Executive Summary

Agricultural Input Subsidies in Maharashtra: Quantum of Subsidies to SC/ST Farmers

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October 2003

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1. Introduction:

Since independence Indian agriculture grew appreciably. Production of foodgrains has increased from 50.8 million tonnes (mt) in 1950-51 to 209.80 mt in 1999-2000, an increase of nearly three percent per annum (see, GOI, 2002). Similarly, a significant growth has been seen in the production of non-foodgrains commodities as well. Input subsidies and output price support programmes followed by the government are the two important reasons for the significant growth in production of agricultural commodities. Both input subsidies and output price support programmes have been used as complementary instruments for promoting productivity and holding the price line.

Since the modern inputs (HYVs seed, fertilisers, pesticides, etc) are costly, there was a need to supply these inputs to farmers at a lower price in order to increase the production and productivity of foodgrains. As one of the main objectives of the policymakers during 1960s was to increase the production of foodgrains to achieve self-sufficiency, providing inputs subsidies to agriculture was justified by the policymakers and economists.

Subsidies on inputs started flowing into agriculture during the mid-seventies. Subsidies are mainly provided for inputs like fertilisers, canal irrigation, electricity (supplied for irrigation pumpsets) and credit. Though the quantum of subsidies supplied to agriculture has been increasing since late 1970s, the rate of increase of total subsidies has been found to be very high since late 1980s. For instance, the total subsidy on three major inputs (fertiliser, electricity, canal irrigation) was only about Rs.8316 crore in 1988-89, but it increased to Rs.25094 crore in 1995-96, an increase of about 3 times within a span of seven years.

There are no two opinions about the positive impact of inputs subsidies on the production and productivity of crops. However, there has been an argument in recent years that both central and state governments are no longer in a position to provide this huge amount of subsidy to agriculture specifically because of the following two reasons. First, the inputs subsidies provided to agriculture increase the financial burden of the government which in turn affects the overall growth of the economy. Second, some argue that since subsidy discourages efficient use of costly inputs like water, fertilser and electricity, there is no case for continuing the input subsidies to agriculture. It is true that the input subsidies

increase the financial burden of the government, but it is difficult to conclude that the input subsidies reduce the efficiency of scarce inputs, as there are no reliable information to prove this point. Moreover, when subsidy was introduced in agriculture, nobody pointed out that this would ultimately lead to inefficiency in input use.

A number of studies have been carried out focusing on wide range of issues relating to subsidy. While some studies have attempted to estimate the quantum of subsidies which have gone into agricultural sector, other have tried to find out who actually benefited from subsidies. Role of input subsidies on productivity of crops, income and employment level has also been evaluated by some studies. Despite of wide range of studies on subsidies, not many studies seem to have analysed the overall impact of important input subsidies on different categories of farmers. In fact, to our knowledge, there are no studies available focusing on the use of input subsidies by SC/ST and other group of farmers. The farmers belonging to the group of SC/ST are not only small and marginal farmers but also considered to be the weaker sections of the society. Due to this, it is often argued that the subsidies originally allotted for this group of farmers are unutilised or utilised by other categories (non-SC/ST) of farmers. Owing to various reasons, the government is also started reducing the input subsidies provided to agricultural sector. Besides creating negative impact on agricultural growth, the reduction of subsidy may create adverse impact on SC/ST farmers, who are mostly resource poor farmers. What is the amount of subsidy that is reaching to SC/ST farmers? What are the problems faced by SC/ST farmers in getting input subsidies? Does the reduction of subsidy affect SC/ST farmers more than non-SC/ST farmers? are the important questions which require empirical answers. Keeping this in view, an attempt is made in this study to analyse the quantum of input subsidies utilised by SC/ST farmers using both macro and micro level data collected from Maharashtra state.

2. Objectives of the Study:

The broad objectives of the study are:

1. To examine the utilisation pattern of subsidies by different categories of farmers.
2. To assess the share of SC/ST farmers in the total amount of subsidies used.
3. To analyse the overall effect of differences in the levels of input subsidy used by various categories of farmers on crop pattern, cropping intensity, adoption of improved technology, input use, crop productivity and returns.

