-	-	-
Pensioner	1	-	1	-	-	-	-	-	-
Social worker	-	2	2	-	-	-	-	-	-
Dependent on remittances/Alimony	1	-	1	2	-	2	-	-	-
Old Age/Household work	1	-	1	3	2	5	-	-	-
Begger	-	-	-	1	-	1	-	-	-
Occupation not-stated	88	-	88	200	-	200	21	-	21
Sub-Total	91	2	93	206	2	208	21	-	21
TOTAL:									
	6,419	2,660	9,073	4,689	1,737	6,426	619	187	806

^{was} /also limited to agriculture and labour. If we exclude those earners who did not report any main occupation, we find from Table No. 4.12 that about 75 per cent of the female adult earners, 53 per cent of the male non-adult earners and 65 per cent of the female non-adult earners reported cultivation of land as the main occupation. Those reporting agricultural and non-agricultural labour formed about 21 to 23 per cent among the female adult earners and male and female non-adult earners. Only one per cent of the female adult earners reported cattle raising and goat/sheep rearing and the remaining one per cent were found in other occupations, mainly in traditional/family/caste/hereditary occupation.

Male Non-adult Earners

Among the male non-adult earners, of the 25 per cent who reported occupation other than agriculture or labour, 23 per cent reported cattle raising/rearing as their main occupation and the remaining, about less than two per cent of the total reported other occupations.

Female Non-adult Earners

As regards the female non-adult earners also, agriculture (65 per cent), labour (21 per cent) and cattle raising and sheep/goat rearing (13 per cent) accounted for 99 per cent and only one per cent of them reported other occupations.

Subsidiary Occupations

About 40 per cent of the male adult earners reported a subsidiary occupation. Among those who reported a subsidiary occupation, it was found that agriculture and labour was reported as subsidiary occupation by most of them. We may refer to Table No. 4.12 .

It is interesting to note that 84 Male-adults, and 26 Female-adults and 3 non-adult earners reported a manufacturing activity as the main occupation whereas 134 Male-adults and 28 Female-adults and 2 non-adults reported a manufacturing activity as a subsidiary occupation. This suggests that there is not enough work for the latter to work full time in the manufacturing occupations.

Main vis-a-vis Subsidiary Occupation of Male Adult Earners

We have tabulated and presented in Table No. 4.13 in a summary form the relation between the main and subsidiary occupation of the male adult earners. It will be noted from the Table that 88 per cent of those who reported cultivation of land, reported labour as the subsidiary occupation which suggests that income from agriculture was not adequate to support their families. We may state that 85 per cent of the families had landholding upto 8 ha. Thus, not only the small and marginal farmers but also a majority of the medium cultivators worked as labourers to supplement their income from agriculture. We may also remember that about one-fourth of the total income of the cultivators' families came from labour. At the same time about 10 per cent who pursued manufacturing, trading or a service occupation or had salaried job, either did not have adequate income therefrom, or cultivated land because they owned it and did not want to lose their right by leasing it out for cultivation.

Among these who reported labour as the main occupation, half of them cultivated land, about one-fourth pursued a manufacturing occupation, about 15 per cent were in a service occupation and the remaining were in trade and transport.

Table No. 4.13 : Subsidiary Occupations Reported by Male Adult Earners in Relation to their Main Occupation

Main Occupation	Subsidiary Occupation							Total
	Cultivation of land	Cattle raising etc.	Labour	Manufacturing	Trade and Transport	Service Occupations	Salaried Job	
Cultivation of land	-	48	2084	90	61	29	63	2,375
Cattle Raising/Goat/Sheep Rearing/Poultry	-	-	3	-	-	-	-	3
Labour	37	2	1	18	5	10	1	74
Manufacturing	3	-	12	5	-	-	-	20
Trading and Transport	3	1	1	-	-	1	-	6
Service Occupation	3	-	27	-	-	1	-	31
Salaried Jobs	23	-	1	-	-	-	-	24
No Main Occupation	2	-	80	3	-	1	2	88
Other Occupation	1	-	2	1	-	-	-	4
Total :	72	51	2211	117	66	42	66	2,625

Of those who reported occupations other than agriculture or labour as their main occupation had cultivation of land or labour as their subsidiary occupation.

Subsidiary Occupation of Female Adult Earners

Among the female adult earners also, as many as 38 per cent of them reported a subsidiary occupation. About 2 per cent of them reported cultivation of land, another about 2 per cent reported cattle/sheep/goat rearing, about 1.5 per cent participated in manufacturing activity and the remaining, less than one per cent, reported other occupations as a subsidiary occupation while about 94 per cent of

Table No. 4.13 : Subsidiary Occupations Reported by Male Adult Earners in Relation to their Main Occupation

Main Occupation	Subsidiary Occupation							Total
	Cultiv- ation of land	Cattle rais- ing etc.	La- bour	Manu- fac- tur- ing	Trade and Trans- port	Servi- ce Occu- pations	Salaried Job	
Cultivation of land	-	48	2084	90	61	29	63	2,375
Cattle Raising/ Goat/Sheep Rearing/Poultry	-	-	3	-	-	-	-	3
Labour	37	2	1	18	5	10	1	74
Manufacturing	3	-	12	5	-	-	-	20
Trading and Transport	3	1	1	-	-	1	-	6
Service Occupation	3	-	27	-	-	1	-	31
Salaried Jobs	23	-	1	-	-	-	-	24
No Main Occupa- tion	2	-	80	3	-	1	2	88
Other Occupation	1	-	2	1	-	-	-	4
Total :	72	51	2211	117	66	42	66	2,625

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Subsidiary Occupation of Female Adult Earners

Among the female adult earners also, as many as 38 per cent of them reported a subsidiary occupation. About 2 per cent of them reported cultivation of land, another about 2 per cent reported cattle/sheep/goat rearing, about 1.5 per cent participated in manufacturing activity and the remaining, less than one per cent, reported other occupations as a subsidiary occupation while about 94 per cent of

them reported labour as the subsidiary occupation. We may recall in this context that 3,338 female adult earners had reported cultivation of land as the main occupation and about half of them had to work as labourers to supplement their income from agriculture.

Non-adult Earners following Subsidiary Occupation

About 24 per cent of the male non-adults and 38 per cent of the female non-adults reported a subsidiary occupation. More than 80 per cent of the male non-adult earners reported labour as the subsidiary occupation and another about 15 per cent reported cattle/sheep goat rearing as the subsidiary occupation. Among the female non-adult earners, those reporting labour and rearing cattle/sheep/goat formed about 72 per cent and 23 per cent respectively. Two per cent of the male and 3 per cent of female non-adult earners reported cultivation of land as the subsidiary occupation. Thus only about 2 per cent of the male as well as female non-adult earners reported other subsidiary occupation.

Second Subsidiary Occupation

Only 35 male adult earners, that is a little over half a per cent of the total male adult earners reported second subsidiary occupation. Except three of them, all others had reported cultivation of land as their main occupation. The second subsidiary occupations reported were as follows : Labour - 10, Cattle raising/Sheep and Goat rearing - 4, Manufacturing - 17, (including 10 reporting carpentry), Trade/Service Occupation - 4, = Total 35.

None of the male non-adults reported second subsidiary occupation while only 2 female non-adults reported

sheep/goat rearing as the second subsidiary occupation, their main and first subsidiary occupation being cultivation of land and/or labour.

Among the female adult earners, only 8, that is about 0.2 per cent of the total female adult earners, reported second subsidiary occupation as follows : Rearing sheep/goat - 2, Tailoring - 1, Carpentry - 3, Labour - 2. Six of them had cultivation of land as their main occupation, two of them did not report any occupation as their main occupation. Three each reported labour and potter's as the first subsidiary occupation while the remaining two of them reported blacksmith's as the first subsidiary occupation.

Total Number of Workers in Different Occupations

For the sake of finding out the work force in each occupation we may add up the earners reporting various occupations as main as also first and second subsidiary occupation. The total frequency for this calculation is as follows :

<u>Total Earners</u>	11,726
Less: Those who did not report any occupation as their main occupation	309

	11,417
Add: 1) Those reporting one subsidiary occupation	4,539
ii) Those reporting second subsidiary occupation	45

	16,001

The total frequency of male adult, female adult and non-adult earners in different occupations reported as main and subsidiary is already shown in Table No. 4.12. The data presented in this Table no doubt brings h out the

dominating share of agriculture, labour and livestock enterprise but at the same time it helps to show at a glance the total strength of various manufacturing, trading, transport and service occupations, irrespective of whether such occupations were considered as the main or subsidiary. It is expected that a comparison of these data with the data that may be collected in a repeat survey, after an interval of five to ten years after water from Ujani canal becomes available for irrigation in the sample villages, will help to determine whether and to what extent irrigation helped to change the occupational pattern by providing employment in occupations, other than agriculture, labour and livestock enterprises.

Present Employment Pattern and Future Prospects

Of immediate relevance and consideration is the fact that nearly 92 per cent of the workers depend upon agriculture and labour for their livelihood. The 1971 Population Census for Solapur district also showed that about 85 per cent of the rural workers were either cultivators or labourers. There is a talk of providing employment in rural industries to the workforce in rural areas. The pattern of non-agricultural employment in the sample villages hardly shows any promise of generating further employment in the sample villages in the existing non-agricultural occupations. The village artisans, the traders and those in caste/hereditary service occupations depended to a large extent on agriculture and labour to supplement their income from non-agricultural employment and yet many of them had a total family income of less than Rs. 2,500/- per year. The only ray of hope is the growth in irrigated crops and in particular area under sugarcane after water from Ujani becomes available for irrigation

purposes. The increase in the area under sugarcane may help establish sugar factories leading to further employment in agriculture as also in manufacture of sugar, transport, trading and such other activity.

We shall now proceed to consider in the following Chapter the land, livestock and agricultural tools and implements owned by the cultivators in the sample villages with a view to examine the present position of agriculture which is the principal occupation of the majority population,

LAND, LIVESTOCK AND AGRICULTURAL
TOOLS AND IMPLEMENTS

We have considered in the previous Chapter population in the sample villages and noted the extent of dependence of the workforce upon agriculture to provide employment. We shall consider in the present Chapter, based on the data collected in the Family Schedule, land ownership, land utilisation, sources of irrigation, cropping pattern, irrigated crops, agricultural production as also agricultural tools and implements and livestock owned by the cultivators in the sample villages.

Ownership of Land

In the 16 sample villages, 2,789 families, that is three-fourths of the total families owned land. The cultivated land to man ratio for Solapur district is 0.57:1, i.e. per capita cultivated land is only 0.57 hectare. Nearly 30 per cent of the cultivated area comprises of very shallow and shallow soils which are not fit for cultivation. In the sample villages if we consider the total population therein as reported in the Family Schedule, namely 21,437 persons and the cultivated land reported by them, namely 13,115 ha., the land-man ratio comes to 0.61:1 which is about the same as for Solapur district.

If the land-owning families, about ten per cent of them owned and cultivated land also in the villages adjacent to their village of residence. The average land owned per land-owning family came to 4.64 ha. We, however, find considerable inequality in land-owning, if we consider the distribution of families classified according to the size of land. The relevant data is given in Table No.5.1. It is seen from the Table that nearly 42 per cent of the land was owned by about 16 per cent of the families. At the

Table No. 5.1 : Distribution of Families According to the Size of the Owned Holding

Size of the owned holding	% of total land-owning families	% of total owned land	Average size of land owned per family (in ha.)
1) Upto 1 ha.	12.3	1.8	0.7
2) 1.1 ha. to 2 ha.	17.9	6.2	1.6
3) 2.1 ha. to 3 ha.	13.8	7.5	2.6
4) 3.1 ha. to 4 ha.	12.9	9.7	3.5
5) 4.1 ha. to 5 ha.	8.6	8.3	4.5
6) 5.1 ha. to 6 ha.	6.7	7.9	5.5
7) 6.1 ha. to 8 ha.	10.7	15.8	6.9
8) 8.1 ha. to 14 ha.	11.6	25.2	10.2
9) 14.1 ha. to 22 ha.	3.5	12.1	16.0
10) 22.1 ha. to ^{& above} 22 ha.	0.8	4.5	27.0
11) Those who had completely leased out their land	1.2	1.0	4.2
Total :	100.0	100.0	4.64
	= 2,789 families	= 13,115.3 ha.	

other extreme 44 per cent of the families owned 15.5 per cent of the land. About 30 per cent of the total land-owning families owned less than 2.0 ha. each and hence are considered as small and marginal farmers. According to the Land Ceiling Act (1974) of the Government of Maharashtra, an individual holder or a family unit consisting of the persons, his wife (or wives) and their minor sons and minor unmarried daughters can not possess more than 7.3 ha. of land under perennial irrigation (capable of yielding at least two irrigated crops in a year), 14.6 ha. of land receiving irrigation occasionally under temporary sanctions and 23.8 ha. for dry crop lands. If we take into consi-

deration the distribution of land holdings in different size groups, it is found that the Act may affect some large cultivators but such families holding land in excess of the ceiling are not many and do not have enough surplus land to release for distribution among the large number of landless or small and marginal farmers in the sample villages do make them viable. We have considered in Chapter VII the total family income of the cultivating families. However, we may refer here to the fact that the total family income of about two-thirds of the cultivating families was less than Rs. 2,500/-. This income included not only the income from agriculture but also from labour, livestock and other sources. Thus, land-owningwise as also incomewise, a substantial proportion of the cultivators fall in the category of small and marginal farmers. We may also mention here that as evident from the information reported in the Family Schedule (presented in Table 5.7 and No. 5.8) the average value of agricultural produce per ha. on dry and irrigated crops, after deducting expenditure in cash and in kind, was Rs. 250 and Rs. 1,035 respectively on holdings upto 1.0 ha. The dry-land cultivators can have hope to increase their income after they receive and start using water for irrigation from Ujani Canal for growing irrigated crops. However, one wonders whether there is any chance of the cultivating families with average cultivated holding upto 2.0 ha. becoming viable even after they start taking irrigated crops. Even after cultivating irrigated crops on 2.0 ha. of land many of them may not be able to attain an annual income from Rs. 2,500 from agriculture, labour and other sources, unless they confine to cultivation of sugarcane.

Land Leased Out

The extent of leasing out has been very much on decline during the last 20 years in Maharashtra. In the sample villages only 49 families, that is hardly 1.7 per cent of the total land-owning families reported that they leased out their land to others. 34 out of the 49 families leased out their entire land while the others leased out a part of their owned holding. The system of leasing out land on share rent was more common. About three-fourths of the reporting cultivators leased out land on share-rent basis while the remaining one-fourth leased out on cash rent basis. The average leased out land per reporting family came to 3.6 ha.

Leasing in Land

In respect of leasing-in-land also we find that only 56 families, that is about two per cent of the total land-owning families leased-in land. Here also the practice of leasing-in land on share-rent basis was more common, there being nearly two-thirds of the reporting families in this category. The average leased-in land per reporting family came to 4.0 ha.

Size of Holding in the Sample Villages

With a view to enabling comparison of villagewise changes in the size of holding of cultivators in the sample villages in a repeat survey at any time in the future, we have given in Table No. 5.2 distribution of families according to the size of their cultivated holding. It will be noted from the Table that though the non-cultivating families formed about 24 per cent of the total families in the sample villages, their proportion varied within a wide range. For instance, it was less than ten per cent or about ten per cent at Chandaj from Madha

Table No. 5.2 : Distribution of Families in the Sample Villages according to Size of Cultivated Holdings

	Upto 1.0 ha	1.1 to 2.0	2.1 to 3.0	3.1 to 4.0	4.1 to 5.0	5.1 to 6.0	6.1 to 8.0	8.1 to 14.0	14.1 to 22.0	22.1 and more	Coop. farm- ing	Total cul- tivating families	Non-culti- vating families	Total families
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Madha Taluka														
1) Chandaj	4	16	10	8	11	12	25	18	6	-	10	120	3	123
2) Shevere	14	20	28	29	9	3	20	12	6	1	-	142	63	205
Malshiras Taluka														
3) Umbre-Velapur	27	27	24	12	11	6	8	8	5	-	-	128	27	155
Mangalwedha Taluka														
4) Khomnal	1	9	16	27	6	11	15	16	7	-	-	108	24	132
5) Marapur	16	23	29	24	24	17	22	22	5	4	-	186	25	211
Mohol Taluka														
6) Bhoira	2	17	24	17	21	11	28	26	14	5	-	165	44	209
7) Shingoli	11	17	11	6	11	9	8	7	1	-	-	81	25	106
8) Takli Sikandar	23	35	26	13	14	10	19	17	4	1	-	162	42	204
North Solapur Taluka														
9) Pakani	14	25	25	19	19	16	15	29	10	1	-	173	42	215
10) Belati	22	22	18	16	10	7	15	10	6	1	-	127	87	214
Pandharpur Taluka														
11) Adhiv	29	25	23	17	8	13	10	18	1	1	-	145	46	191
12) Badalkot	-	4	5	4	3	1	4	7	1	2	46	77	9	86
13) Bhose	65	122	50	50	30	23	33	26	7	-	-	406	141	546
14) Khed Bhalwani	7	17	18	15	12	6	15	25	8	1	-	124	21	145
15) Mendhapur	94	95	66	88	41	38	56	82	18	4	-	582	227	809
16) Shegaon	14	23	13	15	11	5	7	1	-	1	-	90	63	153
Total for 16 villages	343	497	386	360	241	188	300	324	99	22	56	2816	889	3705

taluka and Badalkot from Pandharpur taluka respectively, while at the other extreme are Belati from North Solapur taluka and Shegaon from Pandharpur taluka where the non-cultivating families formed a little over 40 per cent of the total families in these villages.

Similarly, if we consider the cultivators into three categories, namely 1) small cultivators with cultivated holding upto 2 ha., 2) medium cultivators with cultivated holding between 2.1 ha. to 6 ha. and 3) Large cultivators whose cultivated holding exceeded 6 ha., we find varying proportions in these categories in the sample villages. We have presented the data in Table No. 5.3. The small cultivators in the sample villages formed about 32 per cent of the total cultivators but at Khomnal they formed only 9 per cent. At the other extreme at Bhose (46 per cent), Shegaon (41 per cent) and Umra Velapur (42 per cent), the small cultivators were found in larger proportion than the average for the sample villages. In the group of large cultivators, though the average for the sample villages was 26 per cent; the large cultivators formed only 10 per cent of the total cultivators at Shegaon while at Chandaaj, Bhose and Khed Ehalwani they formed 40 per cent or more. What disturbs most is the fact that already about one-third of the cultivators have only 2.0 ha. or less of land and not many cultivators have land in excess of the ceiling prescribed under the Land Ceiling Act. This means that not much land is likely to be released as surplus for distribution to the landless or the small farmers. In the years to come though the introduction of irrigation facilities from Ujani project may help the small and marginal farmers to raise their income, sub-division of land due to law of inheritance, implementation of land legislations and in particular the one relating to the

Table No. 5.3 : Percentage Distribution as Small (upto 2 ha.), Medium (2.1 ha. to 6 ha.) and Large Cultivators (more than 6 ha.) in the Sample Villages

	Small (upto 2.00 ha.)	Medium (2.01 to 6.00 ha.)	Large Cultiva- tors (More than 6 ha)	Total
<u>Madha Taluka</u>	%	%	%	%
1) Chandaj	25*	34	41	100 = 120
2) Shevare	24	49	27	100 = 142
<u>Malshiras Taluka</u>				
3) Umba Velapur	42	41	17	100 = 128
<u>Mangalwedha Taluka</u>				
4) Khomnal	9	56	35	100 = 108
5) Karapur	21	51	28	100 = 186
<u>Mohol Taluka</u>				
6) Bheire	12	44	44	100 = 165
7) Shingoli	34	46	20	100 = 81
8) Takli Sikandar	36	39	25	100 = 162
<u>North Solapur Taluka</u>				
9) Belati	35	40	25	100 = 173
10) Pakani	23	46	31	100 = 127
<u>Pandharpur Taluka</u>				
11) Adhiv	37	42	21	100 = 145
12) Badalkot	65*	17	18	100 = 77
13) Bhose	46	38	16	100 = 406
14) Khed Bhalwani	19	41	40	100 = 582 124
15) Mandhapur	32	40	28	100 = 582
16) Shegaon	41	49	10	100 = 90
Total :	32	42	26	100 = 2,816

* The 10 cultivators who formed a co-operative Farming Society at Chandaj are included in the Small Cultivators. Similarly the 46 cultivators at Badalkot who formed a Co-operative Farming had 86 ha. of land and hence included in the 'Small Cultivators'.

ceiling on agricultural land and though marginally, redistribution of surplus land under the Act to the small farmers and the landless is bound to change the size of holding of the individual cultivators as also the distribution of cultivators in different size groups of holdings. It will result in substantially increasing the proportion of small and marginal farmers during the next ten to fifteen years.

Size of Cultivated Holding Among Different Castes

We have considered in the introductory section over-all inequalities in land holding in the sample villages. It will be useful to see the extent of inequalities among different castes. Hence we shall now consider the inequalities in respect of land holding among different castes. In Table No. 5.4 we have shown the percentage of families cultivating land in each caste group as also their distribution in three categories such as small cultivators whose cultivated holding was upto 2.0 ha. Medium cultivators whose cultivated holding was between 2.1 and 6 ha. and large cultivators whose cultivated holding was more than 6 ha.

First of all we note that the proportion of cultivating families in different castes varied within a very wide range. For instance in the Mang community it was the lowest; only 18 per cent of the total families in that community were cultivating families. At the other extreme, leaving aside the Phase Paradhi community which had received land from the Government, were Maratha, Mali, Dhangar and Trading Castes in which about 87 per cent of the families were cultivating families. Next we consider communitywise the proportion of small, medium and large cultivators. The overall distribution of the cultivators as small, medium and large was 32 per cent, 42 per cent and 26 per cent respectively. The largest community, the Marathas, had

Table No. 5.4 : Size of Cultivated Holding Among Different Castes in the Sample Villages

Caste/ Caste Group	Cultivating families as % of the total families in the caste/caste group	Small Cultivators			Total cultivating families = 100%
		Small upto 2 ha.	Medium 2.1 ha. to 6 ha.	Large 6.1 ha. and above	
	%	%	%	%	No.
1. Brahmin	79	16	58	26	31
2. Maratha	88	27	43	30	1656
3. Mali	87	39	45	16	131
4. Dhargar	87	22	42	36	336
5. Trading communities	86	22	51	27	94
6. Artisan Castes	60	47	41	12	68
7. Service Castes	53	46	40	14	72
8. Mahar and Nava-Budha	43	55	30	15	109
9. Mang	18	53	41	6	34
10. Chambhar and Dhor	71	46	43	11	68
11. Other Scheduled Castes	36	77	23	-	39
12. Phase Paradhi	98	98	-	2	47
13. Other Namadic Tribes	51	42	44	14	45
14. Other Hindus	33	50	50	-	2
15. Muslims	66	47	30	23	57
16. Not stated	82	33	48	19	27
Total :	76	32	42	26	2816

88 per cent of them as cultivators and they were slightly below the average in the group of small cultivators and a little above the average in the group of large cultivators. It will be noted from the Table that except for the Marathas, Dhangars, Brahmins and Trading communities who had a higher percentage than the average in the group of large cultivators, the rest of the communities had a proportion below the average.

The Scheduled Castes and Scheduled Tribes had in the first instance much lower proportion than the average for the total cultivating families. Secondly they had almost all of the cultivating families whose cultivated holding was less than 6.0 ha. and a majority of them were small cultivators.

The range of variation in the three categories is very wide. For instance in the group of small cultivators, Brahmins had only 16 per cent of them with cultivated land upto 2.0 ha., the other extreme being the Phase Paradhi community which had obtained land from the Government with 98 per cent of them falling in the category of small cultivators. Leaving out the Phase Paradhi community, among the medium cultivators, the range was from 23 per cent among other scheduled castes to 58 per cent among the Brahmins, though most of the castes clustered within plus or minus 10 per cent around the average of 42 per cent. Among the large cultivators we have already noted higher percentage than the average among the advanced communities and way below the average among the artisan and service castes, Scheduled Castes and Scheduled Tribes.

Land Utilization

In Chapter III from Table 3.2 we had noted that as per the village records of the sample villages 90.5 per cent of the area was classified as cultivable and 5.6 per

cent as uncultivable; the remaining 3.9 per cent was under public use. We also noted from the village records of the sample villages that the net cropped area came to only about 42 per cent of the land classified as cultivable. The total land owned as reported in the Family Schedule by the cultivating families came to about 78 per cent of the land classified as cultivable in the village records. Its utilisation as reported in the Family Schedule by the cultivators in the sample villages was as follows :

	%
Permanent Fallow	7.4
Current Fallow	2.4
Irrigated Land	11.4
Unirrigated land	78.8

Total :	100.0 =

Wells In Use and Wells Not In Use

Before considering the cropping pattern of the cultivators in the sample villages it will be useful to know the sources of irrigation available to the cultivators. Information about wells was not available in the village records in respect of a number of sample villages. Hence we have not presented it in this report. We had asked the families in the sample villages to report if there existed any wells on their land and whether such wells were in use for irrigation purposes and the duration for which water was available. We also asked them to report the wells not in use and whether such wells were repairable or not. We have presented in Table No. 5.5 data regarding the wells in use and wells not in use, villagewise in respect of the sample villages. The area irrigated by wells during the reference year formed 10% of the gross cropped area 9 per cent of the cultivated land. 45 per cent

Table No. 5.5 : Wells in Use Classified According to Availability of Water and Wells Not in Use Classified as Repairable or Non-repairable as reported in the Family Schedules in the Sample Villages.

	Total No. of cultivators	Total cultivated land (ha.)	No. of cultivators reporting irrigated crops	Area irrigated by wells (ha.)	No. of cultivators reporting wells	No. of wells in use	Water available for					Duration not stated	Wells Not in Use			Total No. of wells not in use
							3 months	6 months	9 months	12 months	Repairable		Not repairable	Not stated	Wells with salt water	
Madha Taluka																
Chandaj	120	653.8	69	11.36	30	14	-	5	5	3	1	15	1	1	-	17
Shevare	142	665.2	26	14.08	37	22	2	11	6	2	1	15	-	3	-	18
Malshiras Taluka																
Umra Velapur	128	467.7	3	-	18	-	-	-	-	-	-	12	1	5	-	18
Mangalwedha Taluka																
Khomnal	108	603.2	47	45.84	63	45	1	18	10	11	5	10	5	-	3	18
Marapur	186	982.3	127	103.32	138	128	-	45	21	44	18	6	3	6	1	16
Mohol Taluka																
Bhoire	165	1,201.5	50	35.60	73	45	3	12	3	9	18	25	3	-	-	28
Shingoli	81	330.8	5	7.12	5	3	-	2	-	1	-	-	2	-	-	2
Takali Sikandar	162	716.2	84	97.68	94	87	-	35	17	18	17	11	2	3	-	16
North Solapur Taluka																
Belati	127	574.1	34	41.40	41	22	-	-	-	12	10	18	3	-	-	21
Pakani	173	942.8	31	57.70	68	30	1	12	21	10	6	27	11	-	-	38
Pandharpur Taluka																
Adhiv	145	627.7	45	41.10	47	41	3	21	5	12	-	4	2	-	-	6
Badalkot	77	308.8	3	6.00	4	3	-	2	1	-	-	1	-	-	-	1
Bhose	406	1,449.4	131	178.40	230	183	6	75	17	42	43	52	7	5	-	64
Khed Bhalwani	124	675.6	51	20.20	19	14	-	7	3	3	1	3	-	-	2	5
Mandhapur	582	2,804.8	387	558.00	399	392	6	87	73	173	53	14	10	6	1	31
Shegaon	90	290.2	54	3.00	2	-	-	-	-	-	-	2	-	-	-	2
Total for 16 villages	2,816	13,294.1	1147	1,220.80	1,268	1,029	22	332	162	340	173	215	50	29	7	301

of the cultivators in the sample villages had on their land 1029 wells, being in use and 305 more wells not in use.

Of the 1029 wells in use, in the case of 161 wells, the duration for which water was available was not reported and in the case of 12 wells newly constructed it could not be stated. In the case of the remaining 856 wells, water was available round the year in about 40 per cent of the wells; in 19 per cent of the wells it was available for 9 months; in 39 per cent of the wells the duration was upto six months. In respect of the remaining 2 per cent of the wells water was available for only 3 months.

The average area irrigated per well came to about 1.19 ha. The average irrigated area per well varied between .6 ha. to 2.4 ha. in the sample villages. The average area irrigated per well came to 1.69 ha. in 1969-70 in respect of 50,696 wells used for irrigating 89,800 ha. in Solapur district. (vide Report of the Maharashtra State 1973, Government of Maharashtra.)

In Mendhapur, Bhose and Marapur there were a large number of wells in use which together accounted for three-fourths of the total wells in use in the sample villages. At the other extreme, at Umbre Velapur and Shegaon none of the wells was in use. The number of wells in use was also very small at Badalkot and Shingoli (3 each) and Chandaj and Khed Bhalwani (14 each).

As regards the 301 wells not in use, it was stated that 215 were repairable and 50 were not repairable. Water in 7 wells was salty and hence not used. In respect of the remaining 29 wells the respondents did not state whether the wells were repairable or not. If the wells which are reported repairable are repaired, it may help increase the irrigated area by about 250 ha., that is additional one-fifth of the area presently irrigable by wells.

It is likely that with the introduction of the canals, the water level in the existing wells may rise and the duration of availability of water may also increase thereby helping the farmers to add to the irrigated area or to grow crops which demand more water or waterings.

Cropping Pattern in the Sample Villages Based on Data Collected in Family Schedules

In the Family Schedule canvassed to all the families in the sample villages, we had included some questions to elicit information from those who cultivated land about their land utilisation, cropping pattern, agricultural produce and expenditure on purchases of seed, chemical fertilisers and pesticides. In the present section we shall consider the cropping pattern in the sample villages based on the information regarding the crops taken during 1977-78 by the cultivating families. We have presented the data regarding percentage distribution of area under different crops in the sample villages based on the Family Schedules in Table No.5.6. It is noted from the Table that of the gross cropped area, about 14 per cent was under irrigated crops and the remaining 86 per cent was under dry crops.

In the irrigated crops, the foodgrains, Jowar (56.2%), Wheat (11.0%), Maize (7.6%) and Paddy (0.7%) together accounted for 75.5 per cent, that is, three-fourths of the total irrigated crops. Sugarcane, the most paying crop occupied 7.4 per cent of the irrigated crops, followed by Groundnut 4.3 per cent and Cotton 3.3 per cent. Chilli, Onion, Vegetables and Fodder accounted for the remaining about 10 per cent of the total irrigated crops.