3. Methodology:

This study has been carried out using both macro and micro-level data. While macro-level data have been used to study the distribution of input subsidies on different schemes/programmes across different districts of Maharashtra, micro-level data collected from the sample farmers have been used to study the level of

use of subsidies by SC/ST and non-SC/ST farmers. For collecting primary data, four districts from different agro-climatic zones (ACZs) have been selected based on the percentage of SC/ST farmers as well as area under irrigation and area under rainfed cultivation. As per the classification of Agro-Climatic Regional Planning Unit (ARPU) of Planning Commission located at Ahmedabad, the state has been divided into six ACZs, which are known as konkan, western hills and plains, scarcity region, central plateau, central vidharbha and eastern vidharbha. Out of six ACZs, two zones namely konkan regions and scarcity region could not be considered for selecting sample districts, because of less number of SC/ST farmers (in konkan) as well as skewed distribution of SC/ST farmers (in scarcity region). From the remaining four ACZs, one district each has been selected based on the level of irrigation and rainfed cultivation as well as the distribution of SC/ST farmers. The four districts selected as per this methodology are Pune, Bhandara, Amravati and Nanded. While Pune and Bhandara have been treated as irrigated districts, Amaravati and Nanded have been treated as rainfed (dry or less-irrigated) districts.

One block from each district has been identified based on the method which is followed for selecting the districts. The selected blocks are Khed from Pune district, Tumsar from Bhandara district, Warud from Amravati district and Bhokar from Nanded district. After having selected the districts and blocks, four villages,one each from each block have been selected for detailed sample survey. The four villages selected for detailed sample survey are Shiroli (Pune district), Pathari (Bhandara district), Zatamziri (Amaravati district) and Pimpaldhor (Nanded district).

The sample farmers for this study have been selected in the following manner. First, the list of farmers including their landholding has been obtained from the respective village administrative officer (*Talati*). Second, the farmers have been classified based on size of landholdings such as marginal (< 1.00 ha), small (1.00-1.99 ha), semi-medium (2.00-3.99 ha), medium (4.00-9.99 ha) and large (> 10.00 ha). From each district, a sample of 25 farmers from general category (i.e., non-SC/ST) and another 25 farmers belonging to SC/ST group have been selected. Thus, altogether a total of 200 sample farmers (100 from general category and 100 from SC/ST group) have been selected for the detailed survey. Sample farmers from each size category have been selected based on their proportion to the total farmers at the village level. Random sampling method has been followed to select the sample farmers from both general and SC/ST categories. As one of the main objectives of the study is to find out the subsidies utilised by SC/ST farmers in comparison to non-SC/ST farmers, we have compared the input subsidies utilised by these two groups of farmers in both irrigated and less-irrigated (rainfed) districts.

4. Major Findings of the Study:

1. Using three years data (1999-2000 to 2001-02), we have studied the current status of direct subsidies provided through various schemes in Maharashtra. The total subsidies provided in Maharashtra have marginally

declined between 1999-2000 (Rs. 250.81 crore) and 2001-02 (Rs. 199.93 crore), indicating the general trend that subsidy provided to agricultural sector has been declining in the recent years. Interestingly, the share of central schemes subsidies has not declined between the two time points, whereas the state's share in the total subsidies provided to agriculture has declined from 66 percent in 1999-2000 to about 57 percent in 2001-02.

2. Among the different schemes through which direct subsidies are provided to farmers, the Employment Guarantee Scheme (EGS) accounted for around 30 percent of the total subsidies in all three years considered for the analysis. The other scheme that accounts for a major share (12-14 percent) in the total direct subsidy is the Special Component Scheme (SCP). Though ST farmers account for nearly 13 percent of cultivators in Maharashtra (in 1990-91), the schemes that provide subsidies to this group accounted for only 7-10 percent in all the three years considered for the analysis.

3. The important on-going crop production programmes are National Oilseed Production Programme, National Pulses Development Programme, Cotton Development Programme, Integrated Cereals Development Programme, Various Fruit Production Programme, etc. Of these, schemes on various fruit production account for major share in the total subsidies, varying from 9 percent to over 19 percent in different years. Since area under oilseeds is relatively higher in Maharashtra (accounts for about 11 percent of India's total area under oilseed crops in 1999-2000), the schemes that promote the production of oilseeds accounted for around 5 percent of the total direct subsidies. Surprisingly, though Maharashtra state accounts for over 37 percent of total cotton area (in 1999-2000) and also the productivity of cotton in the state is one of the lowest in India, the direct subsidies provided for the promotion of cotton production accounted for a very low percentage in the total subsidies. Another interesting feature of crop specific schemes is that the share of subsidy provided by the central sector schemes is relatively higher than the state's share in almost all the schemes.

4. During the three years considered for the analysis, per hectare total subsidy (all schemes) varied from about Rs. 85 to Rs. 114 and the per cultivator subsidy varied from Rs. 223 to Rs. 293. While the per hectare subsidy is found to be generally low among different crop specific programmes, the same is estimated to be relatively higher with EGS, National Oilseed Production Programme and Cotton Development Programme. Importantly, per hectare subsidy provided to SC and ST farmers through various schemes is found to be relatively larger.