In the dry crops, jowar occupied almost 92 per cent of the total area under dry crops. We could not obtain separately figures regarding area under Kharif and Rabi Jowar. Hence we have considered the total area under jowar.

We may mention that as per the 'Socio-Economic Review and District Statistical Abstract of Solapur District, 1975-76' Jewar is mainly rabi crop occupying more than 99 per cent of the total area under Jewar in Solapur District. About one-fifth of the area under Jewar was a mixed crop, mainly with Safflower. About 4 per cent of the area sown in 1977-78 to Jewar and other crops could not be harvested due to crop failure and in most of such cases the crop thereon was fed as fodder to livestock. In the remaining 4 per cent several crops, such as other foodgrains, pulses and oilseeds were grown.

Table No. 5.6 : Percentage Distribution of Area under Dry Crops, Irrigated Crops and Total Area Thereunder in the Sample Villages

(Source : Family Schedules)

	Dry Crop	Irrigated Crop	Total
	%	%	%
Jewar	76.5	56.2	73.6
Jewar mixed with Safflower/Gram	15.6	-	13.3
Wheat	0.2	11.0	1.7
Maize	0.1	7.6	1.1
Paddy	0.1	0.7	0.2
Bajra	1.1	-	0.9
Hulga	0.5	-	0.4
Mataki	0.5	-	0.4
Groundnut	0.3	4.3	0.8
Safflower	0.6	-	0.6
Cotton	0.0	3.3	0.5
Sugarcane	-	7.4	1.1
Chilli	0.0	1.2	0.2
Onion	0.0	2.2	0.3
Vegetables	0.0	0.4	0.0
Fodder	0.2	-	0.2
Other Crops	0.5	4.6	1.3
Area under crops that failed	3.8	1.1	3.4
	100.0	100.0	100.0
	- 10,417.4 ha.	- 1,699.4 ha.	- 12,116.8 ha.

The cropping pattern as it emerged from the Family Schedules compares fairly well with the cropping pattern obtaining on the farm of 240 sample cultivators from 16 villages selected for the purposes of canvassing the Agricultural Enterprise Schedule. (Refer to Chapter VI) However, it does not compare very well with the cropping pattern as it appears in the Village Records. The data is summed up below :

	<u>Village Records</u> %	<u>Family Schedules</u> %
Jowar	66.3	86.9
Other Foodgrains	5.4	4.0
Pulses	17.8	0.8
Sugarcane	0.9	1.1
Oil Seeds	7.4	1.4
Other Crops	2.2	5.8
	-----	-----
Total Cropped Area	100.0	100.0
	= 16,918.03 ha.	= 12,116.82 ha.

One reason for the differences in the cropping pattern in the two series is that in the case of the village records for the villages in ^{Mohel & Malshiras} Pandharpur taluka we could not get the 1977-78 figures and had to do with the village records for the year 1975-76. The other reason is that the area under crops reported in the Family Schedules is about 72 per cent of the area under crops appearing the village records. One more reason is the year to year variations arising out of crop rotations. It is, however, difficult to take any definite view in the matter.

In the following Sections we shall proceed to consider first the dry crops and thereafter the irrigated crops taken by the small, medium and large farmers, average yield and value of produce per ha.

Cultivation of Dry Crops

We shall consider in Chapter VI inputs, yield and expenditure per hectare of dry as also irrigated crops based on the data obtained in respect of a sample of 240 cultivators selected for studying their agricultural enterprise. But we had also sought information in the Family Schedule regarding the crops cultivated, area under the crops and yield therefrom in respect of the dry as well as irrigated crops. We shall consider in this section the data relating to the dry crops. In Table No.5.7 we have shown the area under dry crops as per cent of the total cropped area, and yield and value of produce per hectare based on the information recorded in the Family Schedule in respect of the small, medium and large cultivators. Though the cultivators reported, apart from the important ones reported in the Table, a number of crops, such as Bajra, Halga, Matki etc. the area under such crops formed a very small proportion in the total and as such we have grouped those crops together under 'other crops'.

As regards the area sown to different crops, it will be seen that jowar occupied (including jowar mixed with Safflower) 90 to 92 per cent of the area under dry crops in respect of the small, medium as well as large cultivators. The remaining about 8 to 10 per cent, includes the area sown to crops but which failed. Such crops accounted for 6.2 per cent in the case of small cultivators, 2.9 per cent in the case of medium cultivators and 4.1 per cent in the case of the large cultivators of the total area under crops reported by them. In the process, the area sown to maize and wheat as also cash crops like Safflower and groundnut formed a very small proportion of the total cropped area irrespective of whether the cultivators were small or large.

Table No. 5.7 : Area Under Dry Crops, Yield and Value of Produce per Hectare Reported in Family Schedule by the Small, Medium and Large Cultivators in the Sample Villages

Crop	Small Cultivators			Medium Cultivators			Large Cultivators		
	Area under the Crop as % of Total Cropped area (ha.)	Yield per ha. in quintals	Value per ha. Rs.	Area under the Crop as % of Total Cropped area (ha.)	Yield per ha. in quintals	Value per ha. Rs.	Area under the Crop as % of Total cropped area (ha)	Yield per ha. in quintals	Value per ha. Rs.
Jowar	83.0	1.9	238	78.7	1.7	215	74.4	1.6	190
Jowar Mixed with Safflower	7.4	3.0	415	14.5	1.7	239	16.6	1.8	228
Maize	0.2	2.0	200	0.0	2.5	162	0.0	3.5	361
Wheat	0.3	2.9	443	0.2	3.2	454	0.2	3.1	489
Safflower	0.8	1.5	297	0.4	1.8	363	0.7	1.6	337
Groundnut	0.4	6.6	615	0.2	4.1	707	0.3	1.5	387
Other Crops	1.7	-	44	3.1	-	195	3.7	-	207
Crops that failed	6.2	-	-	2.9	-	-	4.1	-	-
Total	100.0	-	235	100.0	-	214	100.0	-	192
(excluding the area under the crops that failed)	2000.7		251	3494.1		220	6123.3		200

As regards the yield per ha., the small cultivators obtained higher yield than the medium and large cultivators in respect of jowar, the major crop, as also groundnut. The performance of the small cultivators in respect of the other crops was not very much different from the medium and large cultivators though slightly lower than either of them. The average value of produce per ha. was the maximum in the case of small cultivators because ^{of} the higher yield per ha. of jowar and the large proportion of the cropped area under it. The average value of produce per ha. declined in the case of medium and large cultivators.

Though the yield and value of produce per ha. in the case of small cultivators was more by about 10 and 22 per cent respectively as compared to the medium and large cultivators it does not help much the small cultivators because of the inherent limitation of the size of holding of the small cultivators which was 2.0 ha. or less. We may recall that about one-third of the cultivators owned only upto 2.0 ha. of land and another about 40 per cent owned land upto 6 ha. each. If the small and medium cultivators were to depend only on dry crops, even with 6 ha. of area under dry crops, the value of agricultural produce will be not more than Rs. 1,300 per medium cultivator and much less, namely, about Rs. 500/- per small cultivator.

We shall, therefore, proceed to consider in the following section the yield and value per ha. of irrigated crops with a view to examine the extent to which irrigation may help the small and medium cultivators to improve their plight.

Cultivation of Irrigated Crops

Table No.5.8 based on the information recorded in the Family Schedule regarding the crops cultivated during 1977-78 shows the average area under irrigated crops, yield

Table No. 5.8 : Area under Irrigated Crops, Yield and Value of Produce per Hectare reported in the Family Schedule by the Small, Medium and Large Cultivators in the Sample Villages

Crop	Small Cultivators			Medium Cultivators			Large Cultivators		
	Area under crop as % of total area	Yield per ha. Quin- tals	Rs.	Area under crop as % of total area	Yield per ha. Quin- tals	Rs.	Area under crop as % of total area	Yield per ha. Quin- tals	Rs.
Jowar	66.7	6.3	805	58.4	7.2	930	52.1	8.3	1008
Jowar mixed with Safflower	1.1	11.2	1255	2.2	10.4	1610	2.3	8.4	1052
Maise	9.6	7.5	777	7.4	7.3	717	7.6	9.9	905
Wheat	9.3	8.9	1257	12.4	10.0	1400	10.4	8.8	1103
Paddy	-	-	-	0.8	10.8	1352	0.8	10.3	1135
Groundnut	1.4	6.7	2187	4.0	10.2	2460	5.1	12.3	2415
Cotton	2.9	3.8	1837	2.4	7.4	3010	4.1	9.5	2450
Sugarcane*	1.2	70.8	7732	5.1	57.0	6065	10.3	37.8	3575
Chilli	0.8	8.4	1992	1.0	6.8	3017	1.4	18.4	4210
Onion	4.0	48.1	1858	2.0	55.1	2127	1.9	44.3	2075
Vegetables	0.8	-	887	0.2	-	3645	0.4	-	2500
Other Crops	1.6	-	1296	3.3	-	2115	2.1	-	1668
Crops not harvested	0.8	-	-	0.8	-	-	1.5	-	-
Total :	100.0 -190.0 ha.	-	1035	100.0 -601.8 ha.	-	1447	100.0 -907.6 ha.	-	1477

* (Sugarcane yield per ha. in tons)

and value of produce reported by the small, medium and large cultivators in the sample villages. Though water for irrigation from Ujani canal had not reached the sample villages, except Chandaj from Madha taluka which received Ujani canal water for the first time in 1978-79, and Umbre Vedapur which received water from

Mira Canal to irrigate about 22.8 ha., about 40 per cent of the cultivators reported irrigated crops, most of which were irrigated with water from wells. (1220.8 ha. by wells from out of 1515.4 ha. of the net area under irrigated crops out of gross irrigated area of 1699.44 ha.)

Jowar was the main among the irrigated crops. It accounted for two-thirds of the area under irrigated crops in the respect of the small cultivators. It declined to 58.4 per cent among the medium cultivators and further still to 52.1 per cent in respect of the large cultivators.

The next in importance was the area under maize and wheat, the former occupying 9.6 per cent in the case of small farmers and 7.6 in the case of the large cultivators. Wheat accounted for 9.3 per cent in the case of small cultivators, 12.4 per cent in the case of medium and 10.4 per cent in the case of large cultivators.

The small farmers did not cultivate paddy. Even the medium and the large cultivators had less than one per cent of the total irrigated area under paddy.

If we consider the foodgrains, namely, jowar mixed with Safflower, Jowar, maize, wheat and paddy together, we find that the small cultivators had 86.7 per cent of the total irrigated crop-area under the foodgrains; it declined to 81.1 per cent and 73.2 per cent in the case of the medium and large cultivators respectively.

Among the other crops, sugarcane occupied as much as 10.3 per cent of the total area under irrigated crops in the case of large cultivators who naturally commanded more resources for cultivating sugarcane which requires a lot of cash expenditure on inputs. The proportion of area under sugarcane declined to 5.1 per cent in the case of medium cultivators and was only 1.2 per cent in the case of

small cultivators. The next in importance, groundnut and cotton, together accounted for 9.2 per cent in the case of large cultivators and 6.4 per cent and 4.3 per cent in the case of medium and small cultivators respectively. Chilli, onion and vegetables together form 5.4 per cent in the case of small cultivators and 3.2 per cent and 3.7 per cent in the case of medium and large cultivators respectively.

If we consider the overall pattern of the irrigated crops, it is found that by and large ^{the} crops which require a few waterings are taken. Sugarcane which takes the maximum waterings throughout the year is taken, as noted earlier, on about 10 per cent of the irrigated area by the large cultivators and on smaller area still by the medium and small cultivators.

As for the yield per ha. from the irrigated crops reported in the Family Schedule, we find from Table No. 5.8 that in respect of jowar which occupied a major portion of the irrigated crops as also cotton and groundnut, the yield per ha. was lower in the case of small cultivators as compared to the medium and large cultivators. Jowar taken as a mixed crop with Safflower was taken on a very small proportion accounting for 2.3 per cent or less of the total irrigated crops in each of the three groups of cultivators. The small cultivators had a higher yield per acre compared to the medium and large cultivators. In respect of wheat though the yield per ha. reported by the smaller cultivators was slightly more than that of the large cultivators, it was lower by about 11 per cent as compared to the medium cultivators. The position was about the same in the case of maize except for the fact the small cultivators performed slightly better than the

medium cultivators but compared to the large cultivators the yield per ha. of maize reported by the small cultivators was lower than that of the large cultivators by about 25 per cent. In the case of sugarcane, the average per ha. produce was the highest in the case of small cultivators but we must note that they had only about 2.3 ha. under sugarcane as compared to about 30.7 ha. reported by the medium cultivators and 93.5 ha. by the large cultivators. In the case of cotton the range of variation was high. The per ha. yield in the case of large cultivators was three times that of the small cultivators whereas in the case of medium cultivators it was double the average produce per ha. reported by the small cultivators.

For the sake of overall comparison of the performance of the small, medium and large cultivators in respect of the irrigated crops taken by them, we may consider the average value of agricultural produce per ha. under the irrigated crops. The average value per ha. is no doubt related to the cropping pattern obtaining on the farms of the small, medium and large cultivators and prices of different crops but is also influenced by the productivity per ha. of different crops. The net result was the following:

**Average Value per H. of Produce
of Irrigated Crops taken by the :**

Small Cultivators	Rs. 1,035
Medium Cultivators	Rs. 1,447
Large Cultivators	Rs. 1,477

The average value of the produce per ha. of the small cultivators was lower than that of the large cultivators by about 30 per cent. Apart from the small proportion under sugarcane in the case of small cultivators this may be due to the fact that compared to the large cultivators the

small cultivators do not command adequate resources to grow the irrigated crops which require cash expenditure to be incurred for watering, seed, manure, chemical fertilisers and wages. It may also be due to greater efficiency and adoption of better techniques of cultivation by the medium and large cultivators. We may conclude by noting that the small farmers may be able to perform better if they are provided with adequate inputs of all kinds including finance.

Crops Ranked By Value of Produce

The data regarding the value of produce per ha. given in Table No.5.8 gives us an opportunity to rank the crops by the value of produce per ha. under the crop. We shall pick up the highest values per ha. reported by any of the three groups for the purposes of ranking. The position emerges as follows :

<u>Rank</u>	<u>Crop</u>	<u>Value of Produce per ha. (Rs.)</u>	<u>Category of Cultivator</u>
1	Sugarcane	7,732	Small
2	Chilli	4,210	Large
3	Vegetables	3,645	Medium
4	Cotton	3,010	Medium
5	Groundnut	2,460	Medium
6	Onion	2,127	Medium
7	Wheat	1,400	Medium
8	Paddy	1,352	Medium
9	Jowar Mixed with Safflower	1,255	Small
10	Jowar	1,008	Large
11	Maize	905	Large

Though the overall per ha. performance of the medium cultivators was slightly lower than that of the large cultivators, we note that in six out of 11 crops ranked

above they performed better than the large cultivators, which perhaps supports the belief that the larger farms tend to be cultivated with lesser efficiency, or larger the holding, lower the productivity. We need not enter into the controversy but it is worth noting that the value per ha. of foodgrains is about two-thirds or half in respect of groundnut, cotton or vegetables and about one-fifth the value per ha. of sugarcane. The moot question is whether water from Ujani is to be utilised for increasing production of foodgrains or whether it is to be used for growing other crops and in particular sugarcane so that the cultivators will be able to obtain larger per ha. value of agricultural produce.

Improved varieties of
Expenditure on Seeds

We shall consider in this section the purchase of *improved varieties* seed reported in the Family Schedule by the cultivators' families in the sample villages. In respect of most of the crops except cotton or groundnut, home-preserved seed was used by the cultivators. The total purchases of *improved varieties* seeds came to Rs. 17,410/-, reported by 88 cultivators, that is, less than 3% of the total *improved varieties* cultivators.

	<u>Expenditure on Seeds per Reporting Cultivator</u>					
	<u>Small cultivators</u>		<u>Medium Cultivators</u>		<u>Big Cultivators</u>	
	No.	Rs.	No.	Rs.	No.	Rs.
Irrigated Crops	3	30.00	23	135.65	31	279.35
Dry Crops	4	27.50	16	45.62	11	63.63
All Crops - Total	7	28.57	39	98.72	42	222.86

Expenditure on Chemical Fertilizers

Cultivators reported use of chemical fertilizers mainly for sugarcane. From the information regarding purchases of chemical fertilizers reported in the Family Schedules we note on the following :

	<u>Expenditure on Chemical Fertilizers</u>						
	<u>Small Cultivators</u>		<u>Medium Cultivators</u>		<u>Large Cultivators</u>		
	No.	Rs.	No.	Rs.	No.	Rs.	
Irrigated Crops	15	354.66	62	425.32	99	907.68	
Dry Crops	1	80.00	3	183.33	2	1400.00	
All Crops - Total	16	337.50	65	414.15	101	917.42	
Total Expenditure on Fertilisers		5,400.00		26,920.00		92,660.00	
		= Rs.1,24,980.00					

182 cultivators, that is, 6.5 of the total cultivators or about 16 per cent of the cultivators reporting irrigated crops reported expenditure on use of chemical fertilizers. Considering the fact that 41 per cent of the total cultivators reported irrigated crops, the percentage of cultivators using the chemical fertilizers appears to be low and it may be a case of under-reporting. The expenditure of chemical fertilizers was reported only in a few cases in respect of dry crops as it is not possible to use chemical fertilizers without adequate water for irrigation.

Use of Pesticides

Use of pesticides was reported in the Family Schedules in a very few cases and that too only where irrigated crops were taken as follows :

	<u>Expenditure per Reporting Cultivator</u>					
	<u>Small</u>		<u>Medium</u>		<u>Large</u>	
	No.	Rs.	No.	Rs.	No.	Rs.
Irrigated Crops	3	30.00	3	70.00	23	134.34

Sale of Agricultural Produce

Along with the information regarding the crops cultivated and area under the crops, we had also noted in the Family Schedule information regarding the quantity of agricultural production and the quantity sold. In Table No.5.9 we have given information regarding the

quantity sold as per cent of the agricultural produce in respect of the irrigated and dry crops cultivated during the year 1977-78 by the small, medium and large cultivators in the sample villages. We must note that quantity sold as proportion of the quantity produced is governed by several considerations. For instance in the case of jowar which is main food crop of the region, the small cultivators practically did not sale any produce and the medium culti-

Table No. 5.9 : Quantity Sold as Per cent of Agricultural Production of Dry and Irrigated Crops in respect of the Small, Medium and Large Cultivators

Crop	Small	Medium	Large
	Cultivators	Cultivators	Cultivators
Quantity Sold as Per cent of Quantity Produced			
	%	%	%
<u>Irrigated Crops</u>			
Jowar	1.1	6.9	44.0
Jowar Mixed with Safflower	5.3	9.6	15.3
Maise	7.3	21.9	37.9
wheat	-	10.7	14.7
Vegetables	83.3	100.0	100.0
Groundnut	51.9	58.6	67.3
Cotton	76.7	88.4	82.3
Sugarcane	100.0	94.4	86.0
Chilli	87.0	62.8	52.8
Onion	58.2	90.5	82.6
Paddy	-	36.2	13.4
<u>Dry Crops</u>			
Jowar	0.4	5.1	19.4
Jowar Mixed with Safflower	5.4	8.6	12.8
Groundnut	45.0	31.6	52.8
Safflower	-	48.9	33.7
Maise, wheat and vegetables	Nil	Nil	Nil

vators sold only about 5 to 7 per cent of the produce. It was really the large cultivators who sold 44 per cent of the produce from irrigated jowar and 52.8 per cent of the produce of dry jowar. If we take into account the aggregate production of jowar and the total sale thereof reported by the small, medium and large cultivators, we find that the sales form about 11.5 per cent of the total production of jowar. We may in this context remember that about 25 per cent of the total families did not cultivate land. Two-thirds of these families, that is 18.3 per cent of the total families reported labour as the main occupation and many of them must have received a part of the wages in kind. Hence we may consider the sale of jowar equivalent to 11.5 per cent of the total produce with 25 per cent of the total families about 7 per cent of which families reported non-agricultural occupations and 18 per cent reported labour as the family main occupation and obtained a part of their food requirement from the wages they received in kind.

The other type of agricultural produce is the one which can not keep for long, for instance, the vegetables. We find that almost the entire produce was sold. So was the case with onion in respect of the medium and large cultivators who sold more than 80 to 90 per cent of the produce. The small cultivators retained about two-fifths of the produce for home consumption.

The third type of crop is sugarcane, of which the processing in the form of Gur or Sugar can not be easily arranged by the cultivator himself. Hence the entire produce was sold by the small cultivators whereas except for 5.6 per cent by the medium and 14.0 per cent by the large cultivators the entire produce was reported to have been sold.

Cotton is not used for consumption or use at home but the cultivators can hold it for a while in anticipation of better prices. This perhaps explains about 20 per cent of the produce which was not reported as sold.

Groundnut and Safflower are in a slightly different category. Both can be stored for a while like cotton in anticipation of fetching better price in future. However, unlike cotton, groundnut and safflower, that is both the oilseeds are not used for extracting edible oil. It is customary to do so in this part of the country. This perhaps explains why a little less than half the produce was not sold by the cultivators.

Chilli is also required for home consumption but within certain limits and any such the produce in excess of family requirement has to be sold. Hence we find that a major part of the produce was reported to have been sold.

The other consideration governing the sales is the total area under the crop. For instance in the case of wheat and maize the total area under these crops together formed only 2.8 per cent of the total cropped area. Those cultivators who took these crops were not many nor was the average area per such cultivators under the two crops large enough. Hence, only a small part of the produce was reported to have been sold.

Thus is the pattern of sale of the produce of different crops grown in the sample villages. We expect to get a little more information on the place of sale, the month of sale and expenditure on marketing in respect of different crops when we consider the data in respect of 240 sample cultivators in Chapter VII.

Ownership of Agricultural Tools and Implements

We have so far considered the ownership of land,

cropping pattern and yield of dry and irrigated crops grown by the cultivators. It will be useful to know how far the cultivators were equipped to carry on the farm business. In Table No. 5.10 we have presented data regarding the cultivators owned various tools and implements

Table No. 5.10 : Ownership of Agricultural Tools and Implements at the Sample Villages

Item	No. of cultivators owning as % of total cultivators	Average No. of the item per reporting cultivator	Total number of the items reported	Total No. as per village record
1. Iron Plough	18.3	1.03	533	526
2. Wooden Plough	11.9	1.10	368	94
3. Harrow - Big	31.9	1.04	937	1272
4. Harrow - Small	22.3	1.05	663	
5. Seed Drill - Big	31.7	1.05	935	602
6. Seed Drill - Small	17.5	1.04	514	
7. Hoe - Big	24.5	1.79	1232	646
8. Hoe - Small	14.2	1.84	735	-
9. Bullock Cart	25.1	1.02	721	599
10. Sugarcane Crusher	1.0	0.72	21	19
11. Tractor	0.3	1.0	9	-
12. Water lift - iron	3.7	1.0	104	171
13. Water lift - Leather	3.1	1.0	88	
14. Oil Engine	11.2	1.07	337	209
15. Electric Pump	14.2	1.72	691	233
Total No. of Cultivators		-	2,816	
Gross Cropped Area		-	12,000 ha.	

as per cent of the total cultivators, the average number owned per reporting cultivator and the total number of each item reported by the cultivators as also in the Village Records in the sample villages. It is important to note that a majority of the farmers did not report ownership of essential tools and implements such as ploughs, harrows and seed-drills. It may be recalled that of the total cultivators about 30 per cent were small cultivators with cultivated land up to 2.0 ha.; 42 per cent were medium cultivators whose size of the cultivated land varied between 2.01 to 6.0 ha. and the remaining 26 per cent cultivators were large cultivators whose size of the cultivated holding exceeded 6 ha. It will be noted that the percentage of the cultivators reporting various tools and implements is lower than the aggregate proportion of the medium and large cultivators, who together formed 58 per cent of the total cultivators. This means that majority of the cultivators have to depend upon their relatives and friends to obtain the required tools and implements either gratis or on hire. It must also be noted here that only about 31 per cent of the cultivators owned bullocks. As such some of those who owned ploughs or harrows had to get on hire a bullock or a pair of bullocks. On an average, for ploughing about 13 ha. of land, a plough was available besides of course the 9 tractors reported in 4 villages; for harrowing about 7.5 ha., a harrow was available; for sowing 6.4 ha. of land, a seed-drill was available.

As regards the equipment for irrigation, considering the number of wells in use, namely 1029 wells, a matching number of oil engines and electric pumps was reported. Besides, there were 104 iron-water-lifts and 28 leather water lifts. The irrigated crops occupied 1699.4 ha. of which 1220.8 ha. were irrigated by wells which is

almost a hectare per oil-engine or electric pump. If the wells presently not in use, but which are considered repairable and which form about 21 per cent of the wells in use, are to be put to use after carrying out the necessary repairs, it will be necessary to add to the present stock of oil-engines and pumps to the extent of about one-fifth of the present stock.

It will also be necessary to augment the resources of tools and implements such as ploughs, harrows, seed drills etc. if intensive cropping is to be carried out after water for irrigation from Ujani canal becomes available. Even the number of bullocks carts will have to go up for transport of fertilizers, manure and agricultural product as at present only about one-fourth of the cultivators own a bullock cart.

It is important to note that the diesel engines and pumps were being used in all the villages for lifting water though the number of pumps in each village varied within a wide range from one in Shegaon and Umra Velapur to 185 at Mendhapur. Similarly electric pumps were in use in the villages which had supply of electricity at the time of the survey though here also the number varied between one at Shegaon and 286 at Marapur.

Plough Cattle

For ploughing purposes mainly bullocks are used. The information from the Village Records related to the year 1978 except for six villages from Pandharpur taluka for which it was available for 1972. The total number in 16 villages as per the Village Records was 2243 working bullocks. In the sample villages, of the 2816 cultivators, 1080 cultivators, that is about 38 per cent of the cultivators reported that they owned 2183 bullocks, that is, on an average a pair of bullocks per reporting cultivator.

However, 216 of them owned only one bullock, the majority of them, i.e. 768 cultivators reported each a pair of bullocks and the remaining 106 cultivators had three or more bullocks each. Thus the 1080 cultivators owned between themselves 1090 pairs of bullocks. If we consider the gross cropped area in the sample villages as reported by the cultivators, namely 12,116 ha., then the average cropped area per pair of bullocks comes to 11.1 ha. We must note here that there were 9 tractors in four of the sample villages which we have not considered while finding out the gross cropped area per pair of bullocks. We must also state that there were 122 he-buffaloes owned by 95 cultivators. 18 of these cultivators owned a pair each which they possibly used for ploughing and other agricultural operations. If we take into account the he-buffaloes together with the bullocks owned by the cultivators, then the gross cropped area per pair of draught cattle comes to 10.5 ha. Among the non-cultivators, only 14 families reported in all 19 bullocks. Besides, 15 non-cultivators owned 18 he-buffaloes.

Milch Cattle, Sheep, Goat and Poultry

We tried to obtain the latest available statistics from the village Records regarding the milch cattle, sheep and goat and poultry at the sample villages. Such information was available for the six villages from Pandharpur taluka for the year 1972 whereas for the rest of the 10 sample villages from five other talukas it was available for the year 1978. We had also sought information in the Family Schedule regarding the number owned by each family. We give in Table No.5.11 data from both the sources in a summary form.

**Table No. 5.11 : Milch Cattle, Sheep, Goat and Poultry
in the Sample Villages as per
(a) the Village Records and
(b) as reported in the Family Schedules**

	Village Records No.	Family Schedule No.
Cows	2,287	2,247
" Calves	1,890	1,344
She-buffaloes	941	1,050
" Calves	813	627
Sheep	3,612	2,634
Goat	9,382	6,376
		330 Goat Males
Poultry	9,298	6,055

It will be noted from the Table that the number reported in the Family Schedule in all the cases, except she-buffaloes, where it exceeds the number shown in the Village Records, and cows where it is lower than the Village Records by about 2 per cent, is much smaller than the number reported in the Village Records. It may be recalled that the number of families reported in the Bench-Mark Survey form only about 92 per cent of the households as reported in the 1971 Census. This may be the reason for lower number of milch cattle and other stock reported in the Family Schedules as compared to the Village Records.

The consistent part of the data is the absence or very small number of sheep in both the sources of data in respect of Umra Velapur, Shingoli, Belati, Pakani, Adhiv, Badalkot and Shegaon. At Mendhapur the number of sheep reported in the Village Records for the year 1972 was 1575 and in the Family Schedules 1149 for the year 1978. The sheep were reported by about 5 per cent of the cultivators and one per cent of the non-cultivators, on

an average 16 sheep per reporting family. It may be stated that the families belonging to the Dhangar caste, about 10 per cent of the total families, were found in all except two sample villages. The community is known for sheep rearing as also cultivation of land.

Contrary to the concentration of sheep, the population of goat was to be found in all the sample villages as the goats are kept for milk as well as meat purposes. About half of the cultivators and one-fourth of the non-cultivators reported goat, on an average 4 goats per reporting family.

As regards Poultry, one-fourth of the cultivators and one-eighth of the non-cultivators reported poultry, the average number per reporting family being 7 birds. Of the poultry owners 20 per cent of the families had 11 or more birds each and another 40 per cent of the families had each between 6 to 10 birds. The rest of the 40 per cent families had less than 5 birds each.

From the data relating to source of income given in Chapter VII, it will be noted that income from poultry, eggs, wool etc. formed only about 0.5 per cent of the total income of the non-cultivators and in the case of the cultivators, about 0.8 per cent of their total income, i.e. in absolute figures Rs. 8,570 and Rs. 69,000 respectively. The possibility of developing the sheep, goat and poultry enterprises cannot be ruled out as there exists already a wider base for these enterprises at present.

Income from Livestock in the total family income accounted for about 6.4 per cent in the case of the non-cultivators and 16.5 per cent in the case of cultivators, that is, in absolute terms Rs. 1,12,240 and Rs. 13,73,250 respectively.

Utilisation of Water for Irrigation from Ujani Project : Cultivators' Views

In the Family Schedule canvassed to all the families in the sample villages we had included the following questions :

1. If you get water supply from Ujani Dam how much of your land will be brought under irrigation?

2. Which crops will you raise on irrigated land?

<u>Kharif</u>		<u>Rabi</u>		<u>Perennial</u>	
<u>Crop</u>	<u>Area in acres</u>	<u>Crop</u>	<u>Area in acres</u>	<u>Crop</u>	<u>Area in acres</u>

3. What additional expenditure on land improvements or other items will have to be incurred to bring the land under irrigation?

<u>Item of Expenditure</u>	<u>Estimated Expenditure (Rs.)</u>
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4. How much of this requirement will be met from what you may get from the Government?

How much by borrowing?

How much from your own funds?

5. What will be the increase in current expenditure on agriculture due to cultivation of irrigated crops? How will you meet the additional expenditure?

6. You can irrigate more if you take other crops instead of sugarcane. Give reasons for not taking other crops.

(1) Because your total land holding is small sugarcane cultivation will be profitable.

(2) Sugarcane crop gives better returns

(3) Sugarcane is free from pests and diseases.

(4) Other reasons."

During the course of fieldwork our investigators found that most of the cultivators did not know whether and to what extent were they likely to receive water from Ujani Canal to irrigate the land presently cultivated by them. During 1978-79, there was no work of canal construction in progress in most of the sample villages. Hence, we did not obtain any intelligent information from the replies given by the cultivators from the sample villages to the above-mentioned questions we had included in the Family Schedule.

Land, Livestock and Agriculture in the Sample Villages

We have examined in the present chapter data collected in the Family Schedule regarding ownership and cultivation of land, sources of irrigation, cropping pattern, dry and irrigated crops, agricultural tools and implements and livestock. We have compared the survey data with the village records or with the district averages wherever possible. To bring out the differences in ownership of land, cropping pattern, yield and sale of agricultural produce we have divided the cultivators into three groups, namely, small, medium and large cultivators. We have also tried to show the differences in yield and income from the cultivation of dry and irrigated crops and considered the extent to which irrigation, if made available, may help to improve the conditions of the cultivators who at present take dry crops. As stated earlier, we had obtained somewhat detailed information from a sample of 240 cultivators from the sample villages by canvassing the Agricultural Enterprise Schedule. We shall consider the data collected during the Sample Survey in the following Chapter, as supplementary to the data contained in this Chapter and, thereafter, we shall consider the income, assets and indebtedness of the cultivating and non-cultivating families in Chapter VII.

SAMPLE SURVEY OF CULTIVATORS
REGARDING AGRICULTURE

As stated in the Chapter on Methodology, we carried out a sample survey of cultivators from the 16 sample villages to study agriculture as an enterprise. We may recapitulate the method of selection of the sample xix cultivators stated earlier in the report. After canvassing the Family Schedule to all the families in the sample villages, the fieldstaff separated those family schedules which reported cultivated land and arranged the schedules in a descending order of the size of their cultivated holding. The list of cultivators was then divided into 15 equal groups and from each group a cultivator was selected to give a total of 240 cultivators in the 16 sample villages. The Agricultural Enterprise Schedule (specimen at the end of the Chapter on Methodology) was filled in in a single visit to the sample cultivators to note the information cropwise regarding inputs, yield and expenditure as also to note the expenditure for the farm as a whole where such expenditure could not be attributed cropwise. We have tabulated by hand cropwise data relating to dry as well as irrigated crops taken by the sample cultivators and presented a note on each crop stating therein per hectare inputs of male/female, family/hired labour, inputs of seed, manure and chemical fertilizers, if any, expenditure on various items, quantity and value of yield and balance left after deducting expenditure from the value of the produce.

Before considering cropwise data, we shall consider the cropping pattern of the sample cultivators. In Table No.6.1 we have given data regarding area under irrigated and dry crops in respect of the sample cultivators. We may

**Table No. 6.1 : Area Under Irrigated and Dry Crops
Reported by the 240 Sample Cultivators**

	Irrigated %	Dry %
Jowar	57.7	68.7
Jowar Mixed with Safflower/Gram	-	24.6
Wheat	5.2	0.5
Bajra	0.2	1.1
Bajra Mixed with Matki, Hulga	-	1.5
Bajra with Tur	-	0.3
Maize	7.9	-
Paddy	0.8	-
Tur	0.2	0.1
Gram	-	0.4
Hulga	-	0.4
Matki	-	0.2
Matki and Hulga	-	1.8
Cotton	6.0	0.0
Groundnut	8.5	0.4
Sugarcane	7.2	-
Chilli	1.1	-
Onion and Vegetables	1.2	-
Fodder	1.3	-
Lemon, Corriander, etc.	2.7	-
	100.0	100.0
Total hectares =	103.7	985.9
Gross Cropped Area =	1,089.6	

mention here that the gross cropped area reported by the sample cultivators, namely 1,089.66 ha. is 9 per cent of the gross cropped area reported in the Family Schedules. The 240 sample cultivators form 8.5 per cent of the total

cultivating families in the sample villages. In the irrigated crops, jowar accounted for 57.7 per cent of the total irrigated acreage. Sugarcane, Maize and Groundnut were the three next important crops each having about 7 to 8 per cent of the total irrigated area. Cotton was cultivated on 6.0 per cent and wheat on 5.2 per cent of the total irrigated area. In the remaining about 7.5 per cent of the total irrigated area Paddy, Tur, Chilli, Onion, Vegetable Fodder, Lemon and other crops were taken.

In the area under dry crops, jowar accounted for 93.3 per cent of the total dry crops. Of this about one-fourth was jowar taken as a mixed crop mainly with Kardi. In the remaining area of 6.7 per cent several other dry crops, mainly pulses were taken.

We may compare the cropping pattern obtaining on the farms of the sample cultivators with the overall cropping pattern for the sample villages based on the cropped area reported in the Family Schedules which is given in Table No. 5.6. It is found that area under jowar (including jowar taken as a mixed crop Kardi/gram) taken as a dry crop formed 92.1 per cent in the sample villages and 93.3 per cent in the case of the sample of cultivators. Similarly, irrigated jowar formed 56.2 per cent in the sample villages as against 57.7 per cent in the case of the sample cultivators. In the case of sugarcane also it formed 7.4 per cent in the sample villages and 7.2 per cent in the case of the sample cultivators. The corresponding percentages in the case of maize were 7.6 and 7.9 respectively. In the case of wheat, however, the proportion in the sample villages was double the proportion found in the case of sample cultivators. It was the other way in the case of cotton and groundnut where the proportion of area under these two crops in the sample villages was almost half the proportion

obtained on the farms of the sample cultivators. Since the sample of cultivators very much represent the sample villages in the case of jowar which is the main crop in the region, and also in respect of maize and sugarcane, the sample of cultivators can be considered as representative of the 16 sample villages.

In the following, we shall consider the various crops reported by the sample cultivators.

Cropwise Notes

We have given cropwise notes in respect of the following crops reported by the sample cultivators :

- 1) Dry Jowar
- 2) Mixed Crop : Jowar with Safflower/Gram
- 3) Irrigated Jowar
- 4) Irrigated and Dry Jowar - combined reporting of inputs, yield etc.
- 5) Wheat : Kalyan Sona, Khapali and Deahi varieties
- 6) Wheat (Dry Crop)
- 7) Maize
- 8) Groundnut (Irrigated)
- 9) Groundnut (Dry Crop)
- 10) Cotton
- 11) Sugarcane : Khodwa and Adsali/Suru
- 12) Paddy
- 13) Arhar
- 14) Banana and Chilli
- 15) Coriander
- 16) Onion
- 17) Lime
- 18) Minor Crops :
 - Gram
 - Bajra
 - Bajra mixed with Matki/Hulga/Tur
 - Matki Hulga

The area under the above-mentioned crops formed about 93 per cent of the total cropped area reported by the sample cultivators. In the remaining about 7 per cent of the cropped area were several crops such as Bajra. Bajra mixed with Matki / Hulga / Tur, Tur, Gram,, Hulga, Matki Matki and Hulga, vegetables and fodder each occupying less

than one per cent of the total cropped area. Besides these crops did not find place in the cropping pattern proposed by the CADA for Ujani Project. Hence we have not given notes on these minor crops.

Dry (unirrigated, rainfed) Jowar

We shall first consider the most important crop, Jowar, which is taken as a dry crop, mainly in the rabi season. Of the 240 cultivators, 159 cultivators reported cultivation of jowar taken on 578.25 ha. as a single crop while another 43 cultivators reported jowar taken as a mixed crop with Kardi on a total area of 236.14 ha. 'Maldandi' and 'Gudadi' varieties of jowar were reported though the former appeared to be popular with a majority of cultivators. In view of the large number in the former group, as also to see differences, if any, in the average inputs of labour and material, expenditure, yield and return per ha., we decided to consider them separately into three groups :

<u>Area under Dry Jowar</u>	<u>No. of cultivators</u>	<u>Total Area (ha.)</u>
1) Upto 2 ha.	49	53.01
2) 2.1 ha. to 4 ha.	55	148.08
3) 4 ha. and above	55	377.16
	----	-----
Total :	159	578.25

In Table No.6.2 we have shown the male and female labour days and the proportion of the hired labour per ha. of area operated for various agricultural operations for the three groups referred to above. Further, in Table No.6.3 we have shown the average yield, inputs and expenditure per ha. of seed, manure, chemical fertilizers, payment of wages and other expenditure for area operated as also total average per ha. expenditure and the balance left to the cultivator per ha. of dry jowar after deducting the

total average per ha. expenditure from the value of the average per ha. yield of jowar for the three groups.

It is interesting to note the differences in respect of the three groups in yield, value of produce, expenditure and balance left after deducting expenditure from the value of produce. The cultivators who took jowar on plots a upto 2 ha. had higher yield, about 23 per cent more than in the other two groups. It may also be pointed out that compared to the yield of jowar shown in Table No. 5.7 in respect of the small, medium and large cultivators which is based on the data contained in the Family Schedule, the yield reported during the sample survey is higher. It was about 26 per cent higher on plots of land upto 2 ha. and about 10 per cent higher in the other two groups in the sample survey. Compared to the jowar taken as an irrigated crop, the yield as also the balance left after deducting

Table No.6.2 : Inputs of Male/Female Labour Days Per Hectare of Area Operated under Dry Jowar in i) Plots upto 2.0 ha., ii) 2.1 ha. to 4.0 ha. and iii) above 4.0 ha.

	Upto 2 ha.		2.1 ha.-4.0ha		Above 4.0 ha.	
	Male	Female	Male	Female	Male	Female
	No. of days per ha. operated					
Ploughing	4.5	-	3.5	-	3.3	-
Transport and Application of Manure	2.6	-	1.3	-	1.4	-
Harrowing	2.7	-	2.4	-	2.5	-
Sowing	1.7	12.5	1.3	3.8	1.3	1.0
Hoeing	1.8	-	1.3	-	1.0	-
Weeding	7.1	11.8	1.1	6.9	-	6.5
Watching	13.1	19.7	6.7	9.5	3.4	5.4
Harvesting	3.2	4.1	2.1	3.3	1.6	2.1
Cleaning	2.6	4.4	1.4	3.1	0.9	2.1
Average Total Labour Days per ha.	13.8	23.7	10.9	15.2	9.0	8.6
Of which hired labour	20%	20%	20%	30%	28%	46%

Table No. 6.3 : Yield, Value of Produce and Expenditure per Hectare of Area Operated under Dry Jewar in
i) Plots upto 2.0 ha., ii) 2.1 ha. to 4.0 ha.
and iii) Above 4.0 ha.

	Upto 2 ha.		2.1 ha. - 4.0ha		Above 4.0 ha.	
	Qty.	Rs.	Qty.	Rs.	Qty.	Rs.
Yield - Jewar	2.36	303.00	1.92	241.62	1.92	241.25
& Value Quantity. (Q)						
of Produce						
Fodder	554	137.00	409	95.65	473	94.60
No. of bundles						
Total :		440.00		337.22		335.85
Expenditure per ha. operated.						
Seed	Kg.	9.41	15.88	8.69	14.90	8.01
Manure	Cartloads	4.61	57.95	3.23	43.75	2.85
Wages in Cash			92.86		67.85	49.69
Wages in Kind			28.07		20.75	19.69
Baluta			25.28		9.35	9.08
Dharmadaya			5.50		3.40	4.00
Average Total Expenditure per ha.		137.43		112.18		85.41
Of which Expenditure in cash		69.5%		61.9%		53.5%
Balance left per ha. after deducting expenditure from the value of produce		302.67		225.04		250.44

expenditure on wages, seed, manure etc. from the value of produce in respect of dry jewar is about half that of irrigated jewar.

If we consider the total labour days per ha. we find that the number declined as we move from the smaller plots to the larger plots sown to jewar. One of the reasons is decline due to advantages of operating on a larger scale. This is evident from the labour days per ha. for such

operations as ploughing, harvesting, sowing, hoeing and watching. The lower number of days for harvesting and cleaning on larger plots is partly due to lower yield per ha. and consequently lesser input on that account. The other factor associated with the size of land is the extent of hired labour. It is found that the proportion of hired labour both male and female in the total labour days increased from the smaller to the larger plots. However, the total labour input per ha. being smaller on the larger plots, the expenditure on wages was substantially lower than the per ha. wages on plots of jowar upto 2 ha.

The seed rate declined from 9.41 Kg. per ha. on plots upto 2 ha. to 8.01 Kg. on plots above 4.0 ha. Though in a majority of the cases, home preserved seed was used the proportion of seed purchased was the highest, namely 16 per cent on the small plots as against 2.4 per cent on the largest plots. Use of manure was reported in the case of about 40 per cent of the area in the first two groups but it declined to less than one-fourth of the total area of jowar taken on the plots above 4 ha. Mostly farm yard manure was used except about 2.6 per cent, 10.9 per cent and 4.1 per cent respectively of the total manure used in the three groups where it was reported to be purchased.

Ploughing was done in respect of only about 30 per cent of the total area in the first group as against about 40 per cent and 55 per cent respectively in the other two groups, perhaps because many of the cultivators in the first group did not own plough cattle. Harrowing was reported by almost all the cultivators, the number of harrowings varying between 2 to 4 in a majority of the cases. About 40 per cent of the cultivators in the first two groups got the harrowing, sowing and hoeing operations done on a contract basis while on the largest plots the

proportion declined to about 30 per cent. This against must be due to the fact that many of the cultivators in the first two groups did not own the plough cattle.

Of the total average expenditure per ha., about 70 per cent was in cash in the case of the first group because of the wages paid to labour. Among other reasons it could be attributed again to the fact that many of the cultivators did not own plough cattle and hence had to get certain operations done on contract basis. Harvesting was done mostly by the family male and female labour with the help of hired labour except in a few cases where it was got done on a job basis.

As regards the sale of jowar, only one cultivator from the first group reported sale of fodder, 1500 bundles locally for Rs. 300. In the second group, 2 cultivators reported sale of fodder, 1400 bundles for Rs. 400. Besides three cultivators reported sale of 11 quintals of jowar for Rs. 1,330. Two of them had to incur expenditure on marketing which came to about 10 per cent of the sale proceeds. In the third group six cultivators reported sale of fodder, 28,000 bundles (i.e. about 16 per cent of the total produce for the group) for Rs. 5,100. Only one of them had to incur expenditure of Rs. 39 on marketing fodder worth Rs. 1,500. Sale of 129 quintals jowar worth Rs. 15,575 was reported by 7 cultivators out of 55 cultivators in the group. The quantity sold formed about 18 per cent of the total produce of the group. The expenditure on marketing came to about 6.5 per cent of the value of the sale proceeds.

Mixed Crop : Jowar with Safflower/Horsegram

43 cultivators from out of 240 sample cultivators reported cultivation of jowar mixed with Safflower/Gram

as a dry crop. The total area under the mixed crop in respect of the 43 cultivators was 236.14 ha. The distribution of cultivators as per the area under the mixed crop was as follows :

<u>Area under the Mixed Crop</u>	<u>No. of Cultivators</u>
i) Upto 2 ha.	6
ii) 2.1 ha. to 4 ha.	9
iii) About 4 ha.	28

Since the number of cultivators in the first two groups is small we decided to consider all the cultivators together for the purposes of studying the inputs, yield and expenditure. So also gram was mixed with jowar only in a few cases. Hence we have not separated such cases.

Maldandi variety was grown by most of the cultivators. 15 cultivators from the three groups referred to above did not plough their land. However, harrowing was done by all the cultivators, the number of harrowings varying between 2 to 4 harrowings in majority of the cases. Except for 11 cultivators, all others did hoeing. 21 cultivators did not report weeding, two of whom did not report hoeing also. 22 cultivators used farmyard manure only; two reported use of urea while one reported sheep manure.

In Table No.6.4 we have given data regarding inputs, per ha. of area operated, of male and female labour days. If we take into consideration the ratio of the seed of jowar and the mixed crop, which happened to be Safflower in most of the cases, and allocate the total area under the mixed crop on the basis of seed ratio, we find that the area under the mixed crop forms about 22 per cent of the total area under mixed crop. Thus the area under jowar and Safflower may be considered as 185 ha. and 51 ha. respectively. It will be noted from the Table that the total average input of male labour days per ha. of jowar

Table No. 6.4 : Inputs of Male/Female Labour Days per ha. of Area Operated for Jowar mixed with Safflower/Gram

		Labour days per ha. of area operated	
		Male	Female
Floughing		3.2	-
Transport and Application of Manure/Fertilizers		0.2	-
Harrowing		2.1	-
Sowing		0.6	-
Hoeing		1.1	-
Weeding		1.2	5.4
Watching		2.9	5.8
Harvesting	Main Crop	2.4	2.0
Cleaning	Main Crop	1.0	1.9
Harvesting	Mixed Crop	0.8	0.5
Cleaning	Mixed Crop	0.4	0.5
Other work		-	5.8
Total Average Labour Days per ha.		10.5	10.1
Of which Hired Labour		26%	35.4%

taken as a mixed crop is about the same as jowar taken as dry crop on plots of 2.1 to 4.0 ha. The total female labour days per ha. in the case of the former are about two-thirds of the total female labour days per ha. in the case of the labour latter.

In Table No. 6.5 we have shown the average yield, value of gross produce and expenditure per ha. of Jowar as a mixed crop. It will be noted from the Table that the seed rate per ha. of jowar taken as a mixed crop is about five per cent lower than the average seed rate in respect of jowar taken as a single crop on plots upto 2.0 ha.

Table No. 6.5 : Average Yield, Receipts and Expenditure per ha. of Jowar Mixed with Safflower/Gram

<u>Yield</u>	Rs.
Jowar 2.41 quintals	303.62
Fodder 541 bundles	129.15
Mixed crop 1.02 quintals	209.70
Average Total Value of Jowar and Mixed Crop	642.47
<u>Expenditure (per ha. of area operated)</u>	
Seed - Jowar 9.00 Kg.	14.86
Mixed Crop 10.00 Kg.	21.27
Manure : Cartloads	
Urea 25 Kg.	37.00
Sheep Manure	33.33
Wages in cash	50.96
Wages in kind	14.44
Baluta	8.76
Charity	2.99
Total Average Expenditure per ha.	198.48
Of which expenditure in cash	55%
Balance left to the Cultivator per ha. of Jowar as a mixed crop	443.99

If we take into account the cropped area under jowar and safflower on the basis of seed ratio, then the average yield per ha. in the case of jowar comes to 2.41 quintals and safflower 1.02 quintals. The yield of jowar as a mixed crop is certainly greater than the yield of dry jowar taken as a single crop. We may recall that among those who reported dry jowar the yield was the maximum, namely, 2.36 quintals per ha; on plots upto 2 ha. On the other hand, the total expenditure per ha. on the mixed crop is lower than the per ha. expenditure on jowar taken as

a dry crop on plots of land measuring upto 2.0 ha. and also on plots of 2.01 to 4.0 ha. However, because of the proportion of jowar and safflower in the mixture of the two crops, the total average value per ha. of the mixed crop came to Rs. 384.56 per ha., which is lower than the value per ha. on plots upto 2 ha. of dry jowar as a single crop but about 15 per cent more than on plots above 2.01 ha. of dry jowar taken as a single crop. The resultant position is in keeping with the yield and expenditure position noted above. The balance per ha. after deducting expenditure from the value of produce comes to Rs. 286.08 which is lower than jowar taken as a single crop on plots upto 2 ha. but more by about 15 to 25 per cent as compared to jowar taken on plots measuring 2.01 and above. Thus jowar as a mixed crop appears to be profitable than taking jowar as a single crop, particularly on plots of size 2.01 ha. and above.

Irrigated Jowar

About one-fifth of the sample cultivators reported cultivation of irrigated jowar. Some of them also cultivated jowar as a dry crop and reported combined inputs, yield and expenditure for the dry and irrigated jowar. In the present note, therefore, we have considered in two groups, namely, a) those who cultivated and reported inputs etc. separately in respect of irrigated jowar and b) those who reported combined inputs for irrigated and dry jowar. In the case of the former we have divided the reporting cultivators into two groups, namely i) where the area under irrigated jowar was upto one ha. and ii) where the area under irrigated jowar exceeded one ha.

a-1) Irrigated Jowar upto One Ha.

13 sample cultivators from 7 out of 16 villages reported 7.92 ha. under irrigated jowar, area reported by each of them varying between 0.10 ha. to 1.0 ha. In Table No.6.6 we have given inputs of male and female labour and in Table No.6.7 we have shown average yield, value of gross produce and expenditure per ha. of irrigated jowar as reported by these cultivators.

The cultivators reported cultivation of 'Maldandi' variety of jowar taken as a rabi crop. The number of waterings given for the irrigated jowar varied between one and three waterings in most of the cases. The male labour did the operations requiring hard work while the female labour helped in manuring, watching and harvesting and exclusively carried out the weeding operations. Only 4.3 per cent of the male labour was hired while in the female labour inputs, hired labour formed 43.5 per cent of the total female labour days.

The number of harrowings varied between 2 to 6. Nine out of the 13 cultivators reported use of farmyard manure and one of them also applied az urea. Hoeing was reported by nine out of 13 cultivators.

The average yield per ha. of irrigated jowar reported in the Family Schedule was 630 quintals which is lower as compared to the yield reported in the sample survey by about 7 per cent. The cultivators, after deducting expenditure on various inputs from out of the value of yield were left with about Rs. 820/- per ha.

a-ii) Irrigated Jowar above 1.0 ha.

We may consider next 16 cultivators who had a total area of 26.31 ha. under irrigated jowar. The area under jowar reported by them varied between 1.1 ha. to 2.4 ha. The data regarding labour inputs is presented in Table

Table No.6.6 : Inputs of Male/Female Days of Labour Per Hectare of Area Operated under Irrigated Jowar (upto 1.0 ha.)

	Male days	Female days
	(per ha. of area operated)	
Ploughing	5.6	-
Transport and Application of fertilizers and manure	4.4	7.7
Harrowing	3.5	-
Sowing	2.5	-
Hoeing	1.9	-
Watering	7.6	-
Weeding	9.3	36.3
Watching	9.3	36.1
Other work	1.7	-
Harvesting	10.6	16.3
Average total days per ha.	31.8	68.3

Table No.6.7 : Yield, Value of Produce and Expenditure per Hectare of Irrigated Jowar (upto 1.0 ha.)

Rs.			
<u>Yield</u>	Jowar	6.81 Q.	937.50
	Fodder	1050 bundles	297.50
	Total :		1235.00

Expenditure per Ha. in respect of the area operated

Seed : 12 Kg.	23.40
Farmyard Manure : 10.5 cartloads	150.90
Wages in cash	225.70
Wages in kind	33.20
Baluta etc.	22.10
Diesel, Oil, Electricity etc.	82.20
Other Expenses	192.90
Average Total Expenditure per ha. of irrigated jowar (upto 1.0 ha.)	413.50 (Of which expenditure in cash 61.3%)
Balance left after deducting expenditure	Rs. 821.50 per ha.

No. 6.8 and that of yields, value of produce and expenditure in Table No. 6.9. If we compare the performance of the cultivators who had larger than a hectare under jowar with those who had less than a hectare under jowar, we find that the per ha. yield in the case of the former was about two-thirds the per ha. yield obtained by the latter. The per ha. input of labour, seed, manure, wages paid in cash, diesel and electricity, that is, almost every input was lower in the case of jowar in plots of 1.0 ha. and above as compared to those who had less than one ha. under the crop. Naturally the balance left after deducting expenditure from the value of yield was also lower, being about Rs. 560 per ha., as compared to about Rs. 821 per ha. in the case of those who had smaller area, that is, upto one ha. under irrigated jowar. We did not have information on the quality of land in the case of cultivators in the two groups and as such it is difficult to say conclusively whether the higher returns to the smaller-sized plots under irrigated jowar are due to intensive cultivation and larger inputs thereon or whether the higher yields of jowar per ha. are due to the difference in soil types between the smaller and larger plots of land put to cultivation of irrigated jowar. The data reveals that the balance left after deducting expenditure from the value of produce in respect of the smaller plots is almost 47 per cent more than on the larger plots of land under irrigated jowar. We, however, like to point out that the average per ha. yield of irrigated jowar by the medium and large cultivators reported in the Family Schedules and shown in Table No. 5.8 is much higher than reported by the sample cultivators with irrigated jowar on plots above 1.0 ha.

Table No. 6.8 : Inputs of Male/Female Labour Per Hectare of Area Operated under Irrigated Jowar (above 1 ha.)

	Male days	Female days
	(Per ha. of area operated)	
Floughing	4.7	-
Transport and Application of Fertilizers and Manure	3.6	4.0
Harrowing	3.7	2.0
Sowing	1.6	0.5
Hoing	1.6	-
Weeding	3.3	22.4
Watering	4.4	-
Watching	10.4	17.8
Harvesting	7.0	5.5
Average Total Labour Days per ha.	27.2	38.0
Of which hired	26.6%	47.2%

Table No. 6.9 : Yield, Value of Produce and Expenditure per Hectare of Irrigated Jowar (above 1.0 ha.)

			Rs.
<u>Yield</u>	Jowar	4.48 Quintals	575.25
	Fodder	741 Bundles	236.60
			811.85
<u>Expenditure (Per ha. of Area Operated)</u>			
Seed	9.5 Kg.		16.00
Manure	5.4 cartloads		64.60
Wages in cash			112.50
Wages in kind			33.70
Baluta etc.			16.95
Diesel oil, Electricity			57.90
Average Total Expenditure per ha. of irrigated jowar			248.40 (Of which expenditure in cash 63%)
Balance left after deducting expenditure			563.45

b) Irrigated and Dry Jowar

Nineteen cultivators reported cultivation of jowar as an irrigated crop on 22.8 ha. as well as dry crop on 72.53 ha. ~~72.53~~ ha. on separate plots of land cultivated by them. However, they reported combined inputs of labour for various farm operations as also combined inputs and yield for the dry as well as irrigated jowar. It is not very meaningful to consider the inputs, yield and expenditure per ha. in these cases of combined reporting except to see how its performance stands vis-a-vis jowar taken as a) an irrigated crop and b) as a dry crop. We have presented in Table No. 6.10 inputs of male and female labour days per ha. and in Table No. 6.11 Yield and Expenditure per ha. of jowar as a crop taken on irrigated and dry land. Compared to jowar taken as an irrigated crop on plots of less than 1.0 ha. as well on plots bigger than 1.0 ha., the average per acre inputs of labour as well as seed, manure and per ha. expenditure, yield and balance left after deducting expenditure from the value of the yield is much less in the case of combined reporting. The use of manure in combined reporting is just 1.7 cartloads vis-a-vis 5 to 10 cartloads per ha. used in the case of jowar taken as an irrigated crop. The total male labour days per ha. in the combined reporting are about one-third of the labour inputs and female labour inputs are also about one-third to one-fifth of the labour inputs found in respect of jowar taken as an irrigated crop.

Wheat (Irrigated)

Wheat was taken as an irrigated crop by 12 cultivators from out of 240 sample cultivators. Two of them cultivated Kalyan Sona, five others cultivated 'Khapali' and the remaining five cultivators took the local varieties known

Table No. 6.10 : Inputs of Male/Female Labour per Hectare of Area Operated under Irrigated and Rain-fed Jowar (Combined Reporting)

	Male days	Female days
	(per ha. of area operated)	
Ploughing	2.3	-
Transport and Application of Manure and Fertilizers	0.6	-
Harrowing	2.9	-
Sowing	1.2	-
Hoeing	1.0	-
Watering	1.8	-
Weeding	-	7.0
Watching Harvesting	$\frac{3.0}{\text{---}} \rightarrow 3.6$	$\frac{7.2}{\text{---}} \rightarrow 3.8$
Average Total Days per ha.	10.1	12.6
Of which hired labour	45%	54%

Table No. 6.11 : Yield, Value of Produce and Expenditure per Hectare of Irrigated and Rain-fed Jowar (Combined reporting)

<u>Yield</u>		Rs.
Jowar	2.46 Quintals	309.20
Fodder	510 Bundles	117.40

		426.60
<u>Expenditure</u>		
Seed	7.97 Kg.	12.80
Manure	2.7 Cartloads	16.50
Wages in cash		61.30
Wages in kind		33.00
Baluta etc.		5.70
Diesel, Oil, Electricity etc.		15.30

Average Total Expenditure per ha. of jowar		133.45 (Of which 58% in cash)
Balance left after deducting expenditure		Rs. 293.15 per ha.

as 'Deshi'. We shall consider separately inputs, yield and expenditure in respect of the three varieties.

Kalyan Sona

We give in Table No.6.12 inputs of labour days of the two cultivators who took this crop.

Table No.6.12 : Inputs of Labour days per Ha. of Area Operated for Kalyan Sona wheat

Area under Kalyan Sona wheat	Cultivator No.1		Cultivator No.2	
	0.4 ha.		0.2 ha.	
<u>Per hectare labour days</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
Ploughing (once)	5.00	-	5.00	-
Transport and Spreading manure	10.0	10.0	-	-
Harrowing (twice)	5.0	-	5.0	-
Sowing	2.5	-	2.5	-
Application of Chemical Fertilizers	-	-	5.0	-
Weeding (twice)	-	45.00	-	65.0
Watering	7.5 10.0 (thrice)	-	15.0 (7 times)	-
Harvesting	10.0	45.0	20.0	20.0
Total No.of labour days per ha.	40.0	105.0	52.5	85.0
Of which Hired Labour	-	75.0%	28.5%	76.5%

We have shown in Table No.6.13 the yield and expenditure. It will be noted from the Table that the yield in the case of cultivator No.2 was double that of the first cultivator possibly because of the application of chemical fertilizers. (though he did not report any farm yard manure). Consequently the per ha. expenditure in the case of Cultivator No.2 was much higher. As a result the balance

Table No. 6.11 : Expenditure Per ha. in respect of the Area Operated, Yield and Value of Produce in respect of Wheat - Kalyan Sona

	Cultivator No.1	Cultivator No.2
	Rs.	Rs.
<u>Expenditure</u>		
Seed - Home Preserved	110.00 (55 Kg. per ha.)	240.00 (80 Kg. per ha.)
Farm Yard Manure } 25 cart- loads	375.00	-
Chemical Fertilisers } per ha.		
Urea	- 850 Kg. }	750.00
Sufala	- 250 Kg. }	
Wages in cash	172.50	190.00
Wages in kind	70.00	-
Diesel Oil	52.50	150.00
Total Expenditure per ha.	780.00	1,330.00
<u>Yield per ha.</u>	10 quintals = 2,500.00	20 quintals = 3,000.00
Fodder per ha. worth	112.50	250.00
Value of Produce per ha.	2,612.50	3,250.00
Balance per ha. Irrigated wheat (Kalyan Sona) after meeting expenditure	1,832.50	1,920.00

left to the cultivator after deducting expenditure from the value of produce was only about 5 per cent more even though the yield was double. We may state that it is not proper to draw any firm conclusions as we had only two cases of Kalyan Sona variety of wheat. We shall, therefore, next consider the cultivators who took Khapali and Deshi wheat.