5. The direct subsidies on pumpsets and new wells together accounted for 50-70 percent of the total subsidies provided for SC/ST farmers under various schemes in both 1998-99 and 1999-2000. Similarly, both per cultivator and per hectare subsidy are also found to be higher among the items related to irrigation development.

6. Inputs like fertilisers, canal irrigation and electricity are considered study the trends in indirect subsidies in agriculture. For the India as a whole, the subsidy on fertilisers has increased from Rs. 505 crore in 1980-81 to Rs. 6235 crore in 1995-96 and further to Rs. 7890 crore in 2000-01.[1] During the same period, the total subsidy on fertilisers in Maharashtra increased from Rs. 38.54 crore to Rs. 617.39 crore and further to Rs. 799.28 crore. Per hectare subsidy of fertilisers, which indicates the real picture of subsidy provided to farmers, also increased from Rs. 19.62 in 1980-81 to Rs. 289.49 in 1995-96 and further to Rs. 359.13 in 2000-01. Maharashtra's share of fertilisers subsidy to the country's total subsidy on fertilisers also increased from about 7.63 percent in 1980-81 to nearly 10 percent in 1995-96. This is relatively higher when compared to states like Karnataka, MP, Punjab, Tamil Nadu and West Bengal.

7. The subsidy on canal irrigation is seen to have increased from Rs. 598 crore in 1980-81 to Rs. 5253 crore in 1995-96 and further to Rs. 10163 crore in 2000-01 at all India level, while the same increased from Rs. 16.31 crore to Rs. 164.86 crore and further to Rs. 353.18 crore in Maharashtra during the same period. However, per hectare subsidy on canal irrigation is relatively lower in Maharashtra as compared to all-India average. For instance, during 1995-96, per hectare subsidy on canal irrigation at all India level was about 87 percent higher than that of Maharashtra state, i.e., Rs. 3068/ha as against Rs. 1632/ha. As result of lower subsidy given to farmers in the state, the share of the state in the total subsidy on canal irrigation was only about 3 percent during 1995-96. This is very low as compared to other major states in India.

8. Subsidy on electricity has increased significantly over the years both in Maharashtra and all-India level. While the total subsidy on electricity has increased from Rs. 39.74 crore in 1980-81 to Rs. 2250 crore in 1995-96 and further to Rs. 6801 crore in 2000-01 in Maharashtra, the same has increased from Rs. 334 crore to Rs. 13606 crore and further to Rs. 35819 crore at all India level. Though there is no wide difference in the annual compound growth rate of subsidy between Maharashtra and all-India, per hectare (well irrigated area) subsidy is found to be substantially higher in Maharashtra since 1980-81 as compared to the all-India average. Per hectare subsidy on electricity is estimated to be Rs. 12031 in Maharashtra during 1995-96, whereas the same is only about Rs. 4581 for India as a whole. Unlike the subsidy on canal irrigation, both per hectare subsidy and the state share in the total subsidy on electricity are found to be very high in Maharashtra as compared to many states and all-India average.

9. The total indirect subsidies on three major inputs have increased from Rs. 95 crore in 1980-81 to Rs. 3032 crore in 1995-96 and further to Rs. 7953 crore in 2000-01 in Maharashtra, an increase of about 21 percent per annum. The growth rate of total subsidies in Maharashtra is seen to have increased

[1] Data on subsidy provided to fertilisers, canal irrigation and electricity are not available from 1996-97 to 2000-01. The figures reported here are estimated based on the growth rate of subsidy during the period from 1990-91 to 1995-96. These figures may not tally with the actual figures and therefore, readers are advised to look at these figures cautiously.

relatively faster as compared to the national level average, where it increased at a rate of about 18 percent per annum. The same trend is noted in the growth rate of per hectare subsidy as well. However, per hectare total subsidy in Maharashtra is relatively lower as compared to the national average. For instance, per hectare total subsidy was only about Rs. 48 in Maharashtra as against the national average of about Rs. 84 during 1980-81. Similarly, during 1994-95, the per hectare subsidy in Maharashtra was about Rs. 1088, but the same was about Rs. 1100 at all-India level. Though the per hectare of subsidies is lower in Maharashtra, the state accounted for about 12 percent of the India's total subsidies on three major inputs which is the second largest among the major states in India.

10. Using the sample survey data, we have estimated the direct and indirect subsidies utilised by the sample farmers in irrigated and less-irrigated districts. Our estimates indicate that use of direct subsidies is relatively higher in irrigated districts as compared to less-irrigated districts among both SC/ST and non-SC/ST group of farmers. In irrigated districts, the average subsidy used by SC/ST farmers is estimated to be Rs. 1383/ha and the same is Rs. 48/ha for non-SC/ST farmers. But, the situation is different in less-irrigated districts where the average subsidy used by SC/ST farmers is Rs. 654/ha and the same is completely absent among non-SC/ST farmers. In both irrigated and less irrigated districts, subsidies used by the marginal and small farmers are substantially higher than the large size farmers. Altogether our survey results indicate that the direct subsidies used by the farmers belonging to irrigated districts are very high as compared to less-irrigated districts.