Khapali and Deshi Varieties

The area under irrigated wheat in respect of the two varieties was as follows :

Taluka	Village	No. of culti- vators	'Khapali' wheat Area ha.	No. of culti- vators	'Desi- wheat area ha.
Mangalwedha	Marapur	1	0.70	1	0.20
		2	0.40		
Mohol	Takali	3	0.20	2	0.20
	Sikandar				
Pandharpur	Adhāv	4	0.20	3	0.55
	Ehese	-	-	4	0.80
	Mendhapur	5	0.30	5	0.40
	Shegaon	6	0.20	-	-
			----		----
			2.00		2.15
			-----		-----

We have given in Table No.6.14 inputs of male/female labour days per hectare of area operated for various operations in respect of the two varieties. It is seen from the Table that as in the case of the other crops, female labour was used for weeding and harvesting operations and about three-fourths of the female labour was hired labour. The inputs of male labour on ploughing, transport and application of manure and fertilizers, and watering were about the same in both the varieties. About 4 to 7 waterings were reported in respect of both the varieties. In respect of Khapali variety, the labour days for harvesting were almost double the labour days for Deshi variety because the yield in respect of the former came to 13.25 quintals per ha. as against 8.84 quintals per ha. in the case of the latter.

We may next consider the yield, value of produce and expenditure in respect of the two varieties which is given in Table No.6.14. The average yield per ha. of Khapali variety was nearly 50 per cent more than that of Deshi variety. However, the per quintal price of the latter was high enough to compensate for the lower yield per ha. as also higher expenditure on cultivation per ha. as compared to Khapali variety. The net result was that the balance

Table No.6.14 : Inputs of Male/Female Labour Days Per Hectare of Area Operated of Khapali Deshi Varieties of Irrigated Wheat

	Khapali Variety		Deshi Variety	
	Male days	Female days	Male days	Female days
	(Per ha. of area operated)			
Ploughing	6.5	-	5.6	-
Transport and Spreading manure and fertilizers	6.2	9.2	6.5	10.4
Harrowing	7.0	-	5.1	-
Sowing	3.0	-	2.6	-
Watering	11.7	-	11.6	-
Weeding	-	56.0	-	65.6
Watching	5.0	2.5	-	31.2
Harvesting	19.1	47.1	9.7	27.2
Average Total days per ha.	44.5	78.5	39.1	107.4
Of which Hired labour	27%	77%	11%	74%

Table No.6.15 : Yield, Value of Produce and Expenditure per Hectare of Khapali and Deshi Varieties of Irrigated Wheat

	Khapali Variety		Deshi Variety	
	Rs.		Rs.	
<u>Yield and Value of Produce per ha.</u>				
Wheat	13.25 Q	1,537.50	8.84 Q	1,546.50
Fodder		135.00		104.00
Total Receipts per ha.		1,672.50		1,650.50
<u>Expenditure per ha. of area reported</u>				
Seed	83 Kg.	111.00	76 Kg.	138.80
Manure	20.6 cartloads	206.00	17.2 cartloads	201.86
Urea	113.6 Kg.	192.70	250 Kg.	350.00
Wages in cash		273.00		298.60
Wages in kind		100.00		85.00
Diesel/Electricity		143.80		90.40
Baluta etc.		18.00		15.62
Average Total Expenditure per ha.		801.50		868.80
		(Of which 70% in cash)		(Of which 54% in cash)
Balance per ha. left after deducting expenditure from the value of the Produce		871.00		781.70

per ha. after meeting the expenditure was Rs. 781.70 in the case of Deshi variety and Rs. 871 in the case of Khapali variety.

Only one cultivator from Takali Sikandar reported sale of 4 quintals of Khapali wheat. After paying Rs. 16/- for gunny bags and paying Rs. 0.80 as octroi, he received net sale proceeds of Rs. 385.20 from the sale of wheat.

We may mention here that the among-a average yield of wheat for Solapur District for the period 1960-61 to 1971-72 varied between 3.33 quintals for the year 1966-67 and 7.52 quintals for the year 1971-72.

Wheat (Dry Crop)

Wheat as a dry crop was reported on 9 plots of land on a total area of 4.78 ha. The size of plots of land under the crop varied between 0.1 ha. and 1.2 ha. We give in Table No. 6.14-A data regarding inputs of male/female labour per ha. of area operated under wheat as dry crop and in Table No. 6.15-A yield and expenditure per ha. in respect of the crop. Compared to irrigated wheat, the inputs of labour for wheat as a dry crop were lower by about 40 per cent in the case of male labour and by more than 50 per cent in the case of female labour.

Maize

Thirteen out of 240 sample cultivators reported cultivation of irrigated maize on a total area of 6.4 ha. as follows :

	<u>No. of Cultivators</u>	<u>Each reporting ha.</u>
	1	2.00
	2	0.80
	1	0.60
	5	0.40
	4	0.05
	----	----
Total	13	6.40
	----	----

Table No. 6.14-A : Inputs of Male/Female Labour per ha. of Area Operated in respect of Wheat (Dry Crop)

	Labour days per ha. of Area Operated	
	Male	Female
Ploughing	3.12	-
Manuring	8.82	-
Harrowing	3.33	-
Sowing	1.94	-
Hoing	2.50	-
Weeding	18.75	27.98
Watching	34.46	-
Harvesting	5.40	9.27
Cleaning the yield	4.32	6.58
Average Total Labour Days per ha.	25.94	32.22
Of which hired labour	11.3%	59.7%

Table No. 6.15-A : Yield and Expenditure per ha. of Area Operated in Respect of Wheat (Dry Crop)

		Rs.
<u>Yield</u>	320 Quintals	389.50
	Fodder	69.70
Average Total Yield		436.20
<u>Expenditure</u>		
Seed	55.4 Kg.	105.20
Farm-yard Manure	15.7 Cartloads	113.00
Wages in cash		217.36
Wages in kind		-
Baluṭa		10.00
Average Total Expenditure per ha.		348.00
Balance per ha. after deducting expenditure from Value of Produce		355.00
		81.00

The 13 cultivators belonged to the following villages :

Mangalwedha Taluka	: Khomnal	5
	Marapur	2
Pandharpur Taluka	: Mendhapur	2
	Adhiv	1
Mohol Taluka	: Takali Sikandar	2
Madha Taluka	: Shevare	1

In Table No. 6.16 we have given information regarding the inputs of labour and in Table No.6.17 information regarding yield, value of produce and expenditure per ha. under irrigated maize. It will be noted from the Table that the per ha. male labour days came to 47 days of which 41 per cent was hired labour. The female labour days came to 90 days per ha. Over 40 per cent of the labour input was for harvesting more than three-fourths of which was hired labour. 3 to 4 waterings were reported requiring an input of about 16 days of male labour per ha. in respect of 10 cultivators who reported inputs of labour days on watering. All the cultivators used home-preserved seed, the average seed rate being 23.4 Kg. per hectare worth Rs. 30.00. 50 Kg. Urea was given to 0.4 ha. by only one cultivator. No pesticides or insecticides were reported by any cultivator. Farm yard manure was reported by only six cultivators, the average being about 18.4 cartloads of farmyard manure per ha. As regards payment of wages two-thirds of the payment was in cash. The total average expenditure per ha. came to Rs. 506 of which about two-thirds of the expenditure was in cash.

In two out of sixteen cases, the crop did not mature and had to be fed as fodder. Hence, in the remaining 14 cases, the average yield for per ha. came to 8.92 quintals worth Rs. 832.80 and fodder worth Rs. 250.00, thus leaving a balance of Rs. 576.80 per ha. after meeting the expenditure.

Table No. 6.16 : Average Input of Labour Days per ha. of Area Operated under Irrigated Maize

Type of work	Male	Female
Ploughing	5.9	-
Transport of manure and spreading manure	5.3	-
Harrowing	4.8	-
Sowing	2.7	-
Hoeing	1.7	-
Weeding	-	39.8
Watering	15.8	-
Watching	18.9	21.4
Harvesting	16.6	74.6
Average Total Labour Days per ha.	46.9	90.0
Of which hired labour	41%	80%

Table No. 6.17 : Average Yield, Value of Produce and Expenditure per ha. under Irrigated Maize

		Rs.
<u>Yield and Value of Produce</u>	8.92 Quintals	832.80
	Fodder worth	250.00
Total :		<u>1,082.80</u>
<u>Expenditure per ha. of Area Operated</u>		
Seed	23.4 Kg.	30.00
Farm Yard Manure	18.4 Cartloads	194.00
Baluta		52.00
Watering 3 to 5 times and other expenditure		166.40
Wages in kind		98.60
Wages in cash including contract		187.60
Urea		
Average Total Expenditure per ha.		<u>506.00</u> (Of which 63% in cash)
Balance & left after deducting the expenditure		Rs. 576.80 per ha. of irrigated maize

It may, however, be stated that

Sale of Maize

Sale of maize was reported by only three cultivators. One of them sold 10 quintals (out of 10.6 quintals produced) to the farm labour at Re. 1 per Kg. The second one sold the entire produce of 5 quintals in November at Mangalwedha market in retail. He transported the produce by bullock-cart and had to pay Rs. 15/- on account of octroi, which when deducted from the sale proceeds of Rs. 540.00 left him with a sum of Rs. 525/-. The third cultivator sold 6 quintals, out of 10 quintals produced, in December at Pandharpur through a commission agent. He spent Rs. 15/- on transport, Rs. 12 on octroi and Rs. 9 as commission to the agent, i.e. a total sum of Rs. 36.00, which when deducted from the sale proceeds of Rs. 450/- left a balance of Rs. 414/-.

Groundnut (Irrigated)

13 out of the 240 sample cultivators reported 8.8 ha. under groundnut as an irrigated crop. The cultivators reported such varieties as Deshi, Ghungra or Pasarya. However, there being only a few cases of each variety, we have not considered separately each variety. 7 of them were from Khed Bhalwani from Pandharpur taluka and 2 each from Takali Sikandar (from Mohol taluka) from Pakani (in North Solapur taluka) and one each in Adhiv and Mandhapur from Pandharpur taluka. The area under the crop varied between 1.6 ha. to 0.015 ha. We have summed up the inputs of labour for various agricultural operations in Table No. 6.18.

Ploughing was done once except where one cultivator reported two ploughings. The number of harrowings varied between 4 to 8. Hoing was reported by only half the

cultivators. 4 to 6 waterings were reported for irrigating the crop. 7 cultivators reported family labour for watching the crop. Only 5 cultivators reported male labour for harvesting the crop. The female labour was used mainly for two operations, namely, weeding and harvesting. Hired labour formed only 18 per cent in the male labour input while it was as high as 79 per cent in the case of female labour inputs. All the farmers except one used farm-preserved seeds. The average seed rate came to 89.5 Kg. per ha. but varied within a wide range of 40 Kg. per ha. to 112 Kg. per ha. Eight out of 13 farmers who reported use of manure, used farm yard manure on an average about 21 cartloads per ha.

Table No. 6.18 : Input of Male and Female Labour per Hectare of Area Operated for Irrigated Groundnut

	Male Labour days per ha. of area operated		Female Labour days per ha. of area operated
	No.		No.
Ploughing	4.9	Weeding	42.2
Transport and Spreading manure	5.3	Watching	24.9
Harrowing	3.6	Harvesting	65.4
Sowing	2.3		
Watering	2.3		
Watching	23.0		
Watering	5.75		
Harvesting	9.5		
Average Total Labour Days per ha.	33.6 (Of which 18% was hired labour)		104.4 (Of which 79% was hired labour)

The average expenditure per hectare for area operated of groundnut is shown in Table No.6.19.

Table No.6.19 : Yield and Expenditure per Hectare of Area Operated in respect of Irrigated Groundnut

		Rs.
<u>Yield and Value of Produce</u>	8.82 Quintals	2,197.70
	Fodder	234.70

Total :		2,432.40
<u>Expenditure per ha. of Area Operated</u>		
Seed	89.5 Kg.	367.60
Farmyard Manure	21 cartloads	246.50
Wages in cash		110.50
Wages in kind (i.e. groundnut)		166.50
Diesel		41.90
Watering including cess		293.40
Payment to Balutedars		67.40

Total Average Expenditure per ha.		1,026.00
(Of which 32.6% in cash.)		
Balance per ha. of Irrigated Groundnut.		1,406.00

The yield per ha. came to 8.82 quintals of groundnut. The value of gross produce per hectare came to Rs. 2,432 per hectare, about 10 per cent of which was on account of fodder. After meeting the expenditure reported above, the cultivators were left with a balance of Rs. 1,406 per hectare as return to family labour and capital investment in land and other assets. It may be mentioned here that the yield of groundnut for Solapur district for the period 1960-61 to 1971-72 varied between 2.11 quintals per ha. in 1970-71 to 6.08 ha. in 1968-69. The higher yield per ha. reported by the sample cultivators must be due to the fact that they cultivated groundnut as an irrigated crop.

As regards the produce marketed, it was found that about 70 per cent of the total produce was marketed; it was sold within Solapur district at Modnimb, Mohol, Solapur and Pandharpur. The produce was transported by the cultivators themselves by bullock cart and sold to the traders directly or, as stated in about half the cases, through an agent. The marketing costs on account of gunny bags, octroi and commission came to 5 per cent of the sale proceeds. The gross sale proceeds came to Rs. 14,675 from the sale of 55.5 quintals of groundnut. After deducting Rs. 713 on account of the marketing costs, the net sale proceeds came to Rs. 13,962. The produce was marketed in November and December.

Groundnut (Dry Crop)

Groundnut was reported as a dry crop on two plots of land by 2 sample cultivators on land measuring 4.0 ha. and 0.4 ha. respectively i.e. total area of 4.4 ha. In Table No. 6.18-A we have given inputs of labour by male and female labour, and in Table No.6:19-A yield and expenditure per ha.

Table No.6.18-A : Male/Female Labour Days in per ha. of Area Operated under Groundnut (Dry Crop)

	Labour Days per ha. of Area Operated	
	Male	Female
Ploughing	3.4	-
Manuring	1.1	-
Harrowing	1.8	-
Sowing	2.0	2.5
Hoeing	1.4	-
Weeding	-	9.5
Watering	-	5.2
Harvesting	2.5	22.7
Average Total Labour Days per ha.	10.0	39.3
Of which Hired Labour	4%	52%

crop. It must, however, be noted that compared to jowar taken as a dry crop groundnut is quite profitable, though it also requires almost double the expenditure per ha. of dry jowar.

Cotton

Cotton (Jarila variety) was reported as an irrigated crop by ten out of 240 cultivators from the sample villages as follows :

Mangalwedha taluka	: Khomnal	6 cultivators
	Marapur	2 "
Pandharpur taluka	: Mendhapur	1 "
	Adhiv	1 "
	Total	10 "

One cultivator had 0.4 ha. under irrigated cotton and 1.6 ha. under dry cultivation under cotton. He reported combined inputs for the dry and irrigated crop. Another cultivator reported 0.4 ha. under dry cultivation. Hence we have left out these two cases in the present note. For the remaining eight cultivators the area under cotton was as follows :

One cultivator	0.8 ha.
Two cultivators	0.6 ha. each
Four Cultivators	0.4 ha. each
One cultivator	0.2 ha.
Total - 8 cultivators	3.8 ha.

We have given in Table No.6.20 inputs of labour and in Table No.6.21 yield, receipts and expenditure per ha. of irrigated cotton. It will be noted from the Table that the per hectare inputs of male labour days came to about 32 days, 15 per cent of which was hired labour. The input of female labour was more than that of male labour, being

Table No. 6.19-A : Yield and Expenditure per ha. of Area Operated in respect of Groundnut (Dry Crop)

		Rs.
<u>Yield and Value of Produce</u>	2.73 Quintals	750.00
	Fodder worth	43.20
	Total :	793.20
<u>Expenditure per ha. of Area Operated</u>		
Seed	52.3 Kg.	156.80
Manure	2.7 Cartloads	32.70
Wages in cash		14.50
Wages in kind		26.80
	Total Expenditure per ha.	230.80
Balance per ha. after deducting expenditure from the value of Produce		562.40

It will be noted from the data regarding inputs of labour that the per ha. input of male labour in the case of Groundnut taken as a dry crop was about one-third of the input per ha. of irrigated crop and that of female labour about 38 per cent of the input per ha. of irrigated crop. The seed rate as also use of farmyard manure was lower for dry crop being 52.3 Kg. and 2.7 cartloads respectively as compared to 89.5 Kg. and 21. cartloads respectively for the irrigated crop. Consequently the per ha. expenditure for dry crop was lower, being about 55 per cent of the expenditure per ha. of dry crop. As regards the yield per ha. it was 2.73 quintals for dry crop which was only about 30 per cent of the yield per ha. of dry crop. As a result the balance per ha., after deducting expenditure from the value of produce, was only Rs. 562.40 for dry crop as against Rs. 1,406 in the case of irrigated

Table No. 6.20 : Per hectare Inputs of Male/Female Labour for Irrigated Cotton

	No. of labour days per ha. of area operated	
	Male	Female
Ploughing	5.7	-
Harrowing - twice	4.3	-
Making rows	3.6	3.3
Transport of and spreading manure and chemical fertilisers	3.5	10.0
Sowing	6.2	23.4
Weeding (twice)	-	57.4
Watering	13.9	-
Watching	13.3	5.0
Harvesting	8.6	86.3
Average Total per ha. input of labour days	32.5	166.0
Of which hired labour	15.4%	83%

Table No. 6.21 : Average Yield, Value of Produce and Expenditure per hectare of Irrigated Cotton

	Rs.	
<u>Yield & Value of Produce per ha.</u>	9.34 quintals	3,526.00
	Fodder	193.00
Average-Total-per-hectare input-of-labour-days	Total :	3,719.00
<u>Expenditure per ha. of Area Operated</u>		
Seed	8.42 Kg.	26.45
Farmyard Manure	25 cartloads	181.60
Diesel Oil and Electricity Charges		155.60
Wages paid in cash		337.10
Urea	156.25 Kg.	236.90
Average Total Expenditure Expenditure per ha.		784.00 (Of which 78% in cash)
Balance		2,935.00 per ha.
<u>Expenditure on Marketing</u>	4.8 per cent on produce sold	

about 166 days of which 83 per cent was hired labour. The female labour was used mainly for sowing, weeding and harvesting operations. Since for picking cotton, female labour is used, we find a large input of female labour for harvesting in the case of cotton, like in the case of groundnut. The male labour input for these three operations was insignificant. In the male labour input, labour for irrigating the lands, about 6 to 7 times, accounted for about 40 per cent of the aggregate input and came to about 14 labour days per hectare in the case of the cultivators who reported this input. The labour inputs do not include the labour days of work in respect of two farmers on 1 ha. of land, as except watering, they got all the work done by contract labour.

As regards the yield, the per ha. yield came to 9.34 quintals of cotton worth Rs. 3,526 and fodder worth Rs. 193, that is, a total yield worth Rs. 3,719. The average yield of cotton for Solapur district for the period 1960-61 to 1971-72 varied between 1.45 quintals per ha. in 1961-62 to 2.82 quintals per ha. in 1967-68. The sample cultivators took cotton as an irrigated crop and this perhaps explains the higher yield per ha. reported by the sample cultivators.

Except for a major part of farm yard manure, expenditure on all other inputs including seed was incurred in cash. No payment was made in kind. The use of farm yard manure was reported by all the farmers, the average input being about 25 cartloads per ha. The seed rate came to 8.42 Kg. per ha. Use of urea was reported by only four out of 9 cultivators and in their case the average input came to 156 Kg. of urea per ha. The expenditure on wages came to Rs. 337 per ha. The average total expenditure per ha. came to about Rs. 784 which when deducted from the value of yield left a balance of Rs. 2,935 per ha. as return to land, family labour and capital investment.

Of the nine cultivators, one cultivator did not report marketing of cotton but the remaining cultivators sold the entire produce in the months of September and October. The produce was sold to traders mainly through a broker at Mangalwedha, Modnimb, Chadchan markets in Solapur District as also at Bijapur in Karnataka State. The produce was transported in bullock carts. The 8 cultivators reported a total expenditure of Rs. 608 for marketing 33 quintals of cotton, that is Rs. 18.5 per quintal. The expenditure was on the following heads : Transport 21 per cent, Gunny bags and packing 26 per cent, Octroi 24 per cent and Commission 29 per cent. The total expenditure on marketing the produce was about 5 per cent of the sale proceeds.

Sugarcane

10 out of 240 cultivators from six out of 16 villages reported sugarcane cultivation of C9-740 variety as follows :

Marapur	2.00 ha.
Takali Sikandar	1.80 ha.
Khomnal	0.80 ha.
Belati	0.80 ha.
Mendhapur	0.50 ha.
Khomnal	0.40 ha.
Khomnal	0.40 ha.
Mendhapur	0.30 ha.
Takali Sikandar	0.06 ha.
Badalkot	0.40 ha.

Of the last two cases, the cultivator at Takali Sikandar used the sugarcane for planting press purposes in the following season whereas the crop on the 0.40 ha. of land by the cultivator from Badalkot failed to mature and was fed to cattle. Hence we shall exclude the last ^{two} cases and consider the first eight cases only in the present note.

The total area under sugarcane in respect of the eight cultivators came to 7.0 ha. There was a lot of difference in the input pattern and expenditure on various items and yield of sugarcane reported by the eight cultivators because it was Khodwa crop in respect of five of them.

We give in Table No.6.22 labour inputs per hectare of Khodwa (Sugarcane crop taken after the Adsali crop is harvested from the same planting of Adsali sugarcane) and Adsali/Suru (18 months crop)/Suru (12 months crop) Sugarcane. In Table No.6.23 are given the yield, value of produce and expenditure per hectare of Khodwa and Adsali/Suru Crop.

Table No. 6.22 : Labour Inputs and Expenditure per ha. of Khodwa and Adsali/Suru Sugarcane

	No. of days per ha. operated			
	Khodwa		Adsali/Suru	
	Male	Female	Male	Female
Ploughing	-	-	8.2	-
Harrowing	-	-	6.0	-
Digging	58.3	-	112.9	-
Transport and spreading of Manure and Chemical Fertilisers	10.9	18.5	7.6	16.5
Planting	-	-	1.8	13.5
Weeding	-	65.3	-	58.2
Watering	47.7	-	54.7	-
Watching	37.5	-	-	-
Harvesting	31.2	-	40.0	-
Total Average Labour days per ha.	92.0	53.80	215.3	88.2
Of which hired labour	49.4%	97.5%	66.4%	96.0%

**Table No. 6.23 : Yield and Expenditure per Hectare of
Khodwa and Adsali/Suru Crop**

	<u>Khodwa Crop</u>	<u>Adsali/Suru Crop</u>
	(for area to which the expenditure is applicable)	
Yield per ha. (in Tonnes)	77.5	44.0
Value of Agricultural Produce (Rs.)	8,490	6,205
<u>Expenditure per ha. of Area Operated</u>	Rs.	Rs.
Seed	-	429
Manure	222	275
Chemical Fertilizers	549	850
Endrine	50	-
Wages	722	855
Diesel, Electricity and watering	784	675
Harvesting, Transport and Other Expenditure	919	750
Total Average Expenditure per Hectare	2,904	2,662
Of which expenditure in cash	87.6%	97.3%
Balance per ha.	5,586	3,543

Cultivation practices

Ploughing was naturally not done for the Khodwa crop. All the three cultivators who took the Adsali/Suru crop reported two ploughings each and one of them reported in addition one harrowing. All of them reported substantial input on digging; two of them reported two diggings and one reported only one digging. Farm yard manure was used by all of them. Of the 5 cultivators who took Khodwa, only 3 of them reported manure inputs. Chemical fertilizers such as urea, and/or Suphala were used by 2 out of 3 cultivators who took Adsali/Suru and by three out of five who took

Khodwa crop.

Weeding was reported by 3 out of 5 cultivators who took Khodwa crop and by all the three cultivators who took Adsali/Suru crop. Female labour was used for weeding as also for transport and spreading manure and fertilizers.

Watering was reported by all the cultivators. The number of waterings varied between 16 and 30 times. Watering was done mainly by family labour.

Only one cultivator reported labour days for watching the crop. Labour for harvesting, that is, cutting the sugarcane was reported by five out of 8 cultivators. In other cases it was done by contract labour or was done by the sugar factory.

The total average input of male and female labour days for Khodwa and Adsali/Suru crop were ^{was} as follows :

	Labour days per ha. Of which hired			
	Khodwa		Adsali Suru	
	No.	%	No.	%
Male	92	49	215	66
Female	54	97	88	96

It will be thus noted that most of the female labour input was by hired labour.

Finally we consider the yield and expenditure given in Table No.6.23 which is summed up below :

	<u>Khodwa</u>	<u>Adsali/Suru</u>
Total area	5.3 ha.	1.7 ha.
Production per ha. (in Tonnes)	77.5	44.0
Value of Produce per ha. (Rs.)	8,490	6,205
Average Total Expenditure per hectare (Rs.)	2,904	2,662
Balance per ha. of Sugarcane (Rs.)	5,586	3,543

Thus in the case of sugarcane cultivation per hectare return to land, family labour and capital investment came to a little over Rs. 5,586/- per hectare for Khedwa and Rs. 3,543 for Adsali/Suru crop. In fact it should have been higher for Adsali/Suru crop. Perhaps lower doses of chemical fertilizers by two out of three cultivators and the absence of chemical fertilizers in the case of one cultivator resulted in lower yield and consequently lower balance per ha. We may state that of the three cultivators who took Adsali/Suru crop, one of them converted it into 'gul' and reported production of 'gul'. Hence, the yield of sugarcane per ha. has been worked out on the basis of the yield reported by the remaining two cultivators. However, while reporting the value of agricultural produce per ha. we have added together the value of sugarcane reported by the two cultivators and the value of 'gul' reported by the third cultivator.

Marketing

As stated earlier one cultivator used the sugarcane for making gul, about 40 quintals, from 1.5 ha. of sugarcane cultivation. He sold it at Pandharpur in March through a commission agent. The expenditure on transport by bullock cart came to Rs. 160/- and on octroi Rs. 160/-. Five cultivators sold sugarcane to the Sidheshwar Sahakari Sakhar Karkhana, Solapur. Only one cultivator sold it to the Saswad Mali Sugar Factory at Malinagar, about 10 Kms. from Akluj in Malshiras taluka. One cultivator did not report the place of sale of sugarcane.

Paddy

Only one out of the 240 sample cultivators reported Paddy cultivated as an irrigated crops on 0.6 ha. of land. Unfortunately due to inadequate water for irrigating the

crop, the crop did not survive. The cultivator had spent Rs. 24 on purchase of 16 Kg. of seed. The farmyard manure about 10 cartloads worth Rs. 100 was also spread in the field, however, without any yield. The family labour had worked for 10.5 days of which 4 days were for ploughing, 2 days for transport and one day for spreading farmyard manure, one day each for the first and second harvesting and one and half days for planting seed. Thus the only instance of paddy cultivation was a failure though it indicates the willingness of the cultivators to try paddy cultivation ^{if} water for irrigation becomes available. It may be mentioned here that the area under paddy reported in the Family Schedules was only 0.2 per cent of the total cropped area in the 16 sample villages.

Arhar

Arhar was also reported by a lone cultivator from Marapur from Mangalwedha taluka on a piece of 0.2 ha. of land as an irrigated crop. Arhar also formed only a meagre proportion of the total cropped area as reported in the Family Schedules. It was not reported as a separate crop but was mixed with Bajra which itself formed 0.9 per cent of the total cropped area. It yielded a quintal of arhar worth Rs. 250 and fodder worth Rs. 50, that is gross produce worth Rs. 300. The cash expenditure was Rs. 38 on account of wages as follows :

Ploughing - contract basis	Rs. 20/-
Sowing - "	Rs. 12/-
Hoeing - "	Rs. 6/-

Besides, Rs. 30/- were spent on fuel for diesel pump for 2 waterings. A Balutedar was given 1 Kg. of arhar worth Rs. 2.50. The home preserved seed, 2 Kg. worth Rs. 4/- was used for sowing 0.2 ha. of land. The family labour

input consisted of 4.5 mandays (hoeing twice =, 0.5 days, 2 waterings = 2 days and harvesting 2 days) and 10 female days (4 each for weeding and watching the crop and 2 days at harvest).

After deducting the expenditure on wages and oil, payment in kind to balutedar and value of home preserved seed, from the value of produce there remained a balance of Rs. 225.50 on 0.2 ha. of arhar.

Banana & Chillies

Two cultivators reported Chilli on 0.6 ha. of land each but one of them from Takali Sikandar from Mohol taluka had banana plantation also on the same plot of land. No details of expenditure of Rs. 215 (this includes seed borrowed worth Rs. 15) were available about the inputs and expenditure on Chillies in the case of the cultivator who later took banana crop on the plot. He reported yield of green chillies worth Rs. 500/-, thus leaving a balance of Rs. 285/- on 0.6 ha. of land. Hence we shall consider from Table No. 6.24 the inputs and expenditure reported by the other cultivator from Adhiv in Pandharpur taluka on Chilli.

Table No. 6.24 : Inputs of Labour on 0.6 ha. of Chilli

	Male Labour		Female Labour		Wages Rs.
	Family	Hired	Family	Hired	
1st Ploughing	3	-	-	-	-
2nd Ploughing	3	-	-	-	-
Transport of manure	2	-	-	-	-
Spreading manure	1	-	3	-	-
Planting	1	-	5	7	21
1st Weeding	-	-	5	13	39
2nd Weeding	-	-	5	13	39
Watering (8 times)	8	-	-	-	-
Harvesting	-	-	5	-	-
Total	18	-	23	33	99

Apart from payment of wages worth Rs. 99/-, the other inputs were one Kg. of home preserved seed worth Rs. 11/- and 7 cart-loads of farm-yard manure worth Rs. 70/-. The cultivator reported a sum of Rs. 600/- on account of use of diesel pump for irrigation and Rs. 80/- on bullock-cart transport. The gross value of produce of 4 quintals was reported as Rs. 2,400/-. After deducting the expenditure of Rs. 860 on wages, diesel pump, bullock-cart transport as also value of home preserved seed and farm-yard manure, there remained a balance of Rs. 1,540/- on 0.6 ha. of land which works out at Rs. 2,566 per ha. of chillies.

The banana crop seemed to be far more profitable than chilli. In Table No. 6.25 are given the inputs and expenses on 0.6 ha. of banana plantation.

Table No. 6.25 : Inputs, Yield, Expenditure on 0.6 ha. of Banana

	Family labour Male Labour	Wages Rs.
<u>Labour Days</u>		
Two ploughings	5	-
Transport of manure	3	-
Spreading manure	4	-
Digging, filling pits with manure and soil	Contract basis	72
Making beds, weeding etc.	-do-	125
50 waterings (500 hours)	-do-	1500
Harvesting 20 cartloads	-do-	300
		----- 1997
<u>Expenditure</u>		
625 Seedlings from own farm		625
Farmyard manure 25 cartloads		250
		----- 2872
<u>Expenditure on marketing at Mohol, Patkal and Pandharpur by cart or headloads</u>		2400
		----- 5272
<u>Value of produce of 20 cartloads of banana</u>		12000
<u>Balance left after deducting expenditure from receipts on 0.6 ha. of Banana.</u>		<u>6728</u>

Thus after meeting the expenditure from the value of gross produce, the cultivator was left with a balance of Rs. 6,728 on bahana and Rs. 285 on chilli i.e. a total of Rs. 7,013 on 0.6 ha. of land, on an average of Rs. 11,688 per ha.

Coriander

One cultivator from Adhiv in Pandharpur taluka had sown coriander and a kind of gourd (locally known as Malake) on 0.6 ha. of irrigated land. The labour inputs are given in Table No.6.26.

Table No. 6.26 : Inputs, Value of Produce and Expenditure on 0.6 ha. of Coriander

	Male		Female	
	Family	Hired	Family	Hired
	No. of labour days			
<u>Labour Input</u>				
1st ploughing	2	-	Sowing 1	5
2nd ploughing	2	-	Weeding 1	17
Transport of Manure	2	-	-	-
Spreading Manure	2	-	1	-
Harrowing 1st	2	-	-	-
Harrowing 2nd	1	-	-	-
Watering 4 times	4	-	-	-
Harvesting	4	-	4	-
	19	-	7	22
<u>Expenditure</u>				Rs.
Seed purchased Coriander and Gourd				45.00
Wages				66.00
Farm yard Manure 5 cartloads worth				50.00

				161.00
<u>Value of Gross Produce</u>				400.00

<u>Balance on 0.6 ha. of Coriander & Gourd</u>				239.00

The average return per ha. works at Rs. 400/- which on irrigated land is quite low. Since this was the only case of Coriander cultivation it is not possible to comment on its suitability and profitability as an enterprise.

Onion

Three cultivators reported onion cultivation on irrigated plots of land measuring 0.80 ha., 0.12 ha., 0.10 ha. of land respectively. We shall describe each case separately as the cultivation practices were different in the three cases.

Case No. 1

The cultivator from Bhose in Pandharpur taluka who had 0.80 ha. under onion did not report any farm-yard manure. The other inputs are given in Table No. 6.27.

Table No. 6.27 : Inputs, Yield and Expenditure on 0.8 ha. of Onion

	<u>Male Labour</u>		<u>Female Labour</u>	
	<u>Family</u>	<u>Hired</u>	<u>Family</u>	<u>Hired</u>
<u>Labour Input</u>				
Ploughing	4	-	-	-
2 Harrowings	4	-	-	-
Planting seedlings	-	-	4	21
2 Weedings	-	-	9	22
6 Waterings	10	-	-	-
hatching	-	-	28	-
Harvesting	-	-	-	30
<u>Expenditure (in Rs.)</u>	18	-	33	73
Bullocks on hire				160.00
Wages				146.00
Home preserved seed - 0.5 Kg.				20.00
Payment to <u>halutedars</u> and charity				13.00
<u>Total Expenditure on 0.8 ha. of Onion</u>				339.00
<u>Yield</u>				600.00
<u>Balance on 0.80 ha. of Onion Cultivation</u>				261.00
				Or Rs. 326.0 per ha. of onion cultivation.
<u>Onion Sold</u>				
Quantity sold 14 quintals - Rs. 560.00				
Transport by tractor to Pandharpur Market				
in October - sold by the cultivator himself				14.00
Baggage				35.00
Octroi				12.00
Commission				10.00
				71.00

Case No. 2

In the Table No.6.28 we have given the inputs and expenditure by the cultivator on 0.12 ha. of land under onion cultivation. He is from Takali Sikandar from Mohol Taluka.

Table No.6.28 : Inputs, Expenditure and Receipts on 0.12 ha. of Onion

	Male Labour		Female Labour		Wages Rs.
	Family	Hired	Family	Hired	
<u>Labour Inputs</u>					
Ploughing	-	0.5	-	-	10.00
Transport of 5 cartloads of manure	-	1.0	-	-	15.00
Spreading manure	3.0	-	-	-	-
4 Harrowings	-	1.0	-	-	15.00
Planting seedlings	4.0	-	10.0	-	-
2 Weedings	-	-	18.0	-	-
Waterings	-	-	-	-	65.00
Harvesting	4.0	-	5.00	10.00	12.00 (in kind)
	11.0	2.5	33.0	10.0	117.00
<u>Expenditure</u>					
Hope preserved seed - 1 Kg.					40.00
Farm-yard manure - 5 cartloads					50.00
Marketing at Pandharpur in March - sold to trader, transport by truck, Octroi Rs. 5.00, Commission Rs. 10.00					15.00

					Total
					222.00
<u>Quantity Produced</u> - 6 Quintals					200.00
Sale Proceeds of 6 bags of onion					200.00
<u>Expenditure on marketing</u>					
Octroi Rs. 5.00, Commission Rs. 10.00					

Expenditure on transport by truck, ^{was not} stated. The produce was sold in March at Pandharpur to a trader.

The onion cultivation thus showed a negative balance of Rs. 22 on 0.12 ha. of land.

Case No.3 :

The third cultivator from Pakani in North Solapur taluka had onion on 0.10 ha. of irrigated land. He did not engage male hired labour. The other inputs and expenditure are shown in Table No.6.29.

Table No.6.29 : Inputs, Receipts and Expenditure on 0.1 ha. of Onion

	<u>Family Labour</u>		<u>Hired Labour</u>
	<u>Male</u>	<u>Female</u>	
<u>Labour Inputs</u>			
3 Ploughings	1	-	-
Transport and Spreading manure	1	-	-
4 Harrowings	1	-	-
Planting seedlings	-	2	3
2 Weedings	-	4	4
7 Waterings	6	-	-
Watching	-	20	-
Harvesting	1	2	5
	10	28	12
<u>Expenditure</u>			
			Rs.
Wages			18.00
Payment to <u>Balutedars</u> in kind			3.00
Seedlings purchased - 100 bundles			5.00
Farm-yard manure			20.00
			64.00
<u>Yield</u> - 8 Quintals worth			450.00
			386.00
<u>Balance after deducting expenditure from value of produce on 0.10 ha. of onion cultivation</u>			
<u>Marketing Costs</u>			
Sale at Solapur to a trader in December			
- Transport by his own bullock cart			
Gunny bags			26.00
Octroi			9.00
Storage			27.00
			62.00
			102.00
Total :			102.00
Sale Proceeds of 8 Quintals			450.00
			348.00
<u>Net Sale Proceeds</u>			<u>348.00</u>

Though the first two cases did not show encouraging results the third cultivator shows^{ed} that onion cultivation can be a profitable crop.

Lime

240

From out of 240 cultivators from the 16 sample villages two cultivators from Takali Sikandar from Mohol Taluka reported lime orchards. One of these had planted lime trees on 0.4 ha. laid out some years back. The other one had planted the trees recently and had not started receiving any yield at the time of the survey. We give here some details about the inputs, expenditure, yield in respect of the two cultivators in Table Nos. 6.30 and 6.31 respectively.

Table No. 6.30 : Lime Orchard on 0.4 ha. yield and Expenditure

Cultivator No. 1

Area under lime trees		0.4 ha.
<u>Labour Inputs</u>		Rs. P.
Digging once 30 days	a) Hired Male	120.00
Transport of Manure - 1 day	b) Family Male	-
Spreading manure - 3 days	a) Hired Female	9.00
- 1 day	b) Family - Female	-
Removing Weeds - 4 days	a) Hired - Female	12.00
- 1 day	b) Family - Female	-
Waterings	25 times during the year 25 days family labour	-
Plucking the fruit	Family labour	No. of days not stated
Total Male Labour	- Hired xxFamily	30 days 26 days
Total Female Labour	- Hired Family	7 days 2 days

<u>Expenditure</u>	Rs.
Wages	141.00
Farm-yard manure - 4 cartloads	60.00
Total :	201.00
<u>Total Yield</u> on 0.4 ha. of Lime	5,000.00

Marketing :

a) Sale at Pandharpur to Vegetable Dealers	220.00
b) Transport by Bullock Cart or travel by State Transport bus	220.00
c) Packing expenses	20.00
d) Octroi	25.00
e) Total expenditure on Marketing	445.00
f) Net Sale Proceeds	4,555.00

After deducting expenditure of Rs. 201.00 from the net sale proceeds the cultivator was left with a balance of Rs. 4,354.00 on ^{0.4 ha.} 4-ha. of lime, that is, average of Rs. 10,885.00 per ha. of lime. It will be thus noted that lime enterprise is quite paying.

Table No. 6.31 : Expenditure on Laying of Lime OrchardCultivator No. 2

Area under Lime Trees	1.6 ha.
<u>Expenditure on Laying the Orchard</u>	Rs.
Digging pits, filling with soil and manure, planting etc.	4,500.00
Seedlings - prepared at home	400.00
Soil - 60 cartloads	240.00
Endrine, B.H.C. for spraying	200.00
Transport of Manure - 6 male days of hired labour	24.00
Watering - 25 times	690.00
Total expenditure during the year	6,054.00

If we consider the return obtained by Cultivator No. 1, It seems that Cultivator No. 2 will be able to obtain substantial returns on the lime enterprise.

Minor Crops

Though we had thought, for reasons explained earlier, of not giving notes and data on minor crops, on second thought we decided to incorporate the notes and input-yield-expenditure data in respect of some of the minor crops such as, gram, bajra, bajra mixed with matki/Hulga/Tur and Matki-Hulga. We have given brief notes on these crops in the following section.

Gram

Gram was reported as a Dry Crop by 12 cultivators on plots of land varying between 0.1 ha. to 1.01 ha., the total area under gram being 4.38 ha. We have given in Table No. 6.31-A the inputs of male and female labour per ha. of area operated and in Table No.6.31-B, yield and expenditure per ha. of gram. Compared to jowar, gram as a dry crop is definitely more paying. The main reason for large area not being sown to this crop seems to be that most of the land owned by the cultivators may not be suitable for growing gram as it certainly requires better soil than that for jowar or groundnut taken as dry crops. The other, but less possible reason for lower proportion of area sown to gram could be the higher expenditure per ha. as compared to jowar.

Bajra

Bajra was reported as a dry crop by 7 cultivators on plots varying between 0.8 ha. and 2 ha. on a total area of 10.8 ha. We have given in Table No.6.31-C inputs of male and female labour per ha. of area operated and yield and expenditure, per ha. in Table No.6.31-D. The balance per ha. after deducting expenditure from the value of produce came to Rs. 151.75 which is lower than that of jowar taken as a dry crop. We must note that we had only 7 cases of Bajra on 10.8 ha. of land.

Table No. 6.31-A : Male and Female Labour Days Per Hectare of Area Operated Under Gram as a Dry Crop

	<u>Male</u>	<u>Female</u>
	Labour Days per ha. of Area Operated	
Ploughing	4.4	-
Manuring	6.6	-
Harrowing	3.7	-
Sowing	2.6	-
Hoeing	1.9	-
Weeding	-	30.0
Watching	33.8	24.7
Harvesting	10.0	7.5
Total Average	----- 24.0	----- 23.3
Labour Days per ha.		
Of which hired Labour	5.7%	44.1%

Table No. 6.31-B : Yield and Expenditure Per Hectare of Area Operated under Gram as a Dry Crop

		Rs.
<u>Yield per ha.</u>	2.68 Quintals	603.00
	Fodder worth	92.00
	Total	----- 648.00 -----
<u>Expenditure per ha.</u>		
Seed	50.7 Kg.	105.50
Farmyard Manure	13.3 Cartloads	133.30
Wages in Cash		91.50
Wages in Kind		100.00
Other Expenditure - Baluta etc.		19.50
Average Total Expenditure per ha.		----- 205.00 -----
Balance pr ha. left after deducting expenditure from the Value of Produce		443.00 -----

Table No. 6.31-C : Inputs of Male and Female Labour Days per ha. of Area Operated under Bajra

	<u>Male</u> Days per ha. of Area Operated	<u>Female</u> Days per ha. of Area Operated
Ploughing	6.0	-
Manuring	1.2	-
Harrowing	1.9	-
Sowing	1.4	-
Hoeing	1.4	-
Weeding	-	12.5
Watching	-	23.2
Harvesting	2.9	5.6
Average Total Labour Days per ha.	9.0	15.5
Of which hired	27.0%	30.0%

Table No. 6.31-D : Yield and Expenditure per ha. of Area operated under Bajra

		Rs.
<u>Yield</u>	1.11 Quintals	118.50
	Fodder	61.50
	Total	----- 180.00 -----
<u>Expenditure per ha. of Area Operated</u>		Rs.
Seed	3.80 Kg.	7.00
Farmyard manure	6.25 cartloads	31.25
Wages in cash		27.60
Wages in kind		15.00
Balance Baluta etc.		9.55
Average Total Expenditure per ha.		----- 28.25 -----
Balance per ha. after deducting expenditure from value of produce		151.75

Bajra mixed with Matki/Hulga/Tur

Bajra was taken as a mixed crop by 9 cultivators on 18.14 ha. of land. However, the crop on 11.5 ha. of area failed to mature in respect of 4 cultivators. The value of yield came to a small sum of Rs. 65 per ha. whereas the expenditure came to Rs. 40 per ha. leaving a balance of only Rs. 25 per ha. It should be noted that this is a case of crop failure, few plots and small area of bajra.

Matki-Hulga

Seven cultivators reported Matki and Hulga as a mixed crop on 24.34 ha. of land, in one case mixed with Til and Tur also. However, the crop on 17.4 ha. of land failed. On the remaining 7.2 ha. of land the input of male and female labour days per ha. for various operations came to 3.8 days and 12.9 days respectively. The expenditure per ha. came to Rs. 39-00 on account of wages paid in cash and Rs. 16-00 on seed, that is a total expenditure of Rs. 55 per ha. The value of the yield came to Rs. 108 per ha. The balance per ha. after deducting expenditure from the value of produce came to a meagre sum of Rs. 53.

Agricultural Enterprise - Receipts and Expenditure

We have so far considered the receipts and expenditure in respect of different dry as well as irrigated crops. In the present section we shall consider the agricultural enterprise as a whole in respect of the sample cultivators. Expenditure which was incurred by the cultivator on such items as land revenue, and in some cases baluta and charity etc. could not be allocated crop-wise. Sometimes, the cultivators reported such expenditure as repairs to diesel engine or on fencing the field. We, therefore, decided to consider the total expenditure, crop-wise as also other expenditure, incurred by the sample cultivators vis-a-vis the value of agricultural produce obtained from the land cultivated by them during 1977-78. The value of produce minus expenditure gives the balance left to the cultivator for family labour, land and other capital investment in agriculture.

We must emphasize here that we had sought information on a number of items of expenditure for the farm as a whole as also details of inputs of male/female family and hired labour for various agricultural operations in respect of every crop, details of other material inputs and expenditure thereon and information about the produce marketed by the cultivators. The investigators were to collect this information in a single visit to the sample cultivators. The quality of data naturally suffered as the cultivators are unable to recollect and report with accuracy such detailed information. The fieldstaff also was not experienced enough. We, however, feel that the data help us to indicate the overall pattern of expenditure and receipts.

For the purposes of analysis we decided to divide the sample cultivators into three groups, namely, 1) those who took irrigated crops only, 2) those who reported dry crops

only and 3) those who had both irrigated as well as dry crops cultivated & during the year 1977-78. We shall consider the receipts and expenditure in respect of each of these groups in the following sections.

1) Cultivators Growing Irrigated Crops only

Out of the sample of 240 cultivators 11 cultivators took irrigated crops only. The total irrigated area was 14.39 ha. which in respect of the individual cultivators varied between 0.4 ha. to 1.4 ha. It accounted for 1.3 per cent of the total cropped area reported by 240 cultivators. Except one who cultivated maize on 0.6 ha. as also jowar, the remaining 10 cultivators had jowar as the only crop on their farm. In Table No.6.32 we have shown the average yield, value of produce and expenditure per ha. on various items. Of the average total expenditure of Rs. 280.5 per ha. nearly three-fourths could be attributed cropwise. After deducting the expenditure from the value of the produce, there remained a balance of Rs. 402.50 per ha. which can be considered as return to family labour, land and capital investment in agriculture. We should point out here that the balance per ha. left to this group of cultivators who reported only an irrigated crop is almost half the balance per ha. found out in the case of 13 cultivators who took jowar as irrigated crop on plots of land upto 1 ha. as also about 30 per cent lower than the balance per ha. found in respect of the 16 cultivators who took jowar as an irrigated crop.

Cultivators Growing Dry Crops Only

We shall next consider the group of 164 Sample cultivators who reported only dry crops on their farm. The total cropped area under dry crops in respect of 164 sample cultivators came to 602.3 ha., that is about 55 per cent of the total cropped area reported by the 240 sample

**Table No. 6.32 : Cultivators Growing Irrigated Crops Only
- Average Receipts and Expenditure per
Hectare**

1)	No. of cultivators	11
2)	Total Area under Irrigated Crops	14.39 ha.
3)	Value of Agricultural Produce per ha.	Rs. 683.00
4)	Cropwise Expenditure (per ha.)	Rs.
	Seed	15.70
	Farmyard Manure	53.86
	Wages in Cash	123.77
	Wages in kind	20.00

		213.33
5)	<u>Other Expenditure</u>	
	Land Revenue	3.36
	Water Cess etc.	30.92
	Oil Engine Rent	23.63
	Baluta and Charity	6.09
	Other Expenditure	3.17

		67.17
6)	Average Total Farm Expenditure per ha.	280.50
7)	Balance (per hectare)	-----
		402.50

cultivators. We had noted in the previous chapter that the ~~small, medium and large cultivators~~ jowar accounted for a major part of the cropped area, ^{and} the per ha. produce of jowar varied in the case of the small, medium and large cultivators. In respect of the sample of 240 cultivators also, jowar accounted for almost 90 per cent of the total cropped area. Hence, in respect of the 164 cultivators who reported dry crops only, we decided to consider their overall receipts and expenditure from agriculture by dividing them into three groups, namely, 1) cultivators with total cropped area upto

2.0 ha. 2) cultivators with total cropped area between 2.01 ha. to 4.0 ha. and 3) those who had more than 4 ha. under dry crops. We have given in Table No.6.33 data regarding the total number of cultivators in each group, the total area under dry crops, value of agricultural produce, cropwise expenditure per ha. as also other expenditure per ha. and balance per ha. after deducting expenditure from the value of agricultural produce.

In the previous Chapter we had noted that the value of agricultural produce declined as we moved from small cultivators to large cultivators. In the case of the sample cultivators growing dry crops only, we find that the value of produce which was Rs. 379 per ha. in the case of holdings upto 2 ha. declined to Rs. 321 and Rs. 346 respectively in the next two groups of holdings, namely i) between 2.01 ha. and 4 ha. and ii) above 4 ha. respectively. If we compare the data given in Table No.6.33 with the value of agricultural produce and expenditure per ha. of jowar taken as a dry crop shown in Table No.6.33 we find close resemblance as jowar taken as a single crop accounted for about 68 per cent of the cropped area reported by the sample cultivators. There is a difference in the balance per ha., the dry land cultivators reporting lower balance as compared compared to the plots of land sown to jowar as a dry crop only. This is due to inclusion of 'other expenditure' in the case of the former as also inclusion of other dry crops which may have lower returns per ha., consequently reducing the average balance per ha. for the farm as a whole.

In the cropwise expenditure payment of wages in cash was the main item and it accounted for about 60 per cent of the total cropwise expenditure. The expenditure per ha. on cash wages on holdings upto 2 ha. was more, by about 73 per cent, as compared to the per ha. expenditure on wages

Table No. 6.33 : Average Value in of Agricultural Produce per Hectare in respect of Cultivators Growing Dry Crops only

	Total Area Under Dry Crops			
	Upto 2.0 ha.	2.1 to 4.0 ha.	4.01 ha. and above	All cultivators taking dry crops
1. No. of Cultivators	61	48	55	164
2. Total Area in ha.	79.2	148.2	374.9	602.3
3. Value of Agricultural Produce per ha. (in Rs.)	379.00	321.00	346.00	343.9
4. Cropwise Expenditure per ha.	Rs.	Rs.	Rs.	Rs.
Seed	16.9	16.4	15.6	15.9
Farmyard Manure	15.0	18.5	9.6	12.5
Chemical Fertilizers	-	0.5	0.8	0.6
Wages in Cash	86.3	71.0	49.8	59.9
Wages in kind	8.9	8.0	11.3	10.2
Other expenditure	-	0.3	0.0	0.1
5. Total Expenditure	127.1	114.7	87.1	99.2
6. Other Expenditure per ha. (in Rs.)				
Land Revenue	3.1	3.3	3.6	3.5
Rent in cash for land leased in	-	0.0	0.4	0.3
Annual farm servants	-	8.2	7.8	6.9
Hire Charges - Bullock cart	0.3	1.2	0.2	0.4
" - Implements	0.2	0.2	-	0.0
" - Flough cattle	-	-	-	0.0
Repairs of tools and Implements	2.3	0.7	2.2	1.8
Fencing	-	0.0	0.0	0.0
Baluta, Charity, etc.	4.6	4.4	7.2	6.2
Other Expenditure	0.2	-	0.5	0.4
7. Total Other Expenditure per ha.	10.7	18.0	21.9	19.5
8. Average Total Expenditure per ha. (in Rs.)	137.8	132.7	109.0	118.7
9. Balance per ha. (Rs.)	241.2	188.3	237.0	225.2

paid in cash on holdings above 4.01 ha. Many of the small cultivators did not own bullocks or he-buffaloes and some of the essential implements like ploughs and harrows. Hence they had to get certain agricultural operations done by hired labour and plough cattle. The next in importance was the expenditure on seed and farmyard manure. It must, however, be remembered that in most of the cases home-preserved seed was used and so also purchase of manure was reported by only a few. It was, therefore, not a direct expenditure in cash.

In the 'other expenditure', the annual farm servants did not appear in the case of holdings upto 2.0 ha., both because an annual farm servant was not necessary considering the size of holding nor could they afford one. The total 'other expenditure' per ha. for the farm as a whole varied between Rs. 10.7 per ha. in the case of holdings upto 2 ha. and Rs. 21.9 in the case of holdings above 4 ha.

If we consider the total expenditure per ha. it was the maximum, namely, Rs. 137.8 per ha. on holdings upto 2 ha. and the lowest, that is, Rs. 109.0 per ha. on holdings above 4 ha. The decline in total expenditure per ha. from small to large holdings may be attributed to the economies of scale, particularly in respect of the expenditure on wages.

The net result of the farm business was that the cultivators whose cropped area under dry crops was upto 2 ha. were left with a balance of Rs. 241.20 per ha. The balance declined to Rs. 188.30 ha. in the case of the middle group and rose to Rs. 237.00 per ha. in the case of the holdings above 4 ha. because between the middle and the last group, the latter reported greater value of produce per ha. and lower total expenditure per ha.

Cultivators Reporting Irrigated As Also Dry Crops

70 out of 240 sample cultivators reported dry crops on land measuring 304.6 ha. and irrigated crop on 83.3 ha. We decided to divide them into two groups on the basis of the irrigated area, namely, i) those who had 0.8 ha. or less under the irrigated crops and ii) those who had more than 0.8 ha. under irrigated crops. The irrigated crops formed 10.1 per cent and 23.8 per cent respectively of the total cropped area in the two groups. We are aware that this is not a very satisfactory way of dividing the cultivators into two groups but due to different cropping patterns obtaining on their farms in respect of dry and irrigated crops, it was difficult to arrive at any satisfactory basis of classification. The details regarding the value of produce, cropwise expenditure and other expenditure of the two groups of cultivators are given in Table No.6.34. Their overall performance appears to be slightly ~~at~~ better than the sample cultivators who took irrigated crops only slightly, shown in Table No.6.32, even though, about 80 per cent of their cropped area was under dry crops. Perhaps, in view of their experience in cultivating irrigated crops, they were equipped with better resources and techniques of cultivation and cultivated dry crops with greater efficiency. The other and more convincing reason is that none of the sample cultivators who took only irrigated crops cultivated sugarcane, whereas, those who took dry as well as irrigated crops included eight cultivators who had 7.00 ha. under sugarcane. The cultivation of sugarcane and the value of its produce resulted in enhancing the average value of agricultural produce of the entire group.

We have summed up below the overall position in respect of the three groups, namely, i) those cultivators who took irrigated crops only, ii) those cultivators who took dry

Table No. 6.34 : Average Value of Agricultural Produce and Expenditure per Hectare in respect of Cultivators Growing Irrigated as well as Dry Crops

	Cultivators with irrigated area up to 0.8 ha. along with area under dry crops	Cultivators with irrigated area above 0.8 ha. along with area under dry crops	All cultivators reporting irrigated as well as dry crops
1. No. of cultivators	33	37	70
2. <u>Cropped Area</u> (in ha.)	Dry 165.6 Irrigated 18.7	219.0 68.6	384.6 87.3
3. Total Value of Ag. Produce per ha. (Rs.)	512.7	728.4	644.2
4. Cropwise Expenditure per ha.	Rs.	Rs.	Rs.
Seed	25.4	29.1	27.6
Farmyard Manure	19.6	28.7	25.2
Chemical Fertilizers	1.9	16.6	10.9
Pesticides	0.1	1.1	0.7
Wages in Cash	74.7	85.5	81.2
Wages in kind	17.9	21.1	20.0
Other Expenditure	4.6	-	1.8
5. Total Cropwise Expenditure per ha.	144.2	182.1	167.4
6. Other Expenditure			
Land Revenue	3.4	3.4	3.4
Rent in cash for lease in land	-	2.3	1.4
Permanent Farm Servants	3.0	23.0	15.1
Water Charges	5.9	14.2	11.0
Hired Charges - Bullock Cart	1.2	0.2	0.6
" - Plough	0.2	-	0.1
" - Oil Engine & Pump	3.7	9.2	7.0
Repairs to implements	1.7	0.8	1.2
Diesel, Electricity, etc.	7.8	13.5	11.3
Fencing	0.3	1.0	0.7
Baluta, Charity etc.	3.5	4.3	4.0
Other Expenditure	0.1	1.0	0.7
7. Total Other Expenditure per ha.	30.8	72.9	56.5
8. Average Total Expenditure per ha.	175.0	255.0	223.9
9. Balance per ha.	337.7	473.4	420.3

crops only and iii) those cultivators who took irrigated as also dry crops on their holding.

Cultivators who took	Value of Agricultural Produce	Cropwise Expendi- ture	Other Expendi- ture	Balance
	-----Rs. per hectare-----			
1) Irrigated Crops only	683	213	67	403
2) Dry crop only	446	99	20	225
3) Irrigated as also Dry Crop	644	167	57	420

Agricultural Enterprise of the Sample Cultivators

We have given in the preceding sections in this Chapter cropwise inputs, expenditure, yield and balance per hectare in respect of the important dry as well as irrigated crops and finally we have considered their performance for the farm as a whole. In the conditions as they existed at the time of the Bench Mark Survey as also the Survey of Agricultural Enterprise of a sample of 240 cultivators, we find that the average balance left to the cultivators after deducting expenditure from the value of agricultural produce, came to Rs. 225 for the cultivators who took dry crops and a little more than Rs. 400 per ha. in respect of those who took irrigated crops exclusively or jointly with dry crops. Though the average receipts per ha. in the case of the latter exceeded the former by about 80 per cent, they had to incur twice or more expenditure per ha. as compared to the expenditure per ha. incurred by the cultivators who took dry crops only. The cultivators who took irrigated crops on the whole do not appear to be very much better-off than those who took dry crops, because a major part of the area was sown to jowar and other food-grains which did not bring high value of agricultural produce per ha. The cultivation of sugarcane, cotton and

and groundwater as irrigated crops alone will help them raise their total income from agriculture. The crucial factor affecting their total income at the time of the survey appeared to be the size of holding. Before we conclude discussion in the present chapter, we may review the profitability of different crops as reflected by the balance per ha. left after deducting expenditure from the value of agricultural produce, to find out the cropping pattern under which irrigated farming will help the cultivators raise their income from agriculture substantially. We shall do so in the following section.

Profitability of Various Crop Enterprises

Finally, we shall consider profitability of various crop enterprises on the basis of balance per ha. after deducting expenditure from the value of produce in respect of some of the important crops reported by the sample cultivators. We have given details for each crop separately in the cropwise notes in the preceding part of the present Chapter. We have summed up the position on this account in Table No.6.35, in which we have ranked separately the dry and irrigated crops on the basis of the balance left per hectare. The Table shows the average expenditure, yield, value of produce and the balance per ha. for each crop.

After completion of the Ujani Project it will enable 1,24,000 ha. of land to receive water for irrigation purposes. If we consider the gross cropped area of the six talukas from Solapur district which is about 5,20,000 ha. the Ujani project will benefit only about 25 per cent of the total area of the six talukas for the purposes of irrigation. The dry crops will, therefore, continue to occupy a major part of the cultivable land. We shall, therefore, first consider dry crops.

Table No. 6.35 : Dry and Irrigated Crops Reported by the Sample Cultivators Ranked According to Their Profitability

Rank	Crop	Expendi- ture	Yield in quin- tals	Value of Pro- duce	Of which value of fodder	Balance: Value of Produce less Expe- nditure
			--Per ha. of crop--			
<u>Dry Crops</u>		Rs.	Rs.	Rs.	Rs.	Rs.
1	Groundnut	231	2.73	793	43	562
2	Gram	205	2.68	648	92	443
3	Jowar on plots upto 2 ha.	137	2.36	440	137	303
4	Jowar mixed with safflower	99	2.41	385*	129	286
5	Jowar on plots above 4 ha.	85	1.92	336	95	251
6	Jowar on plots of 2.01 ha. to 4 ha.	112	1.92	337	96	225
7	Bajra	28	1.11	180	61	152
8	Wheat	355	3.20	436	70	81
9	Matki-Hulga	55	-	108	-	53
10	Bajra with Matki/Hulga	40	-	65	-	25
<u>Irrigated Crops</u>						
1	Sugarcane-Khedwa	2904	77.5 Tonnes	8490	-	5586
1	Sugarcane Adsali/Sura	2662	44.0 Tonnes	6205	-	3543
2	Cotton	784	9.34	3719	193	2935
3	Groundnut	1026	8.82	2432	233	1406
4	Wheat-Khapali	801	13.25	1672	135	871
5	Jowar on plots upto 1 ha.	414	6.81	1235	297	821
6	Wheat - Deshi	868	8.84	1650	104	782
7	Maize	506	8.92	1082	250	576
8	Jowar on plots above 1 ha.	249	4.48	812	237	563

* Includes value of mixed crop 1.02 quintals Rs. 129.

It will be noted from the Table that groundnut and gram occupy the first and second rank respectively in the list of dry crops as far as balance per ha. is considered. The most important dry crop, namely jowar, which at present occupies the major part of the area under dry crops occupies the third place. Within jowar, however, we find that the profitability varied with the size of plot of land sown to jowar or its mixture with safflower.

The reason for the larger area under jowar compared to more profitable crops, primarily seems to be the food and fodder requirements of the cultivators. We have noted from Table No. 5.3 that the small cultivators with cultivable holding upto 2 ha. formed 32 per cent of the total cultivators and the medium cultivators with holdings between 2.01 to 6 ha. formed another 42 per cent of the total cultivators. As noted from Table No. 5.7, in the case of the small cultivators the average yield per ha. of dry jowar was 1.9 quintals. Even if we pool the entire area under jowar whether dry, irrigated or mixed crop and work out the average yield per ha., it comes to 2.26 quintals of jowar per ha. We may state that for Solapur district, the yield per ha. of jowar varied within 1.82 quintals for the year 1970-71 and 4.65 quintals for 1980-81 which was the best year. Bearing in mind the limited size of their holding and their food and fodder requirements, it is but natural on their part to grow jowar rather than any other crops.

Secondly in respect of gram, we have noted that it requires better soil than jowar and as such it might be one of the reasons for small area sown to arhar gram. However, there appears to be a more convincing reason, namely, the higher expenditure per ha. on cultivation of groundnut and gram which might be preventing the small and

medium cultivators from sowing larger areas to these crops even though groundnut and gram brought more balance per ha. than jowar. If the small and medium cultivators are enabled to obtain finance for growing these crops and at the same time are assured of the supply of jowar locally for family consumption at the same price as their cost of production, many of them may divert area at present under jowar to other more paying dry crops.

We may now consider the irrigated crops. Sugarcane occupies the first rank. Though the sample cultivators reported a higher balance per ha. for Khodwa than Suru/Adsali crop, in fact it should be the other way. With appropriate doses of farm-yard manure and chemical fertilizers, they will be able to obtain at least 70 tonnes of sugarcane taken as Adsali/Suru crop. The crop, though more paying, also requires a large amount of expenditure per ha. It also requires facilities for processing into gul or sugar within reasonable distance from the sugarcane farms. The second most paying crop is cotton where the balance left per ha., Rs. 2935, is almost four times the amount the cultivators have to spend on growing the crop whereas in the case of sugarcane it is about twice. The third in rank is groundnut which requires larger expenditure per ha. as compared to cotton but gives a lower balance per ha., about Rs. 1,400/-. The balance per ha. in respect of foodgrains namely, wheat, jowar and maize varies between Rs. 871 for wheat and 563 for maize. The expenditure per ha. on wheat is the highest among the foodgrains and the lowest in the case of jowar. Hence, like in the case of dry land farmers, the small and medium irrigated farmers preferred jowar from the point of view of food and fodder requirements and cost of cultivation.

Irrigation from ^{the} Ujani canal supported by credit, extension and input supplies will no doubt enable the

cultivators to raise their income. However, as remarked earlier, if they continue to grow irrigated food crops, they may not become viable. Even though sugarcane is the most paying crop, it requires a number of waterings in a year whereas the other crops require only a few waterings. It is, therefore, for the Government to decide the extent to which water is to be made available for sugarcane vis-a-vis foodcrops, cotton and groundnut.

In respect of arhar, chilli, coriander, onion, banana and lime plantation, the number of plots and the total area under these crops of the sample cultivators was small. However, we have earlier noted from cropwise notes that some of these crops indicated a much higher balance per ha. than on a hectare of sugarcane. For instance, the average per ha. balance calculated from banana cultivation on 0.6 ha. would be about Rs. 11,700; on lime orchard on 0.4 ha. also π of that order, namely Rs. 10,900 per ha. One of the onion cultivators on 0.1 ha. of land was left with a balance of Rs. 348, that is, Rs. 3,480 per ha. (though two other onion cultivators ended up with discouraging results) and one who took chilli on 0.6 ha. was left with a balance of Rs. 1,540/- that is, a balance of Rs. 2,566/- per ha. after deducting expenditure from the value of produce. The lone case of arhar on 0.2 ha. plot indicated balance per ha. of about Rs. 1,130 per ha. The cultivator who took coriander on 0.6 ha. was left with a balance of Rs. 239, that is, Rs. 398 per ha. However, without getting supporting evidence, it will not be proper to accept the profitability on these crops on the basis of few cases that appeared in our sample of cultivators.

As stated earlier the data regarding agricultural/crop enterprises suffers from an important limitation, namely, the collection of data in a single visit to the sample cultivators. We did not propose to use the data for

Farm Budgeting by using the linear programming technique. However, we have indicated profitability of different crops in this section, in case one decides to use the data for suggesting cropping pattern in the area of the Ujani Project.

INCOME, INDEBTEDNESS AND ASSETS

In the preceding Chapters we noted social and demographic features and occupational pattern of the population. We also considered ownership of land, livestock and agricultural tools and implements by the families in the sample villages. The vital role played by agriculture in the economy of the sample villages was evident from the employment in agriculture. From whatever information we had recorded in the Family Schedules we noted the cropping pattern, sources of irrigation, dry and irrigated crops and agricultural production. We also noticed the inequalities in ownership and cultivation of land as also difference in yield reported by the small, medium and large cultivators. We also studied in greater details agricultural enterprise from the data collected in respect of a sample of 240 cultivators from the sample villages, by analysing the inputs, expenditure and yield in respect of some of the important, dry as well as irrigated crops. We also considered the performance of the farm as a whole in respect of the sample cultivators. Thus we have so far obtained considerable knowledge about the population and agriculture, the main occupation of the majority of the population. In the present chapter we propose to consider the net result of the economic activities, namely, the income, indebtedness and assets of the families in the sample villages. However, before, we do so we like to describe the trading, transport and manufacturing activity in the sample villages. While giving a description of the sample villages we have briefly referred to these activities. The employment in these activities was also noted in Chapter IV. Since jowar is the main crop, there was not much activity in trade of agricultural produce.

The grocers' shops, 47 shops reported in 16 villages, met the requirements of the local population. In the manufacturing activity were the 12 flour mills and village artisans.

Non - Agricultural Occupations

We had sought in the Family Schedule information about the turnover and assets of those families which reported non-agricultural occupation. We have presented data on turnover and assets in non-agricultural occupations in Table No.7.1. We must, however, state that data on both these items is not satisfactory. In the case of turnover, it appears that the term was not properly understood because in many cases, of traders, income from the occupation was reported as turnover. Where it was understood, often there was under-reporting. This is evident from the reported turnover of Rs. 91,630 by 47 grocers. If this is related to 3,705 families, it comes to hardly Rs. 25 per family for the year of the survey. In the case of assets, apart from the difficulties in stating the investment, there could also be an element of under-reporting. We have presented the data for whatever its worth may be but we do not feel inclined to make any observations thereon.

Table No.7.1 : Yearly Turnover and Assets in respect of Non-Agricultural Occupations

Occupation	No. of Reporting families	Annual Turnover Rs.	Assets Rs.
Fishing	5	950	1,580
Butcher	3	1,250	100
Flour Mill	12	33,600	43,700
Dairy	1	4,600	3,000
Roap Making	12	5,110	130
Tailoring	41	31,310	15,880
Footwear Manufacturing and Repairing	19	11,930	3,010
Blacksmith	11	10,120	4,000
Coppersmith	1	2,500	-

Table No.7.1 : (Contd.)

	No. of Report- ing families	Annual turnover	Assets
Goldsmith	2	2,750	570
Potter	1	500	50
Carpenter	39	29,290	1,100
Basketweaver	5	1,000	-
Mason	11	29,400	1,560
Fitter & Mechanic	2	4,000	4,130
	165	1,68,310	78,810
Grocer	47	91,630	72,950
Sweetmeat Shop	2	7,000	500
Dairy	4	7,600	-
Fish-mutton shop	1	2,500	-
<u>Pan-bidi</u> shop	1	2,000	400
Firewood Depot	2	2,300	-
Cloth Shop	3	1,300	3,000
Wholesale Trader	3	8,500	150
Bangle Shop	2	1,100	-
Vegetable Sh & Other Shop	3	1,400	2,400
	68	1,25,330	79,400
Bullock-cart Transport	1	4,000	-
Truck Transport	2	7,200	250
Boatman	9	5,580	10,200
	12	16,780	10,450
Ehisti	14	8,180	4,500
Barber	34	19,830	6,330
Washerwoman	5	3,820	350
Tea-shop	7	6,580	3,800
Medical Doctor	2	6,000	9,000
Bicycle and Hire & Repair	2	2,400	8,000
Others	17	13,120	20
	81	59,930	32,000
Grand Total	326	3,70,350	2,00,660

Total Family Income

In the Family Schedule canvassed to all the families in the selected villages we had sought information regarding the income of the respondent families during the year 1977-78 from the following sources :

- 1) Agriculture, 2) Livestock, 3) Poultry, Sheep, Goat and Pigs, 4) Kitchen-garden, 5) Non-agricultural Occupation, 6) Wages, 7) Salary, 8) Rent from Bullock Cart, Machinery and Other Rent, 9) Sale of Water for Irrigation, 10) Cash Rent and 11) Share Rent in respect of land leased out, 12) House Rent, 13) Rent from Godown, 14) Pension, 15) Remittances and 16) Other Receipts.

Income from Agriculture

In view of the difficulties in reporting income from agriculture we decided to follow a uniform method of working it out on the basis of the value of agricultural production reported in respect of the crops cultivated during the year 1977-78 by the cultivating families from the selected villages.

For calculating the net income from their farm enterprise, we calculated and deducted from the value of production, the cost of cultivation of each crop. The cost of cultivation was worked out on the basis of the data collected from the sample of 240 cultivators selected to study their agricultural enterprise. The items of cost included cropwise expenditure such as seed, farmyard manure, chemical fertilizers, pesticides, wages paid in cash and wages paid in kind, expenditure on account of hired plough cattle and on irrigation including diesel and electricity charges and 'other expenditure' proportionately chargeable to area under each crop on account of land revenue, baluta and such other payments in kind

and repairs to agricultural tools and implements. The total cost of cultivation was then worked out as percentage of the value of production in respect of the sample cultivators and these percentages were applied to the value of agricultural produce reported in the Family Schedule to deduct the cost and to find out the income from agriculture.

Jowar being the most common crop, we worked out the costs of cultivation of jowar for each village separately on the basis of the data contained in the Agricultural Enterprise Schedule filled for a sample of 15 cultivators in each village.

Regarding the other crops, the number of cultivators/ the number of plots sown to the crop/ the area under crop in each village in respect of the sample cultivators was small. Hence for all crops, other than jowar, we decided to pool together the data for each crop from all the sample cultivators from the 16 x villages who took the particular crop.

Income from Livestock

In respect of the income from livestock we noted the value of livestock products as income because we did not show the fodder used for plough cattle as an expenditure in the cost of cultivation. Besides, often the dairy cattle and poultry etc. graze on land other than the farm and the cattle is often fed the left over from the feed and fodder given to the plough cattle. There are also other difficulties in finding out the yield of milk for each cattle for a period of 12 months. In view of such difficulties, as also the proportion the income from livestock forms in the total family income, we decided to record whatever the respondent family stated as income from livestock.

Income from Other Sources

Apart from the income from agriculture and livestock, we had sought information regarding income from various other sources. In the Family Schedule we had listed several such sources and asked our investigators to find out the information by referring to each of the sources of income. This enabled the respondents to recollect their receipts from various sources.

These are no doubt limitations of the data regarding income but then we felt that the data collected in the manner described above was good enough to throw light on the economic conditions of the families in the region surveyed. Besides we had obtained information regarding ownership of certain household articles, indebtedness and assets which is expected to throw additional light on their economic conditions. We shall, therefore, begin by considering in the following section the total income of families in the year 1977-78 in the sample villages.

Total Family Income

We shall first consider the distribution of families in the sample villages falling in different income-groups. Since agriculture is the main economic activity, we have separately given the income distribution in respect of the cultivating and non-cultivating families. The income distribution is shown in Table No. 7.2. To enable quick appreciation we have summed up the income data in the following :

Table No.7.2 : Distribution of Families - Cultivators and Non-Cultivators in the Jample Villages by Total Family Income during 1977-78

Village	Cultivators										(Income in Rs.)	
	Upto Rs. 250	Rs. 251 to 500	Rs. 501 to 1000	Rs. 1001 to 1500	Rs. 1501 to 2500	Rs. 2501 to 3500	Rs. 3501 to 5000	Rs. 5001 to 7500	Rs. 7501 to 10000	More than 10000	No Income	Total Cultivating families
1	2	3	4	5	6	7	8	9	10	11	12	13
<u>Madha Taluka</u>												
1) Chandaaj	1	3	13	19	34	16	19	9	5	1	-	120
2) Shevare	4	3	19	28	50	18	10	5	4	-	1	142
<u>Malshiras Taluka</u>												
3) Umra Velapur	1	3	33	33	33	18	6	1	-	-	-	128
<u>Mangalwedha Taluka</u>												
4) Khomnal	-	5	5	19	39	20	10	7	2	1	-	108
5) Marapur	-	6	19	31	64	23	16	16	3	8	-	186
<u>Mohol Taluka</u>												
6) Bhoira	-	-	9	18	61	37	18	10	4	8	-	165
7) Shingoli	-	1	12	20	14	10	11	9	3	1	-	81
8) Takali Sikandar	-	2	25	28	34	27	18	17	4	7	-	162
<u>North Solapur Taluka</u>												
9) Pakani	-	2	12	19	54	31	25	16	7	7	-	173
10) Belati	1	5	11	16	36	18	18	7	7	8	-	127
<u>Pandharpur Taluka</u>												
12) Adhiv	-	-	15	31	52	20	11	12	3	1	-	145
12) Badalkot	-	-	14	4	27	13	9	5	4	1	-	77
13) Bhose	2	8	49	92	129	62	31	14	8	10	1	406
14) Khed Bhalwani	-	-	3	10	42	29	13	13	6	8	-	124
15) Mendhapur	3	6	41	58	180	119	93	57	12	13	-	582
16) Shegaon	1	1	5	15	33	15	10	5	3	2	-	90
Total for Cultivators	13	45	285	441	882	476	318	203	75	76	2	2816

Contd.....

Table No.7.2 : (Contd.)

Village	Non-Cultivating Families										(Income in Rs.)	
	Upto Rs. 250	Rs. 251 to 500	Rs. 501 to 1000	1001 to 1500	Rs. 1501 to 2500	Rs. 2501 to 3500	Rs. 3501 to 5000	Rs. 5001 to 7500	Rs. 7501 to 10000	More than Rs. 10000	No Income	Total/Cul- tivating families
1	2	3	4	5	6	7	8	9	10	11	12	13
<u>Madha Taluka</u>												
1) Chandaj	-	-	1	-	1	-	1	-	-	-	-	3
2) Shevare	-	4	10	8	24	3	8	4	2	-	-	63
<u>Malshiras Taluka</u>												
3) Umra Velapur	-	1	7	4	9	4	-	-	-	-	2	27
<u>Mangalwedha Taluka</u>												
4) Khomnal	1	5	2	7	6	2	-	-	-	-	1	24
5) Marapur	-	1	2	12	7	2	-	1	-	-	-	25
<u>Mohol Taluka</u>												
6) Bhoira	-	-	8	15	15	3	2	-	-	1	-	44
7) Shingoli	-	1	4	8	10	2	-	-	-	-	-	25
8) Takali Sikandar	-	5	3	6	14	7	6	-	14	-	-	42
<u>North Solapur Taluka</u>												
9) Pakani	-	1	6	5	14	4	7	3	1	-	1	42
10) Belati	-	2	13	12	27	6	5	18	2	1	1	87
<u>Pandharpur Taluka</u>												
11) Adhiv	1	-	10	14	19	1	1	-	-	-	-	46
12) Badalkot	-	2	3	2	2	-	-	-	-	-	-	9
13) Bhose	1	3	33	40	44	7	6	5	2	-	-	141
14) Khed Bhalwani	-	1	2	4	6	4	4	-	-	-	-	21
15) Mendhapur	1	10	42	43	76	36	14	3	2	-	-	227
16) Shegaon	-	1	15	16	28	1	1	-	1	-	-	63
Total for Non-Cultivat- ing families	4	37	161	196	302	82	55	34	11	2	5	889
Total for Non-Cultivat- ing & Non-cultivating families	17	82	446	637	1184	558	373	237	86	78	7	3705

<u>Income during 1977-78</u>	<u>Cultivating families</u> %	<u>Non-cultivat- ing families</u> %	<u>Total families</u> %
Upto Rs. 1,000	13.0	24.3	15.5
1,000 - 2,500	48.3	55.3	50.0
2,501 - 5,000	26.5	14.0	23.6
5,001 - 10,000	9.5	5.3	8.4
10,001 and above	2.7	0.3	2.2
No income	-	0.8	0.3
	----- 100.0%	----- 100.0%	----- 100.0%

It will be noted from the income distribution that nearly two-thirds of the families had on an average income upto Rs. 200/- p.m. The proportion of such families was greater, namely 80% among the non-cultivating families which include families of agricultural labourers. On an average for every four families in the sample villages, there were three persons reporting agricultural or casual labour as the main occupation. Hardly 10 per cent of the total families had an average income above Rs. 500/- per month. It will be useful to know the composition of total family income. We shall consider it in the following section.

Composition of Total Family Income

In Table No.7.3 we have given composition of the total family income in the sample villages, the number of families reporting income from the particular source, total income as also average income therefrom per reporting family. The data has been presented separately for the families of cultivators and non-cultivators. Before we comment on the statistical information it may be stated that though we very much wanted to and had repeatedly instructed the fieldstaff to note separately income from a) agricultural labour and b) non-agricultural labour, the field investigators did not record the information accurately.

Table No.7.3 : Source of Income, Number of Families Reporting Income as Per cent of the Total Income from each Source and Average Income per Reporting Family in respect of the families of Cultivators and Non-Cultivators from the Sample Villages

Source of Income	Cultivators			Non-Cultivators		
	No. of Reporting families	% to total	Average income per reporting family Rs.	No. of Reporting families	% to total	Average Income per reporting family Rs.
Agriculture	2681	39.6	1,224	-	-	-
Agricultural Labour	454	5.8	1,070	256	17.7	1240
Agri. & Non-Agri. Labour	46	0.9	1,622	54	5.3	1,721
Labour	1072	17.6	1,352	467	37.4	1,413
Livestock and Livestock Products	2122	16.5	647	292	6.3	384
Eggs, Wool, etc.	544	0.8	127	97	0.5	88
Cart Rent	136	0.8	435	3	0.2	1,100
Other Rent	60	0.7	1,027	3	0.1	693
Land Rent and Share in Crops	16	0.1	769	30	0.8	498
Non-Agricultural Occupations	206	4.0	1,609	135	9.4	1,227
Salaried Job	248	11.4	3,816	100	19.9	3,518
House Rent, Interest, etc.	3	0.0	400	1	0.1	1,130
Pension	11	0.2	1,498	2	0.1	1,250
Alimony	-	-	-	2	0.4	3,300
Remittances	77	1.6	1,762	18	1.8	1,772
Total :	2816	100.0	2,949	889	100.0	1,986
			=83,05,170			=17,66,050

Often they vaguely stated merely 'labour' without specifying whether 'agricultural' or 'non-agricultural' labour. In the Table we have indicated three sources, namely, i) agricultural labour, ii) agricultural and non-agricultural labour where it was so stated precisely while the third source, namely, labour really represents those cases where the investigators merely noted as 'labour'. Our hunch is that a major proportion of this is agricultural labour. For the sake of considering the dependence of the families on this source of income we may pool the three categories of labour given in the Table.

It will be noted from the Table that in the case of the non-cultivators, income from labour formed about half of the total income whereas in the case of the cultivators it formed about one-third of the total income. In the case of the cultivators, income from agriculture was about 40 per cent and from livestock 16.5 per cent. The cultivators' families thus drew about 83 per cent of their total income from agriculture, labour, livestock and rent. In their case, of the remaining 17 per cent of the total income about two-thirds was from salaried jobs. In the case of non-cultivators, next to income from labour, income from salaried jobs, 19.9 per cent, and non-agricultural occupations (village artisans, trade, etc.), 9.4 per cent, were the other important sources of income. The dependence on remittances from the family migrants was insignificant, being less than two per cent of the total income in both the groups.

As regards the average per family income, it was Rs. 2,949 in the case of cultivators which was almost one and a half times the average per family income in the case of non-cultivators, namely, Rs. 1,986. It is equally important to note that the average income from agriculture

per reporting family in the case of those who pursued agriculture was as low as Rs. 1,224. This is due to dependence to a large extent on dry land cultivation, and low productivity as also small share of sugarcane, cotton, pulses and oilseeds, the more paying crops, in the overall agricultural production. In fact the income from labour per family reporting income from labour was a little more than the average income received from agriculture per family reporting income therefrom.

It may also be noted that the average income from livestock and livestock products per family reporting income therefrom was also not much. It was Rs. 647 per reporting family among the cultivators and nearly three-fourths of the cultivators reported income therefrom. It was lower still, only Rs. 384 per reporting family in the case of non-cultivators and only about one-third of the non-cultivators families reported income from livestock and livestock products. This is but natural as the non-cultivators do not have farm fodder of their own to feed the cattle and as such many of them do not own livestock.

The income from non-agricultural occupation was reported by about 7 per cent of the cultivators and about 15 per cent the non-cultivators. The average income per reporting family from non-agricultural occupation was about the same as from agriculture or labour. It is important to note that the white-collared jobs gave the maximum average income per family reporting salaried jobs. The average per family income in respect of the families reporting income from salaried jobs was Rs. 3,816 among the group of cultivators' families and Rs. 3,518 in the case of the non-cultivators' families. A little over 10 per cent of the families from each of the two groups reported income from salaried jobs.

Average Income Per Family in the Sample Villages

In the previous section we considered the number of families reporting income from various sources and the resultant position, namely, average per family income for the families in all the villages surveyed. We propose to consider in this section inter-village variations in respect of average per family income. In Table No.7.4 we have presented villagewise data regarding average per family income in the two groups of families, namely, a) cultivators and b) non-cultivators in the sample villages. The average per family income is the result of the average size of holding, the cropping pattern obtaining in each village, the extent of irrigated crops, wages earned and income from other sources. It is, therefore, difficult to explain inter-village variations in the average per family income.

In the case of cultivators, the average per family income ranged between Rs. 1,677 in Uura Velapur and Rs.3,905 in Bhoira. It may be noted here that at Uura Velapur 42 per cent of the cultivators had cultivable land upto 2 ha. i.e. they were 'small cultivators' whereas at Bhoira the 'small cultivators' formed only about 12 per cent of the total cultivators. On the other hand the large cultivators who had more than 6 ha. of land formed only 30 per cent of the total cultivators at Uura Velapur as against 63 per cent at Bhoira. Similarly, at Shevare where the average family income, Rs. 2,189, was a little more than that obtained at Uura Velapur, the proportion of large cultivators having more than 6 ha. of cultivated holding was only about 35 per cent. At Mendhapur, where the average per family income was Rs. 3,145 per cultivator's family, the medium and the large cultivators accounted for 26 and 42 per cent respectively of the total cultivators. At Belati, even though the proportion of large cultivators declined to 38 per cent of

Table No. 7.4 : Average Per Family Income among the Cultivators and Non-Cultivators in the Sample Villages

Name of Taluka and Village	Cultivators		Average per family income	Non-Cultivators		Average per Family
	No. of families	Total family income		No. of families	Total Family Income	
		Rs.	Rs.		Rs.	Rs.
<u>Madha Taluka</u>						
1) Chandaj	120	3,39,260	2,827	3	6,400	2,133
2) Shevare	142	3,10,840	2,189	63	1,46,540	2,326
<u>Malshiras Taluka</u>						
3) Ura Velapur	128	2,14,730	1,677	27	39,650	1,468
<u>Mangalwedha Taluka</u>						
4) Khonnal	108	2,73,480	2,532	24	30,330	1,264
5) Marapur	186	5,40,130	2,904	25	43,970	1,759
<u>Mohol Taluka</u>						
6) Bhoira	165	6,44,420	3,905	44	83,000	1,886
7) Shingoli	81	2,34,830	2,899	25	39,120	1,565
8) Takali Sikandar	162	5,04,710	3,115	42	94,450	2,249
<u>North Solapur Taluka</u>						
9) Belati	127	4,78,600	3,768	87	2,50,860	2,883
10) Pakani	173	5,97,190	3,452	42	1,05,310	2,507
<u>Pandharpur Taluka</u>						
11) Adhiv	145	3,64,800	2,516	46	69,360	1,508
12) Badalkot	77	2,15,110	2,664	9	9,690	1,077
13) Bhose	406	10,05,920	2,478	141	2,53,140	1,795
14) Khed Bhalwani	124	4,63,740	3,740	21	47,600	2,267
15) Mendhapur	582	18,30,480	3,145	227	4,43,440	1,953
16) Shegaon	90	2,86,930	3,188	63	1,03,190	1,638
Total :	2816	83,05,170	2,949	889	17,66,050	1,986

the total, the average per family income among the cultivators was the second highest among the sample villages. This could be attributed to the income from salaried jobs which formed 21 per cent of the total income and which brought on an average Rs. 4,439 per reporting family. Besides, income from agriculture was also high, being Rs. 3,768 per reporting family. Though irrigation facilities from Ujani Project may help the cultivators to increase their income from greater and assured yield from irrigated crops, it is unlikely that the disparity will be reduced as it is associated with the basic constraint of the size of cultivated land,

Among the non-cultivators the average per family income was Rs. 1,986 for the total families in the 16 villages. The range of variation was between Rs. 1,077 at Badalkot and Rs. 2,853 at Belati. At Badalkot which is the smallest among the sample villages with 53 per cent of the total families belonging to Phase-Paradhi community about 10 per cent of the families in the village were non-cultivating families. The Phase Paradhi community had formed a Co-operative Farming Society. There was not much of non-agricultural employment available locally. Hence the lowest per family income at Badalkot in the group of non-cultivators. At Belati, like in the case of the cultivators' families, about one-third of the families reported income from salaried jobs, the income therefrom per reporting family being Rs. 3,989. This resulted in enhancing the average per family income in the case of non-cultivators' families at Belati. Similar position obtained at Pakani where 28 per cent of the non-cultivators' families reported income from salaried jobs at Rs. 3,752 per reporting family thereby raising the average per family income of the non-cultivators as a group in Pakani.

Composition of Total Income of the Sample Villages

We find wide differences in the composition of total income in different villages. We have given data relating to composition of income of the cultivators' and non-cultivators' families in Table No.7.5. Inter-village comparison shows that the share of agriculture in the total income of the village varied between 24 per cent at Shingoli and 53.8 per cent at Bhoira, income from labour varied between 14.2 per cent at Belati and 40.9 per cent at Ura Velapur. The range of variation in respect of income from livestock was lower and varied between 9.7 per cent at Shingoli and 22.6 per cent at Mendhapur. The range was perhaps the highest in respect of the share of income from salaried jobs in the total income of the village. It varied between 2.2 per cent at Khomnal and 36 per cent at Shingoli.

In the case of non-cultivators, the share of income from labour in the total income of the village varied between 30.1 per cent at Shevare and more than 90.0 per cent at Badalkot, Shingoli and Chandaj which had a very small number of non-cultivators' families. Similar variations were found in the share of income from livestock as well as salaried jobs in the total income.

Total Family Income Among Different Castes

We shall now consider the differences in total family income of cultivators' and non-cultivators' families in different castes/caste groups. The relevant data is presented in Table No.7.6 and 7.7 respectively. We have earlier noted that on the whole the cultivators' families were slightly better placed than the non-cultivators' families, there being 41 per cent of the cultivators families with total family income exceeding Rs. 2,500 per family as against 36 per cent of the non-cultivators

Table No. 7.5 : Composition of Total Income of the Sample Villages

			No. of Families	Agriculture %	Labour %	Live-stock %	Wags, wool, etc. %	Rent %	Non-Agri. Occupation %	Salaried Job %	Remittances %	Pension etc. %	Total %	Rs.
Cultivators														
<u>Madha Taluka</u>	(1)	Chandaj	120	38.2	22.7	17.0	1.2	1.3	9.9	7.3	2.4	-	100.0	= 3,39,260
	(2)	Chevare	142	34.5	26.4	15.5	1.4	1.5	6.0	13.1	0.4	1.2	100.0	= 3,10,840
<u>Malshiras Taluka</u>	(3)	Umbre Velapur	128	24.8	40.9	18.8	0.8	3.5	4.0	6.6	0.6	-	100.0	= 2,14,730
<u>Mangalwedha Taluka</u>	(4)	Khomnal	108	46.8	24.6	16.0	2.3	1.6	5.9	2.2	0.6	-	100.0	= 2,73,480
	(5)	Marapur	186	38.8	18.6	16.3	4.1	0.6	1.8	13.2	6.6	-	100.0	= 5,40,130
<u>Mohol Taluka</u>	(6)	Bhoira	165	53.8	15.9	13.3	0.3	0.7	4.3	10.2	1.1	0.4	100.0	= 6,44,420
	(7)	Shingoli	81	24.0	16.8	9.7	0.2	1.9	7.4	36.0	4.0	-	100.0	= 2,34,830
	(8)	Takli Sikandar	162	34.1	26.0	14.6	0.7	1.6	3.1	13.1	5.5	1.3	100.0	= 5,04,710
<u>North Solapur Taluka</u>	(9)	Belati	127	40.8	14.2	19.4	0.1	2.1	2.1	21.3	-	-	100.0	= 4,78,600
	(10)	Pakani	173	37.0	16.6	12.9	6.0	0.8	3.1	27.0	2.6	-	100.0	= 5,97,190
<u>Pandharpur Taluka</u>	(11)	Adhiv	145	37.9	37.7	12.6	0.2	1.4	4.0	6.2	-	-	100.0	= 3,64,800
	(12)	Badalkot	77	36.5	38.8	15.4	2.4	0.2	1.2	4.4	1.1	-	100.0	= 2,15,110
	(13)	Bhose	406	28.9	35.3	12.3	0.9	4.3	3.3	14.2	0.7	0.1	100.0	= 10,05,920
	(14)	Khed Bhalwani	124	48.2	14.6	20.3	0.3	0.9	5.3	9.7	0.7	-	100.0	= 4,63,740
	(15)	Mendhapur	582	43.5	24.5	22.6	0.3	1.6	3.5	3.2	0.7	0.1	100.0	= 18,30,480
	(16)	Chegaon	90	48.6	22.8	10.8	0.2	1.1	5.2	10.4	0.4	0.5	100.0	= 2,86,930
Total for 16 villages			2,816	39.6	24.3	16.5	0.8	1.6	4.0	11.4	1.6	0.2	100.0	= 83,05,170
Non-cultivators														
<u>Madha Taluka</u>	(1)	Chandaj	3	-	89.1	10.1	0.8	-	-	-	-	-	100.0	= 6,400
	(2)	Chevare	63	-	30.1	3.6	1.0	-	6.5	58.8	-	-	100.0	= 1,46,540
<u>Malshiras Taluka</u>	(3)	Umbre Velapur	27	-	66.5	11.4	0.8	-	2.8	17.2	1.3	-	100.0	= 39,650
<u>Mangalwedha Taluka</u>	(4)	Khomnal	24	-	68.7	11.2	2.1	-	4.9	11.1	-	2.0	100.0	= 30,330
	(5)	Marapur	25	-	70.1	11.4	1.4	7.3	9.8	11.4	-	-	100.0	= 43,970
<u>Mohol Taluka</u>	(6)	Bhoira	44	-	62.1	1.4	0.1	3.5	15.2	14.1	3.6	-	100.0	= 83,000
	(7)	Shingoli	25	-	90.7	3.5	0.1	2.9	0.8	-	2.0	-	100.0	= 39,120
	(8)	Takli Sikandar	42	-	68.1	7.0	0.1	0.3	7.8	2.1	14.6	-	100.0	= 94,450
<u>North Solapur Taluka</u>	(9)	Belati	87	-	38.5	8.4	0.0	0.6	8.0	44.5	-	-	100.0	= 2,50,860
	(10)	Pakani	42	-	34.1	4.0	0.6	2.6	8.6	42.8	6.2	1.1	100.0	= 1,05,310
<u>Pandharpur Taluka</u>	(11)	Adhiv	46	-	65.3	10.6	0.1	1.9	14.0	7.0	1.1	-	100.0	= 69,360
	(12)	Badalkot	9	-	96.5	2.1	1.4	-	-	-	-	-	100.0	= 9,690
	(13)	Bhose	141	-	64.9	3.7	0.8	1.0	7.6	21.8	0.2	-	100.0	= 2,53,140
	(14)	Khed Bhalwani	21	-	60.9	10.3	0.4	-	14.3	10.5	3.6	-	100.0	= 47,600
	(15)	Mendhapur	227	-	72.4	8.2	0.4	2.0	12.0	2.5	0.9	1.6	100.0	= 4,43,440
	(16)	Chegaon	63	-	82.9	2.5	0.2	-	10.7	3.7	-	-	100.0	= 1,03,190
Total for 16 villages			889	-	60.3	6.4	0.5	1.2	9.4	19.9	1.8	0.5	100.0	= 17,60,050

Table No. 7.6 : Percentage Distribution of the Cultivators' Families in the Sample Villages According to Caste and Income

Caste	No. of reporting families	Income upto Rs. 1000	Rs. 1001 to 2500	Rs. 2501 to 5000	Rs. 5001 to above	Not stated
		%	%	%	%	%
1. Brahmin	31	16	39	19	26	-
2. Maratha	1656	10	46	30	14	0
3. Mali	131	11	48	31	10	-
4. Dhargar	336	9	44	32	15	-
5. Trading Communities	94	13	41	23	23	-
6. Artisan Castes	68	13	50	27	10	-
7. Service Castes	72	22	54	21	3	-
8. Mahar+ Nav Budha	109	15	54	27	4	-
9. Mang	34	18	56	26	-	-
10. Chambhar	68	13	44	28	15	-
11. Other Sub-castes	39	31	51	10	8	-
12. Phase Paradhi	47	28	53	17	2	-
13. Other Nomadic Tribes	45	36	42	20	2	-
14. Other Hindus	2	100	-	-	-	-
15. Muslims	57	19	53	21	7	-
16. Not stated	27	7	59	22	8	4
Total Cultivators Families	2816	12	47	28	13	0

Table No. 7.7 : Percentage Distribution of the Non-Cultivators' Families in the Sample Villages According to Caste and Income

Caste	No. of reporting families	Income upto Rs. 1000	Rs. 1001 to 2500	Rs. 2501 to 5000	Rs. 5001 and above	Not stated
		%	%	%	%	%
1. Brahmyn	8	-	25	37	38	-
2. Maratha	214	17	56	19	8	0
3. Mali	19	16	63	21	-	-
4. Dhangar	51	27	41	16	16	-
5. Trading communities	15	20	47	13	20	-
6. Artisan Castes	45	22	51	22	5	-
7. Service Castes	63	19	62	17	2	-
8. Mahar + Nav Budha	144	19	68	10	2	1
9. Mang	149	34	52	12	1	1
10. Chambhar & Dhor	28	14	61	7	18	-
11. Other Sch. Castes	70	29	50	19	1	1
12. Phase Paradhi	1	-	-	100	-	-
13. Other Nomadic tribes	43	28	56	16	-	-
14. Other Hindus	4	-	25	75	-	-
15. Muslims	29	17	62	10	7	4
16. Not Stated	6	33	67	-	-	-
Total Non-cultivators	889	23	56	15	5	1
Total cultivators	2816	12	47	28	13	0
Grand Total	3705	15	49	25	11	0

families in the corresponding income group. The caste-wise income distribution reveals that Brahmins, Marathas, Malis, Dhangars and Artisan castes had higher percentage in the income group above Rs. 2,500 than the average for the entire families of cultivators. Among the remaining, only the cultivators families of Chambhars and Dhors appeared to be slightly above the average income distribution pattern. The service castes (24 per cent), Mang (26 per cent), Other Scheduled Castes (18 per cent), Phase Paradhi (19 per cent), other Nomadic Tribes (22 per cent) and Muslims (28 per cent) had smaller proportion in the higher income groups, Rs. 2500 plus, as compared to the overall average of 41 per cent.

Among the non-cultivator families, 15 per cent of the total families had income upto 1000. However, among the Mang families had almost one-third of the non-cultivators had income below Rs. 1,000/- followed by the non-cultivators families from the other Scheduled Castes (29 per cent) other Nomadic Tribes (28 per cent) and Dhangar families (27 per cent). Except the families of Dhor community (14 per cent) the rest of the families had between 16 per cent to 22 per cent of the total families with income upto Rs. 1,000.

In the higher income groups, that is Rs. 2,501 and above, the overall percentage was 36. The families belonging to the higher income groups from amongst Kahar (19 per cent), Mang (13 per cent), Chambhar and Dhor (25 per cent), other Scheduled Castes (20 per cent), Other Nomadic Tribes (16 per cent) and Muslims (17 per cent) formed much smaller proportion than the average. Except the Brahmins (8 families) and the lone family of Phase Paradhi community, in the remaining communities also the percentage of such families was lower than the average though compared to the Scheduled Castes and Scheduled Tribes, the families belonging

to the other castes appeared to be slightly better placed.

Remittances received by the families in the Sample Villages from Outmigrants

We have already noted that of the total income, less than 2 per cent came from remittances. 133 out of 3,705 families in the 16 villages, that is less than 4 per cent of the total families received remittances from the out-migrant members. Of the 133 families reporting outmigrants, 96 families had one outmigrant member, 24 families reported two outmigrants and 13 families reported three or more outmigrants. Besides 28 families reported outmigrants but these families did not receive any remittances from the outmigrants during the year 1977-78. The families reporting outmigrant members were found in all the villages except Belati and Adhiv and the number of such families varied between 2 families each at Shegaon and Umra Velapur to 15 in Marapur. It will be thus noted that a very small proportion of the families have outmigrant members and as such the remittances received from the outmigrant members form a very small proportion in the total income of the villagers.

Per Capita Income

We have earlier noted in Chapter V that the total population reported in the Family Schedule in the Sample Villages was 21,437 persons. The total income of the families in the sample villages as shown in Table No.7.5 was Rs. 1,00,71,220 which gives a per capita income of Rs. 470 for one year; that is per capita less than Rs. 40 per month on an average. The average per family income comes to Rs. 2,718. However, we have noted from Table No.7.2 that two thirds of the families had income below Rs. 2,500.

Ownership of Certain Household Goods

With a view to get an idea regarding the level of

living in the sample villages we had sought in the Family Schedule information regarding the ownership of certain household goods. These included items of furniture, such as writing tables, chairs, cupboards and beds, heating stoves, kerosene lanterns and petromax, sewing machines, radios/transistors, alarm clocks and personal effects like wrist-watches, bicycles, motorcycles and jeep. We also tried to find out the number of families using electricity for domestic lighting purposes. We have presented in Table No. 7.8 data on the ownership of the household goods. The data reveal the following :

(1) As for furniture, less than three per cent of the families owned household furniture such as writing table, chair and cupboard and from among them less than 10 families owned more than one piece of these items of furniture. The number of families reporting beds, mostly coir beds, was comparatively larger there being about 11 per cent of the total families in the sample villages reporting beds and of them about 10 per cent reporting two or more beds per family.

(2) Use of electricity for domestic use was reported by about 2 per cent of the total families. Even kerosene lamps appeared to be a luxury as only about one-third of the total families reported a kerosene lamp. Only 44 families, that is about one per cent of the total families in the sample villages, reported two or more kerosene lamps each. Petromax lamps were owned by a few only in each village except Mendhapur and Khomnal where 36 and 49 petromax lamps respectively were reported. The ownership of kerosene stoves for use in cooking was reported by about 10 per cent of the total families in the sample villages. Only one family from Mendhapur reported a cooking-gas stove.

Table No.7.8 : Villagewise Number of Families Reporting Ownership of Certain Household Goods

Village	Total No. of families	Writing Table			Chair			Cupboard			Bed			Kerosene Stove			Kerosene Lamp			Petromax		
		One	More than One	Total	One	More Than One	Total	One	More Than One	Total	One	More Than One	Total	One	More Than One	Total	One	More Than One	Total	One	More Than One	Total
Chandaj	123	1	-	1	1	-	1	2	-	2	21	4	25	13	1	14	49	4	53	5	-	5
Shevare	205	3	1	4	2	1	3	8	-	8	29	1	30	32	-	32	101	1	102	4	-	4
Ura Velapur	155	-	-	-	1	-	1	-	1	1	4	2	6	4	-	4	69	1	70	1	-	1
Khomnal	132	-	-	-	-	-	-	-	-	-	13	1	14	7	-	7	48	1	49	49	-	49
Marapur	211	5	1	6	6	10	16	9	-	9	22	3	25	19	-	19	49	4	53	1	-	1
Bhoira	209	4	1	5	6	3	9	5	1	6	14	6	20	14	5	19	58	5	63	4	-	4
Shingoli	106	-	-	-	3	1	4	4	-	4	14	1	15	19	-	19	30	-	30	2	-	2
Takali Sikandar	204	2	-	2	2	-	2	2	-	2	28	4	32	28	-	28	65	3	68	6	-	6
Belati	214	7	-	7	7	1	8	19	2	21	31	2	33	27	1	28	41	2	43	2	-	2
Pakani	215	-	-	-	2	-	2	2	3	5	25	1	26	30	3	33	74	1	75	1	-	1
Adhiv	181	2	-	2	3	-	3	8	-	8	8	-	8	-	-	7	35	1	36	1	-	1
Badalkot	86	2	-	2	3	-	3	2	-	2	4	-	4	3	-	3	18	1	19	-	-	-
Bhose	547	4	1	5	6	2	8	17	2	19	45	3	48	95	7	102	250	8	258	9	-	9
Khed Bhalwani	145	-	-	-	-	-	-	-	-	-	20	2	22	8	2	10	34	3	37	1	-	1
Mendhapur	809	6	2	8	11	2	13	13	-	13	69	14	83	49	2	51	266	9	275	36	-	36
Shegaon	153	4	-	4	4	2	6	7	-	7	16	5	21	10	-	10	31	-	31	-	-	-
TOTAL	3705	40	6	46	57	22	79	98	9	107	363	49	412	365	21	386	1218	44	1262			

Village	Bicycle			Wrist Watch			Radio/Transistor			Sewing Machine			Alarm Clock			Motor Cycle No.	Jeep No.	Boat No.	Electricity No.		
	One	More Than One	Total	One	More than One	Total	One	More Than One	Total	One	More Than One	Total	One	More Than One	Total						
Chandaj	24	1	25	29	2	31	17	2	19	2	-	2	1	-	1	-	-	1			
Shevare	46	-	46	53	3	56	29	-	29	1	-	1	4	-	4	2	-	1			
Ura Velapur	46	2	48	18	-	18	11	-	11	1	-	1	1	-	1	-	2	1			
Khomnal	32	4	36	14	3	17	3	-	3	2	-	2	1	-	1	-	2	-			
Marapur	28	3	31	32	3	35	19	1	20	4	-	4	3	-	3	-	-	-			
Bhoira	34	1	35	32	10	42	16	1	17	8	-	8	8	-	8	-	-	2			
Shingoli	24	4	28	36	4	40	21	-	21	2	-	2	2	-	2	-	-	2			
Takali Sikandar	40	4	44	51	12	63	43	1	44	7	3	10	5	-	5	-	-	1			
Belati	69	11	80	26	7	33	21	-	21	4	-	4	10	-	10	-	-	4			
Pakani	39	-	39	47	8	55	17	-	17	4	-	4	7	-	7	-	-	12			
Adhiv	71	2	73	37	-	37	18	-	18	3	-	3	2	-	2	-	-	10			
Badalkot	20	-	20	10	1	11	8	-	8	3	-	3	2	-	2	-	-	1			
Bhose	124	7	131	94	10	104	65	1	66	13	-	13	11	-	11	2*	-	1			
Khed Bhalwani	52	4	56	31	5	36	20	1	21	3	-	3	-	-	-	-	-	31			
Mendhapur	218	6	224	149	14	163	82	-	82	16	-	16	11	-	11	-	3	-			
Shegaon	21	1	22	16	1	17	13	-	13	2	-	2	3	-	3	-	-	9			
TOTAL	888	50	938	675	83	758	403	9	412	72	3	75	70	-	70	24	3	5	73		

*Jointly owned

(3) Ownership of alarm clock and/or wrist watch was reported by about 20 per cent of the total families.

(4) Radio transistors were reported by only about 11 per cent of the total families and sewing machines by only two per cent of the total families.

(5) The bicycle was the largest reported item next to kerosene lamps, about 25 per cent of the total families reporting a bicycle. 24 out of them had two bicycles per reporting family.

(6) Ownership of Motor cycles and jeep, a symbol of affluence was confined to only about 25 families from 11 villages.

It will be thus noted that a majority of the families from the sample villages did not have most of the household goods, some of which, such as kerosene lamp, an alarm clock, a bicycle are considered as necessities in the present times. The absence of such household goods in a majority of the families is no doubt associated with low family income, there being about 60 per cent of the total families with an income of less than Rs. 200/- per month.

Apart from the annual income and ownership of certain household goods, the level of living is also reflected in the extent of indebtedness, ownership of assets and capital expenditure incurred by the families. We shall, therefore, proceed to consider in the following sections data on these aspects.

Borrowing and Indebtedness : We had collected information

We had collected information regarding the amounts borrowed from various sources and outstanding due at the time of visit of the investigator to the families for filling in Family Schedule in the Sample villages. We shall consider in the present section the amount outstanding due to various agencies by the cultivating and non-cultivating

families. About 42 per cent of the cultivating families and only 12 per cent of the non-cultivating families reported outstanding dues, on an average Rs. 1863 and Rs. 697 respectively. We may recall that the cultivating families formed about three-fourths of the total families in the sample villages.

We have given in Table No. 7.9 the proportion of the indebted families out of the total families of cultivators in each size group and the average amount outstanding due per reporting family. We have also shown the proportion of indebted families among the labourers and the other non-cultivating families and the average outstanding dues per family in respect of these families. It is interesting to note that among the small cultivators with holding upto 2 ha., about one-third of the families were indebted whereas among the medium and large cultivators, with holding above 4 ha. about half of the families reported outstanding debts. We may also note that the average outstanding dues gradually moved from the smallest cultivators, Rs. 817 to large cultivators Rs. 4,810, in the size group where the size of holding exceeded 14 ha. The larger proportion of indebtedness as also the far higher average of outstanding dues per reporting family among the larger cultivators may be due to their creditworthiness, that is ability to borrow against the larger size of holding.

Banks and co-operative Societies were the main sources of finance accounting for 87.7 per cent of the total outstanding dues, the average outstanding dues to these sources per reporting family being Rs. 1,848. Besides the District Central Co-operative Bank and the District Land Mortgage Banks, there are a number of branches of nationalized and other banks and a network of primary co-operative credit societies in Solapur district. Hence the lion's share of the Banks and Co-operatives in financing the

Table No. 7.9 : Outstanding Loans Payable by the Cultivating and Non-Cultivating Families to Different Sources of Finance

Cultivating Families Size of Holding (in ha.)	Total No. of fami- lies	Repo- rting Fami- lies as % of Total	Ave- rage Out- stan- ding Dues Rs.	Share of Outstanding Dues to		
				Banks & Crop- Credit Socie- ties	Traders and Money- lenders	Friends and Rela- tives
		%		%	%	%
Upto 1 ha.	399	28.3	817	76.5	-	23.5
1.1 ha. to 2 ha.	497	33.6	1101	78.9	0.8	21.0
2.1 ha. to 3 ha.	386	36.0	1130	83.9	2.6	13.5
3.1 ha. to 4 ha.	360	44.2	1549	83.9	1.2	14.9
4.1 ha. to 5 ha.	241	49.8	1748	95.0	0.3	4.7
5.1 ha. to 6 ha.	188	52.1	1943	92.2	-	7.8
6.1 ha. to 8 ha.	300	51.3	2343	86.1	-	13.9
8.1 ha. to 14 ha.	324	52.2	2826	88.1	0.6	11.3
14.1 ha. to 22 ha.	99	50.5	4811	96.0	0.2	3.8
22.1 ha. and above	22	40.9	3956	93.2	-	6.8
Total Cultivating Families	2816	41.8	1863	87.7	0.5	11.8
Total Dues		Rs. 21,94,130/- by 1178 families.				
Non-cultivating Families						
Agricultural and Non-Agricultural Labourers	639	10.0	339	40.3	3.7	56.0
Cattle Raising, Sheep- Rearing, Poultry Farming etc.	18	5.5	2150	93.0	-	7.0
Manufacturing	47	10.6	750	77.3	-	22.7
Trading	17	41.2	779	47.7	-	52.3
Salaried Job	75	16.0	1695	87.7	1.0	11.3
Service Occupations	47	14.9	1007	-	-	100.0
Others	46	15.2	1369	85.4	-	14.6
Total Non-Cultivat- ing Families	889	11.6	697	61.4	1.3	37.3
Total Dues		Rs. 22,65,940 by 2281 families.				
Grand Total	3705	34.5	1762	86.8	0.5	12.7
Total Dues		Rs. 22,65,940 by 2281 families				

cultivators. The next important source, relatives and friends, accounted for 11.8 per cent of the dues, the average outstanding amount due per reporting family being Rs. 1,217.40. Among the total cultivators the small farmers had greater dependence on this service source. The money-lenders and traders accounted for a very small share, only 0.5 per cent, and the outstanding dues were also small compared to the first two sources, being Rs. 812.85 per reporting family. The traders and moneylenders provide finance for growing cotton, groundnut or such other cash crops. In the region studied, the area under such crops was very small and consequently the share of traders and moneylenders in financing the cultivators was also small.

Among the non-cultivating families, were the families who reported agricultural/non-agricultural labour as the main occupation of the family and other non-cultivating families which considered trading, transport, manufacturing, salaried jobs as the main occupation of the family and the families which did not report any occupation as the main occupation of the family. The labourers' families reporting outstanding dues formed about 10 per cent of the total families reporting agricultural/non-agricultural labour as the main occupation. Of the remaining non-cultivators' families, about 16 per cent of the families reported outstanding dues.

In the case of the families reporting non-agricultural occupation as the main occupation of the family also, we find that Banks and Co-operative Societies accounted for 61.4 per cent of the outstanding dues because 34 of these families owned agricultural land and were eligible to borrow from the Banks and the Co-operative Credit Societies. The friends and relatives, therefore, appear to have met the credit needs of the other non-cultivating families,

particularly those who reported trading or salaried jobs as their main occupation. In the total outstanding dues dues reported by the non-cultivating families, the share of friends and relatives was 37.3 per cent. As in the case of the cultivating families, the share of traders and moneylenders was as small as 1.3 per cent of the total outstanding dues.

With the availability of water for irrigation from the Ujani Canals, the cultivators will gradually shift to irrigated crops. In the process their credit requirements will increase. The CADA has already given a thought to the demand for credit that will be required in future. The arrangements proposed by the CADA for meeting the credit requirements have been already described in Chapter II.

Dues Receivable from Others

We had also asked the families in the Selected villages to report the amount receivable from out of the amount advanced by them, on the day of the visit to the families by the Field Investigator. From Table No.7.9 it will be noted that the outstanding dues to the friends and relatives of the reporting families came to Rs. 2,86,000. Presuming that most of these funds were obtained from their local friends and relatives, the outstanding dues receivable from others should have been of the same order. It appears that there was gross under-reporting in this account. Only 21 cultivators' families and only one non-cultivating family reported outstanding dues of Rs. 21,620 and Rs. 100 respectively.

Ownership of Assets

We had sought in the Family Schedule information regarding the ownership of such assets as land, houses, cattle-sheds, shares and deposits, insurance and other

assets as also assets in independent occupations pursued by the families. We have presented in Table No.7.10 data regarding ownership of various assets by the cultivating and non-cultivating families. We may sum up the composition of assets in respect of these two groups in the following :

<u>Assets</u>	<u>Cultivating families</u> %	<u>Non-Cultivating families</u> %
Land	92.9	48.5
Houses	5.2	40.6
Cattle sheds	0.8	3.5
Shares, Deposits etc.	0.7	1.7
Insurance	0.1	0.6
Other Assets	0.0	0.6
Investment in Independent Occupations	0.3	4.5
	-----	-----
Total	100.0	100.0
	- Rs. 6,68,21,730	10,79,670
Total Families	2809	896
Average per Family	Rs. 23,729	Rs. 1,214

The summary data shows that compared to the cultivating families, the non-cultivating families hardly owned any assets. Among the cultivating families, land is almost the only asset accord accounting for about 93 per cent followed by residential houses, about 5 per cent of the total assets. The ownership of land accounted for almost 95 per cent of the total assets of the largest cultivators and about 93 per cent in the case of the smallest cultivators. Thus it appeared that whatever the size of holding of the cultivating families, the value of land accounted for more than 90 per cent of the total assets. The value of assets in independent non-agricultural occupations formed only 0.3 per cent of the total assets.

Table No.7.10 : Ownership of Assets by the Cultivating and Non-Cultivating Families

Cultivating Families Size of Holding	No. of Families	Land		Residential Houses		Cattle Sheds		Shares, Deposits, etc.		Insurance		Other Assets		Assets In Non-Agric. Occupation		Total Assets per Family Rs.
		No. of report- ing fami- lies	Value in Rs. per family	No. of fami- lies report- ing	Value in Rs. per family	No. of fami- lies report- ing	Value in Rs. per family	No. of fami- lies report- ing	Value in Rs. per family	No. of fami- lies report- ing	Value in Rs. per family	No. of fami- lies report- ing	Value in Rs. per family	No. of fami- lies report- ing	Value in Rs. per family	
Upto 1 ha.	399	337	3930	338	146	70	393	19	1271	1	1000	-	-	13	435	3,558
1.1 ha. to 2 ha.	497	492	8140	433	1043	126	359	22	1221	1	4000	-	-	27	730	9,154
2.1 ha. to 3 ha.	386	384	12151	327	1147	130	433	30	1104	1	10	3	233	18	1013	13,341
3.1 ha. to 4 ha.	360	354	16357	342	1155	122	499	38	1247	2	4000	2	2000	22	1536	17,757
4.1 ha. to 5 ha.	241	240	20092	219	1650	86	568	33	1144	2	6000	1	2550	9	422	21,944
5.1 ha. to 6 ha.	188	188	24212	174	1589	67	477	28	1653	1	1000	-	-	14	2450	26,287
6.1 ha. to 8 ha.	300	300	31087	280	1818	146	512	155	470	2	610	1	150	11	1052	33,318
8.1 ha. to 14 ha.	324	320	53554	310	2273	202	689	61	1615	2	5000	1	800	18	2014	55,947
14.1 ha. to 22 ha.	99	99	72922	93	2770	62	800	28	2099	3	3333	1	300	1	1200	76,736
22.1 ha. & above	22	22	147091	22	4141	17	1531	9	3156	-	-	1	9000	-	-	1,54,115
Total Cultivating Families	2816	2736	22690	2538	1372	1028	542	423	1121	14	3374	10	1750	133	1237	23,729
Non-Cultivating Families																
Agricultural & Non-Agric. Labourers	639	12	7075	436	536	105	281	1	1000	-	-	-	-	12	260	551
Cattle Raising, Sheep-Rearing, Poultry etc.	18	11	13836	15	824	2	275	1	1000	-	-	-	-	1	350	9,248
Manufacturing	47	-	-	33	954	5	340	-	-	-	-	1	6500	23	560	1,118
Trading	17	-	-	14	2443	1	600	-	-	-	-	-	-	11	1891	3,271
Salaried Job	75	4	20750	44	1340	5	220	3	973	1	5000	-	-	3	260	2,024
Service Occupation	47	-	-	31	815	6	292	-	-	-	-	2	275	28	297	763
Others	46	9	22667	42	1027	6	383	5	2650	1	1500	-	-	1	900	5,763
Total Non-Cultivating Families	889	36	14558	615	714	130	289	10	1817	2	3250	3	2350	79	597	1,214
GRAND TOTAL	3705	2772	22584	1243	514	1158	514	433	1137	16	3358	13	1888	212	998	18,327

As the size of the holding increased the average total assets per cultivator increased. The value of total assets^{was only} Rs. 3,558 in the case of cultivators who had upto 1 ha. of land. It was almost four times in the group where the size of holding was between 3 to 4 ha. In the open ended group, where the size of holding was 22.1 ha. and above, the average value of assets per family was as high as Rs. 1,54,115, though as stated earlier mainly due to the large size of their holding.

In contrast to the cultivating families who had on an average assets worth Rs. 23,729, the assets of the non-cultivating families were quite low, being Rs. 1,214 per family. In the non-cultivating families, 36 families owned land worth Rs. 5,24,100 which accounted for almost half of the total assets reported by the non-cultivating families. But for the inclusion of land, the average value of assets per non-cultivating family would have been almost half of Rs. 1,214. The ownership of residential house among the non-cultivating families was reported by about two-thirds of the families, the average per reporting family being Rs. 714, which indicates the type of average structure reported as residential house by the non-cultivating families.

The average value of residential house in the case of cultivators was almost double that of the value in respect of non-cultivating families.

79 non-cultivating families reported investment in non-agricultural occupations which came to about Rs. 600 per reporting family. For the trading families the average came to about Rs. 1,890 and for artisans' families, slightly lower than the average, namely, Rs. 560 per reporting family. For the families reporting service or labour as the main occupation, it was lower still, being Rs. 297 and Rs. 260 respectively.

To sum up the discussion on ownership of assets we may emphasize that the size of holding determined the value of average assets per family. From among the non-cultivating families who did not own land, the assets per reporting family were even lower than the average assets of the smallest farmers. We must also note the inequalities in wealth. About 14 per cent of the smallest cultivators with holding upto one ha. accounted for only 2 per cent of the assets whereas at the other extreme the largest cultivators who formed only 0.8 per cent of the total cultivators held about 5 per cent of the total assets. We shall next examine the data regarding expenditure on land improvements during 1977-78 by the cultivators' families from the sample villages.

Land Improvements During 1977-78

We had sought information in the Family Schedule regarding the expenditure on land improvement carried out during the year 1977-78. We present in Table No.7.11 the total number of families reporting expenditure on various items of land improvement per reporting family on each item and the area which benefitted or the area to which the expenditure was applicable. *The area benefitted was often not reported & hence may not be considered.*

The total expenditure of about Rs. 7 lakhs on land improvement formed about 8.4 per cent of the total income of about Rs. 83 lakhs reported by the cultivating families during the year 1977-78. Though we had asked for, we did not get adequate information on the value of inputs of material, both owned and purchased and wages paid. Hence we have not presented the data in the report.

It will be noted from the Table that the expenditure on land levelling and bunding was reported by about 4 per cent of the cultivators and accounted for 28 per cent of the total expenditure on land improvements. We did not ask

Table No.7.11 : Expenditure On Various Items of Land Improvement During 1977-78 by the Families from the Sample Villages Reporting Such Expenditure and the Area which benefitted from the Improvement

Item of Expenditure on Land Improvement	No. of reporting families	Area which benefitted in ha.	Total Expenditure Rs.	Average Expenditure per reporting family Rs.
Bringing fallow land under cultivation	13	2.7	19,000	1,462
Levelling and bunding	116	82.0	1,96,520	1,694
Constructing channels for canal water	3	23.8	2,600	867
Digging and Constructing new wells	33	6.8	1,46,200	4,430
Repairs to old wells	64	12.9	1,06,440	1,663
Laying new orchards	6	0.8	9,100	1,517
Adding to irrigated acreage	2	0.1	25,000	12,500
Repairs to cattle-sheds and sheds on the farm	30	-	11,130	371
Repairs etc. to residential houses	34	0.6	28,670	843
Diesel engine and pump	96	4.8	75,690	788
Electric motor and pump	101	4.4	64,070	634
Other expenses on improvements	11	2.8	15,320	1,393
		141.7	6,99,740	

the cultivators at whose instance the work was done and how did they meet the expenditure on this item. As such we do not know whether it was carried out under the programme of the CADA or by the cultivators themselves at their own initiative. It benefitted 82.0 ha. of land at an average expenditure of about Rs. 2,400 per ha.

The expenditure on digging and construction of new wells and repairs to old wells formed 21 per cent and

15 per cent respectively of the total expenditure on land improvements. ~~The area benefitted on account of these two works was 6.8 ha. and 12.9 ha. respectively and the per ha. expenditure came to Rs. 21,500 and Rs. 8,251 respectively.~~ If we take into consideration the profitability of irrigated crops shown in the concluding section of the preceding Chapter, we find that those who increased incurred expenditure on digging and construction of new wells will have to grow sugarcane on the area irrigated by the new wells and those who incurred expenditure on repairs to old wells will have to grow cotton, if not sugarcane, if they were to get a return of at least 10 per cent on digging new wells and repairing old wells. If they were to take other than those crops they will be losers.

The two other largely reported items of expenditure were diesel engine and pump and electric motor and pump. Considering the average expenditure per reporting family on these two items, namely, Rs. 843 and Rs. 888 respectively, it is obvious that some of the reporting cultivators might have incurred expenditure for purchase of these two items but many of them might have incurred expenditure on repairs, maintenance or such other expenditure essential for using this equipment for the purposes of irrigation. The expenditure on these two items formed about 20 per cent of the total expenditure on land improvements.

The remaining about 16 per cent of the total expenditure on land improvements was incurred on several other items, including repairs to residential houses (which formed about 4 per cent of the total expenditure on land improvement during 1977-78.)

To conclude, we may say that the expenditure incurred on land improvements by the cultivators during 1977-78 shows their will to shell out a part of their income for

improvements on land which will no doubt help them to augment their income. The small cultivators do not have enough income to meet their family expenditure and naturally their share in the total expenditure on land improvement is small. It is essential to enable the small cultivators to carry out land improvement on their farms by extending credit under the programmes envisaged by the CADA.

Socio-Economic Conditions at the time of the
Bench-Mark Survey

We have given in the report, based on the data contained in the Family Schedule as also the Agricultural Enterprise Schedule, a comprehensive account of the demographic, social and economic conditions prevailing at the time of the Bench-Mark Survey in the sample villages. We have discussed at length the agricultural enterprise in the sample villages. Though agriculture is the main occupation of nearly three-fourths of the families, income therefrom is not adequate in respect of nearly two-thirds of the cultivators who had holdings below 6 ha. Hence we find considerable dependence upon income from labour. The employment in non-agricultural occupations and income therefrom was very low and did not show prospects of generating sizeable additional employment in future.

A majority of the cultivators in the region are familiar with the cultivation of irrigated crops, including sugarcane, though at present the area irrigated forms a small proportion of the gross cropped area. There is also a strong institutional framework. It should, therefore, be possible to utilise water for irrigation from the Ujani Canal without much delay and difficulty. As anticipated by the CADA it is, however, essential to extend credit, input supplies and agricultural extension facilities particularly to the small and medium cultivators.

The plight of the small and medium cultivators is difficult to anticipate. On the whole the cultivators drew from agriculture at the time of the survey only about 40 per cent of their total family income. In the case of the small and medium cultivators, income from agriculture formed a lower proportion still. The main reason is the dependence on dry crops and that too jowar, which

is profitabilitywise third in rank, to meet the food and fodder requirements of the cultivators. We have noted from the income per ha. on cultivation of dry crops in respect of the small cultivators was larger than the medium and small cultivators which shows that they cultivated their land more intensively. However, because their land-holding is small, they cannot get adequate income from agriculture. The data regarding the irrigated crops shows that the income per ha. of small cultivators was lower than that of the large cultivators, primarily because the small cultivators had very little area under sugarcane. We may also recall that it is not possible to increase the size of holding of the small cultivators as not much land is likely to be available as surplus from the large cultivators under the Ceiling Act. In the circumstances the only alternative to raise the income of the small cultivators is to enable them to grow sugarcane, cotton and groundnut as irrigated crops. It is essential for the Government to take a policy decision regarding the quantum of water to be made available for sugarcane, the most paying crop, vis-a-vis cotton, groundnut and jowar. If the irrigation from the Ujani land helps to have large area under sugarcane, it will be possible to establish a co-operative sugar factory in the region, which in turn will generate employment in the factory and outside as also in the cultivation of sugarcane itself. All this will help both the cultivating and non-cultivating families to raise their income. However, sugarcane requires many more waterings than the other irrigated crops. The Government has to decide whether to give water to irrigate one hectare of sugarcane or much larger area under cotton, groundnut and jowar.

The main objective of the present study, we may recall, was "to collect data which will facilitate measurement, at a future date, of socio-economic change arising out of irrigation facilities in the project area". We hope the comprehensive information data and analysis contained in this report, with whatever limitations thereof, will help to measure change at a future date.

SUMMING UP

Objectives, Scope and Methodology

At the instance of the Command Area Development Authority (C.A.D.A.) for Bhima (Ujani) Project we took up in the year 1978-79 a Bench-Mark Survey of a sample of villages from the command area of the Ujani Project. The objectives of the study were 'to conduct a Bench-Mark Survey to collect data which will facilitate measurement, at a future date of socio-economic change arising out of irrigation facilities in the project area'. In economic terms changes in the years to come will get reflected in the economic indicators such as increased area under irrigation, changes in cropping pattern, increase in employment in agriculture. Changes in distribution would be reflected in indicators of concentration of income and wealth. Decrease in self-sufficiency would result in presumably greater trading and transport activity in the project area or in relation to change in outside units. Thus most change, when irrigation facilities from the Ujani dam are accepted by the cultivators, is likely to be reflected in various indicators.

Hence we decided to collect data on demographic, social and economic conditions of the families and the population therein by canvassing a Family Schedule. Besides, to get more information about the crops cultivated by the farmers in the sample villages and their farm enterprise, we decided to canvass an Agricultural Enterprise Schedule for a sample of 15 cultivators from each of the 16 sample villages.

The villages in the command area were arranged in a descending order of their geographical area and were divided

into three equal groups, each accounting for about one-third of the total geographical area of the villages included in the command area. From each group, we selected 10 per cent villages by random selection method. We obtained a sample of 16 villages.

After canvassing the Family Schedules, we listed all the families cultivating land and arranged them in a descending order of their cultivated land. The list was divided into 15 equal groups and from each group a cultivator's family was selected at random to give a sample of 15 cultivators per village, that is, a total sample of 240 cultivators from 16 villages.

Besides we obtained information from the village records, records of institutions in the selected villages and various other sources about the selected villages.

The reference year for the survey was 1977-78. The fieldwork was started towards the end of May 1978 with the help of investigators recruited for the purpose. The tabulation of data was begun when the fieldwork was half-way through. The study was completed, as scheduled, within fifteen months from the commencement of fieldwork and the report on the Bench-mark Survey was submitted to the CADA in September 1979. The CADA sanctioned Rs. 50,000/- for the Survey, which was fully utilised. In addition, we had to draw on the resources of the Agro-Economic Research Centre to complete the study.

Bhima (Ujani) Project

The project at Ujani in Madha Taluka of Solapur district in Maharashtra State, was taken up in 1969 and is expected to be completed by 1980. Under the scheme, 75,500 ha. would be irrigated on the Left Bank Canal and 48,950 on the Right Bank Canal, that is, in all 1,24,000 ha. at an estimated cost of about Rs. 125 crores.

The climate in the area is sub-tropical. The average rainfall varies from 710 mm. and 515 mm., in different parts of the district. Mean daily temperature varies between 19.39.7° C. in May and 12.9° C. in December. The soil classification is deep soil 30 per cent, medium 24 per cent and shallow 46 per cent. Most of the project area is classified as drought-prone.

Command Area Development Authority (CADA)

The Government of Maharashtra set up in 1974 the CADA for Ujani Project to bring about, along with the construction of engineering infrastructure, simultaneous development of the command area, improvements to existing drainage and communication system and expansion of market facilities. Special emphasis has been placed in the project formulation on seeking solutions to the problems peculiar to the drought-prone areas which include a) conservation of water resources by appropriate water-allocation-planning by introduction of irrigation system, management techniques and by construction of an all-lined canal network to minimise seepage and operational losses, b) by increasing cropping intensity by a comprehensive programme of on-farm development and development of agricultural supporting services, and c) development of a credit programme tailored to the needs of the area.

On completion of the programme proposed by the CADA the cropping intensity will be about 120. Part of the area which at present is sown to rabi jowar, the major crop, and other foodgrains will be released to grow sugarcane, groundnut and cotton which at present occupy only a small proportion of the gross cropped area.

The Sample Villages

The sample of 16 villages included six villages from

Pandharpur taluka, three villages from Mohol taluka, two villages each from Madha, Mangalwedha and North Solapur talukas and one village from Malshiras taluka. Most of the villages are well connected by road to nearby towns and not far off from the rail-route. The geographical area of these villages varied between 429 ha. at Shingoli and 13,207 at Mendhapur. The 1971 Population in the 16 villages came to 23,657 persons in 4,033 households. As against this, while canvassing the Family Schedule, we covered 21,437 persons in 3,705 families. Agriculture and labour were the main occupations reported. The trading, transport, manufacturing, service occupations and salaried jobs accounted for only 8.0 per cent of the earners.

As per the village records, 90 per cent of the total geographical area out of about 43,620 ha. of the sample villages was classified as cultivable. The net area under crops formed only about 43 per cent of the cultivable land. The area double-cropped was about 2.8 per cent of the net sown area.

Jowar was the a main crop, mainly taken in the rabi season. The area under rabi jowar varied between 47 per cent in Mangalwedha taluka and 71 per cent in Pandharpur taluka. Wheat and other foodgrains formed a very small proportion of the total cropped area. Area under pulses varied between 13 per cent in Pandharpur and Malshiras taluka and a little over 20 per cent in Madha and Mohol talukas. The area under oilseeds, safflower occupying greater area than groundnut, ranged between 4 per cent in Malshiras and Pandharpur talukas and 12 per cent in Madha taluka. Sugarcane occupied about 10 per cent of the cropped area in Malshiras taluka but in other talukas it formed less than two per cent of the total cropped area.

All the villages except three received supply of electricity. At the time of the survey only one village Chandaaj, received water from the Ujani Project for irrigation and two villages, Shegaon and Khed Bhalwanifrom the Mira Canal. One more village, Belati, received water from Hipparaga. A Lift Irrigation Scheme was in operation by the Minor Irrigation Department of the State Government in one of the sample villages. Except the diesel and electrical pump sets, the rest of the tools and implements in use in agriculture were traditional.

All the villages had a fairly good institutional structure. There was at least a primary school upto the 4th Standard in every village. In the bigger villages there were two or three primary schools as also a high school. There was a Gram Panchayat in every village and a Primary Co-operative Credit Society in most of the villages. Besides, Co-operative Farming Societies were working in two of the sample villages. There was a Post Office in only about one-third of the villages. There was a Family Planning Centre in one village but major medical and veterinary services, facilities for higher education, supply of chemical fertilizers and pesticides and weekly markets were found in the nearby bigger villages or towns.

In Solapur District, at the time of the Bench-Mark Survey, six sugar factories were operating. Besides, two more factories at Gursale (Vithal Sahakari Sakhar Karkhana) and at Pulaj (Bhima Sahakari Sakhar Karkhana) were under erection. Besides, there was a private sugar mill at Walchandnagar, in Pune district located not far from Akluj.

Thus the sample villages at the time of the Bench-Mark Survey, depended upon agriculture, mainly dry crops. However, a number of cultivators took irrigated crops, though on a small portion of the total cropped area. Sugarcane

was being cultivated successfully but on a very small portion of the total cropped area. The villages had the requisite institutional structure in the form of Gram Panchayats, Primary Co-operative Credit Societies and schools. As such there did not appear any inherent difficulties in introducing canal water for irrigation purposes under the Ujani Project in its command area.

Population at the Sample Villages

We covered 21,437 persons in 3,705 families in the 16 sample villages. The castewise distribution revealed that half of the total families belonged to the Maratha caste. Malis, Dhangars, Artisan Castes and Service Occupation Castes accounted for about 24 per cent of the population. About one-fifth of the families belonged to the Scheduled Castes and Scheduled Tribes. The Muslim families formed only 2.32 per cent of the total families in the sample villages.

The main occupation of the family (that is, of the head of the family) was reported as follows :

Agriculture	69 per cent
Labour	18 per cent
Trading and Manufacture	2 per cent
Salaried jobs	4 per cent
Service Occupation	2 per cent
Not working due to old age	5 per cent

	100 per cent

As regards the castes and main occupation, it was found that agriculture and labour was reported by many families irrespective of their caste. Except some families of Village Artisans and Service Occupation Castes, most of the families therefrom did not consider their caste/

hereditary occupation as the main occupation of the family. Only a few families reported carpentry or such other occupation, which was not their caste/hereditary occupation, as the main occupation of the family.

The sex ratio, that is the number of families per 1000 males came to 831 females per 1000 males. The adult population, that is, above 14 years of age, formed 61 per cent of the total population. The average family size came to 5.785 persons per family. The composition of families showed that normally a family consisted of direct blood relations of the head of the family.

The position as regards education was as follows :

	%
Too young to go to school	11
Illiterate	57
Educands	14
Non-educands	18

	100

A small per cent of the educands and non-educands had attained the S.S.C. level. The rest had education upto the primary or middle school level.

The earner:non-earner ratio was 55:45. In the 3,705 families there were 11,727 earners, on an average 3.2 earners per family. The non-adult male and female earners formed about 39 per cent and the male and female adults accounted for 33 per cent and 28 per cent respectively of the total earners.

In the case of non-earners, there appeared no special reason for not earning, it being reported as old age, too young, educand or household work. Only 5 per cent of the non-earners reported that they were unemployed.

About 40 per cent of the male adults and 38 per cent

of the female adults reported a subsidiary occupation. Among the male and female non-adult earners the proportion of those reporting a subsidiary occupation was 24 per cent and 38 per cent respectively. Only 45 earners, most of them being male adult earners, reported second subsidiary occupation.

In the following we present in a summary form the data on the main and subsidiary occupations of earners. We have pooled together the number of earners reporting each occupation, whether main or subsidiary.

Occupation	Male Adults	Female Adults	Male & Female Non- Adults
Agriculture	50.3	52.2	43.5
Labour	37.5	41.5	33.2
Livestock	2.2	1.3	19.2
Manufacturing	2.4	0.8	0.6
Trade and Transport	1.2	0.2	0.2
Salaried jobs	4.2	0.3	-
Service Occupations	1.24	0.2	0.6
Dependent on unearned income	1.0	3.2	2.7
	100.0	100.0	100.0

The extent of dependence upon agriculture and labour is obvious from the employment data. About 88 per cent of those male adult earners who reported cultivation of land as the main occupation reported labour as the subsidiary occupation. Thus, not only small and marginal farmers, but a majority of the medium cultivators also worked as labourers to supplement their income from agriculture. At the same time, about 10 per cent of the male adult earners who pursued manufacturing or trading or a service occupation or had a salaried job also cultivated land mainly because they did

notk have adequate income from non-agricultural occupation or in some cases for the fear of losing their right in land xxx due to Tenancy Legislation in case they leasedit it out to others d for cultivation.

Among those male adult earners who reported labour as the main occupation, half of them cultivated land, about one-fourth persued a manufacturing occupation, about 15 per cent were in a service occupation and the remaining reported trade and transport as the subsidiary occupation.

Thus more than 90 per cent of the workers depended upon agriculture and labour at the time of the Bench-Mark Survey. The pattern of employment in the sample villages in non-agricultural occupations hardly showed potential of generating any sizeable employment in future. The only ray of hope appeared to be the possibility, due to the Ujani Project, of larger area being put to sugarcane consequently leading to the establishment of sugar co-operatives and employment therein as also in greater trading activity arising out of it.

Land, Livestock and Agriculture

Considering the total population of the sample villages and the cultivated area reported by them, the land-man ratio came to 0.61:1 which is about the same as for Solapur district.

Of the total families in the sample villages, about three-fourths of them owned land, on an average 4.64 ha. per land-owning family. There appeared, however, considerable ine inequality in land owning. About 30 per cent of land-owning families with holding upto 2 ha. owned only 8 per cent of the total land. At the other extreme 4.3 per cent large land-owners owned 16.7 per cent of the total land, each owning more than 14 ha. Considering the

provisions of the Maharashtra Land Ceiling Act (1974), there appeared to be a very small proportion of the total land which could be declared as surplus above the ceiling prescribed under the Act. Consequently a very small proportion of the small and marginal farmers would benefit if such excess land was to be distributed among them.

The practice of leasing in or leasing out was confined to less than two per cent of the land-owning families.

The cultivators classified on the basis of the size of their holding as small, medium and large appeared as follows :

1) Small cultivators with holding upto 2 ha.	32
2) Medium cultivators with holding between 2.61 ha. to 6 ha.	42
3) Large cultivators with holding above 6 ha.	26

	100

The land utilisation as reported in the Family Schedule showed that of the total land, 7.4 per cent was permanent fallow, 2.4 per cent was current fallow, 11.4 per cent was irrigated land and 78.8 per cent was unirrigated land.

1029 wells in use were reported. Of these, a little over one-third had water round the year. The average area irrigated per well came to about 1.19 ha. Of the 301 wells not in use, 215 were considered repairable with a potential of irrigating 250 ha. of land in case these were repaired.

The cropping pattern for the year 1977-78 as reported in the Family Schedule is summed up as follows :

	<u>Dry Crop</u> %	<u>Irrigated Crop</u> %	<u>Total</u> %
Jowar	76.5	56.2	73.6
Jowar mixed with Safflower/gram	15.6	-	13.3
Wheat	0.2	11.0	1.7
Maize	0.1	7.6	1.1
Groundnut	0.3	4.3	0.8
Cotton	0.0	3.3	0.5
Sugarcane	-	7.4	1.1
Onion, Chilli and Vegetables	-	3.8	0.5
Other crops	3.5	5.3	4.0
Crops that failed	3.8	1.1	3.4
	----- 100.0 -----	----- 100.0 -----	----- 100.0 -----
	- 10,417.4 ha.	-1,699.4 ha.	-12,116.8 ha.

The area under other crops was sown to paddy, bajra, hulga, matki, safflower, etc.

The value of produce per ha. of dry crops was the maximum in respect of the small farmers being Rs. 251 per ha. It declined to Rs. 220 per ha. and Rs. 200 respectively in the case of the medium and the large cultivators. It was the other way in the case of irrigated crops where the value of produce per ha. was the maximum, namely, Rs. 1,477 per ha. in the case and large cultivators mainly because they had about ten per cent of the total irrigated area under sugarcane as well as wheat, and another 10 per cent under cotton and groundnut put together. The value of produce per ha. declined to Rs. 1,447 and Rs. 1,035 in the case of the medium and the small cultivators respectively.

The expenditure on improved varieties of seeds, chemical fertilisers and pesticides was reported by a

very small proportion of the total cultivators.

The data regarding ownership of agricultural tools and implements showed that hardly one-fourth of the cultivators owned such essential equipment as ploughs, harrows and seed-drills. The diesel pumps and electric pumps for irrigation purposes were reported by 11.2 per cent and 14.2 per cent respectively of the total cultivators.

Only 38 per cent of the cultivators owned bullocks, on an average a pair of bullocks per reporting cultivator. Considering the bullocks and he-buffaloes owned by the cultivators, the gross cropped area of all the cultivating families per pair of drought cattle came to 10.5 ha.

Considering the total number reported, the average number per family of cows, she-buffaloes, sheep, goat and poultry for the 3,705 in the sample villages came to 0.6, 0.3, 0.7, 1.8 and 1.6 respectively.

To sum up the data collected in the Family Schedule 11 per cent of the gross cropped area was irrigated of which about 25 per cent was sown to sugarcane, groundnut, cotton and other non-food crops. The gross cropped area per cultivating family came to 3.25 ha. of which 87 per cent was sown to jowar. Though small cultivators reported greater yield per ha. of jowar as compared to the medium and small cultivators, their income from agriculture was small because of their small holding of land.

Most of the cultivators did not own the essential agricultural tools and implements. Many of them did not own plough cattle. The cropping pattern revealed familiarity of the cultivators with the cultivation of various irrigated crops. This indicates that when water for irrigation becomes available from the Ujani Project, the cultivators will not find it difficult to grow irrigated crops provided

credit, input supplies and agricultural extension services are extended particularly to the small and medium cultivators.

Agricultural Enterprise : Sample Survey of
240 Cultivators

After filling in the Family Schedule in respect of all the families in the sample villages we separated and listed the cultivating families in these villages in a descending order of the size of their cultivated holding. The list was then divided into 15 equal groups and from each group a cultivator's family was selected at random which gave us a sample of 15 cultivators for each village, that is a total sample of 240 cultivators from 16 sample villages.

The area under irrigated crops formed 14 per cent of the gross cropped area as reported in the Family Schedule. In the sample survey it formed only 9.5 per cent. However, the cropping pattern obtaining on the farms of the sample cultivators resembled the cropping pattern obtaining in the Family Schedule, in respect of the major crop jowar and sugarcane and maize.

For each important dry as well as irrigated crop as also for some of the minor crops we considered the inputs of male and female days per ha. of area operated for various agricultural operations and total average labour days per ha. We also considered the yield and value of produce and expenditure on seed, farmyard manure, chemical fertilizers and pesticides used, if any, wages paid in cash and in kind, expenditure on diesel, electricity etc. for irrigation, baluta and other expenses. After deducting the per hectare expenditure from the value of produce per hectare we found out the balance, that is, returns to family labour, land and other capital investment. We call this as

other profitability of crops. We have ranked the dry and irrigated crops according to their profitability. Groundnut, Gram and Jowar occupied the first, second and third ranks respectively among the dry crops and sugarcane, cotton and groundnut respectively among the irrigated crops. However, profitability is not the only criteria for accepting them. Expenditure per hectare, labour inputs, soil conditions, food and fodder requirements and of the cultivators and several other factors determine the crops to be taken. The data presented in the report is expected to be of use in choosing appropriate crops for adoption on farms in the Ujani Project area.

We had also noted the expenditure which could not be allocated cropwise. Hence for the farm as a whole we considered cropwise as also other expenditure. We classified the sample cultivators into three groups, namely, i) those who took irrigated crops only, ii) those who took dry crops only, and iii) those who took dry crops only as also irrigated crops.

In the conditions as they existed at the time of the Bench Mark Survey as also the Sample Survey of Agricultural Enterprise, we found that the average balance per hectare after deducting cropwise and other expenditure from the value of produce came to Rs. 225 in respect of the cultivators who took dry crops and a little more than Rs. 400 per hectare in respect of those who took irrigated crops exclusively or jointly with dry crops. Though the average receipts per hectare in the case of the latter exceeded the former by about 80 per cent, they had to incur twice or more expenditure per hectare as compared to the expenditure per hectare incurred by the cultivators who took dry crops only. The cultivators who took irrigated

crops on the whole did not appear to be very much better of than those who took dry crops, because a major part of the area was sown to jowar which ranked fourth profitabilitywise. There is a possibility of increasing productivity per hectare even in respect of dry crops. However, the basic constraint appeared to be the size of holding which was small in a majority of the cases consequently leading to low share of income from agriculture in the total family income.

Non-Agricultural Occupations

326 out of 3,705 families from the sample villages reported non-agricultural occupations as follows :

	No. of <u>families</u>	Annual <u>turnover</u> Rs.	Assets <u>Rs.</u>
Manufacturing	165	1,68,310	78,810
Trading	68	1,25,330	79,400
Transport	12	16,780	10,450
Service Occupations	81	59,930	32,000
Total :	326	3,70,350	2,00,660

The data collected during the survey of non-agricultural occupations was inadequate and was unsatisfactory. However, it brings out the minor role played by the non-agricultural occupations in the region surveyed.

Income, Indebtedness and Assets

The average per family income came to Rs. 2,718 and the per capita income Rs. 470 per year. 65 per cent of the total families had a total family income upto Rs. 2,500, that is below the average during 1977-78. The proportion of such families among the non-cultivating families was about 80 per cent as against 61.3 per cent among the cultivating families. Castewise data showed that most of

of the families belonging to the Scheduled Castes and Scheduled Tribes had income below the average for the total families. This was partly due to the high population proportion of the landless or small and marginal cultivators among them.

The composition of the total family income of all the families in the sample villages from various sources was as follows :

	<u>Cultivators</u>	<u>Non-cultivators</u>
Agriculture including rent	39.7	0.8
Labour	24.3	60.4
Livestock and Livestock Products	17.3	6.8
Non-Agricultural Occupations	4.0	9.4
Salaried Job	11.4	19.9
Remittances	1.6	1.8
Other Sources	1.7	0.9
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	100.0	100.0
Average Per Family Income	Rs. 2,949	Rs. 1,986

The inequalities in income in the case of the cultivating families are associated with the inequalities in land-holding. The proportion of income from agriculture and labour in the total income reemphasizes their dominant role in the conditions as they existed at the time of the survey. The salaried jobs contributed for a sizeable share in the remaining income. However, the income from trade, transport, manufacturing and service occupations brought a very small share of the total income. Dependence on remittances from the outmigrant members was small.

The data regarding the ownership of certain household goods indicated that nearly two-thirds of the families

did not own such items as kerosene lamps, stoves or alarm clocks (though kerosene lamps was the largest reported item). The bicycles were owned by about one-fourth of the total families.

As regards the outstanding dues payable at the time of the survey about 40 per cent of the cultivators and 10 per cent of the non-cultivators reported outstanding dues. In respect of the cultivators, the loans due to the Banks and Co-operative Credit Societies formed 87.7 per cent. In the case of the non-cultivators, it accounted for 61.4 per cent because some of them owned land against which they could borrow. Otherwise, the friends and relatives was the only source for the non-cultivating families. The average outstanding dues per reporting family came to Rs. 1,863 and Rs. 697 in the case of the cultivating and non-cultivating families respectively. The dues receivable from others appeared to be under-reported.

The data regarding the ownership of assets revealed that land accounted for 93 per cent of the total assets in respect of the cultivating families and 49 per cent in the case of the non-cultivating families because some of them owned land which they had leased-out. The size of cultivated holding determined the value of assets in respect of the cultivating families. The inequalities in wealth were naturally associated with inequalities in the size of holding and consequently income therefrom.

The expenditure on land improvements during 1977-78 was reported by only 10 per cent of the cultivators, on an average Rs. 1,856/- per reporting family. Besides, many of the cultivators had got some land levelling and other work done preparatory to introducing irrigation but

they could not report the expenditure thereon as it was done by the State Government. The area benefitting from land improvement could not be stated by many of the cultivators, we may therefore conclude by observing that the cultivators appeared to be willing to divert a part of their income on land improvements but most of them could not do so because primarily their total family income was small and not enough to meet the requirements even of their family expenditure.

Socio-Economic Conditions at the time of the Bench-Mark Survey

We have given in the report, based on the data contained in the Family Schedule as also the Agricultural Enterprise Schedule, a comprehensive account of the demographic, social and economic conditions prevailing at the time of the Bench-Mark Survey in the sample villages. We have discussed at length the agricultural enterprise in the sample villages. Though agriculture is the main occupation of nearly three-fourths of the families, income therefrom is not adequate in respect of nearly two-thirds of the cultivators who had holdings below 6 ha. Hence we find considerable dependence upon income from labour. The employment in non-agricultural occupations and income therefrom was very low and did not show prospects of generating sizeable additional employment in future.

A majority of the cultivators in the region are familiar with the cultivation of irrigated crops, including sugarcane, though at present the area irrigated forms a small proportion of the gross cropped area. There is also a strong institutional framework. It should, therefore, be possible to utilise water for irrigation from the Ujani Canal without much delay and difficulty. As anticipated

by the CADA it is, however, essential to extend credit, input supplies and agricultural extension facilities particularly to the small and medium cultivators.

The plight of the small and medium cultivators is difficult to anticipate. On the whole the cultivators drew from agriculture at the time of the survey only about 40 per cent of their total family income. In the case of the small and medium cultivators, income from agriculture formed a lower proportion still. The main reason is the dependence on dry crops and that too jowar, which is profitabilitywise third in rank, to meet the food and fodder requirements of the cultivators. We have noted that from the income per ha. on cultivation of dry crops in respect of the small cultivators was larger than the medium and small cultivators which shows that they cultivated their land more intensively. However, because their land-holding is small, they can not get adequate income from agriculture. The data regarding the irrigated crops shows that the income per ha. of small cultivators was lower than that of the large cultivators, primarily because the small cultivators had very little area under sugarcane. We may also recall that it is not possible to increase the size of holding of the small cultivators as not much land is likely to be available as surplus from the large cultivators under the Ceiling Act. In the circumstances the only alternative to raise the income of the small cultivators is to enable them to grow sugarcane, cotton and groundnut as irrigated crops. It is essential for the Government to take a policy decision regarding the quantum of water to be made available for sugarcane, the most paying crop, vis-a-vis cotton, groundnut and jowar. If the irrigation from the Ujani land helps to have large area under sugarcane,

it will be possible to establish a co-operative sugar factory in the region, which in turn will generate employment in the factory and outside as also in the cultivation of sugarcane itself. All this will help both the cultivating and non-cultivating families to raise their income. However, sugarcane requires many more waterings than the other irrigated crops. The Government has to decide whether to give water to irrigate one hectare of sugarcane or much larger area under cotton, groundnut and jowar.

The main objective of the present study, we may recall, was "to collect data which will facilitate measurement, at a future date, of socio-economic change arising out of irrigation facilities in the project area". We hope the comprehensive information, data and analysis contained in this report, with whatever limitations thereof, will help to measure change at a future date.