11. The average per hectare subsidy on fertilisers utilised by the farmers belonging to irrigated districts (Rs. 166/ha) is marginally higher than the farmers belonging to less-irrigated districts (Rs. 152/ha). But, this is not true with the farmers belonging to the group of SC/ST. The average per hectare subsidy on fertilisers utilised by SC/ST farmers belonging to less-irrigated districts is marginally higher than the subsidy utilised by the same group of farmers belonging to irrigated districts. Varying cropping pattern followed by the farmers of irrigated and less-irrigated districts has been seen as the main reason for this unexpected result.

12. A clear cut difference is observed in the use of electricity subsidy between the sample farmers belonging to irrigated and less-irrigated districts. While the average subsidy on electricity utilised comes to Rs. 424/ha for the farmers of irrigated districts, the same comes to only Rs. 136/ha for the farmers belonging to less-irrigated districts. The same kind of trend is seen in both SC/ST and non-SC/ST groups. Though we could not find any clear trend in the use of subsidy across different categories (land size) of farmers, the total indirect subsidies used by the farmers belonging to SC/ST and non-SC/ST groups are substantially higher in irrigated districts (average subsidy is Rs 590/ha) as compared to less-irrigated districts (average subsidy is only Rs. 288/ha).

13. The total subsidies (direct plus indirect) utilised by the farmers of irrigated districts (Rs.1143) is about 87 per cent higher than the subsidies utilised by the farmers of less irrigated districts, which is only about Rs. 610/ha. This is also true with SC/ST and non-SC/ST group of farmers. While the total subsidy utilised by SC/ST farmers belonging to irrigated districts is about 99 per cent higher than same group of farmers belonging to less-irrigated districts, the same difference comes to about 122 per cent for the non-SC/ST group of farmers.

14. The analysis on the share of direct and indirect subsidies in the total subsidies shows that the direct subsidies account for 73 to 78 per cent of the total subsidies utilised by SC/ST farmers in both irrigated and less-irrigated districts. On the other hand, the indirect subsidies account for 93-100 per cent of the total subsidies utilised by non-SC/ST farmers in both districts. Since most of the direct subsidies are specifically earmarked for the weaker sections (SC/ST, marginal and small farmer) of the farming community, the direct subsidies account for major share in the total subsidies utilised by SC/ST farmers.

15. The sample farmers have faced six major problems in accessing input subsidies. They are (a) lack of information about direct subsidies; (b) *Gram Sevaks*/Village Development Officers (VDOs) seldom inform the availability of subsidies to the weaker sections; (c) a very limited availability of direct subsidies; (d) pesticides and fertilisers are not available in time; (e) farmers required to visit number of times to get subsidy from the concerned authority and (f) less accessibility to institutional credit. All these problems were mainly reported by the marginal and small farmers belonging to SC/ST and non-SC/ST group.

16. The problems associated with food subsidies are totally different from what is observed in input subsidies. The sample farmers have reported three major problems in accessing food subsidies. They are (a) quality of wheat and rice supplied through PDS is substandard; (b) allotted quantity (quota) is not available in time and (c) kerosene is not available most of the time. These problems are commonly reported by the small and marginal farmers belonging to SC/ST and non-SC/ST groups.

17. The effects of input subsidies on crop pattern, fertiliser consumption, power consumption, total input use, cost of cultivation as well as returns have also been studied using the data collected from the sample farmers. To study this, the sample farmers have been grouped into three categories based on per hectare use of subsidies. Farmers using input subsidies upto Rs. 500/ha are classified as Less Subsidy Users (LSU), those farmers using input subsidies Rs. 500-750/ha are classified as Medium Subsidy Users (MSU) and the farmers who have used input subsidies above Rs. 750/ha are classified as High Subsidy Users (HSU).The farmers utilising less subsidy (i.e., LSU) are substantially higher in less-irrigated districts as compared to irrigated districts. Over 49 per cent farmers belonging to irrigated districts are coming under the category of LSU, but the same is about 83 per cent in less-irrigated districts. Though the same trend exists among SC/ST farmers in both irrigated and less-irrigated districts, it is not the same among non-SC/ST farmers. While majority (56 per cent) of non-SC/ST

farmers belonging to irrigated districts are coming under group of HSU, only about 8 per cent of the non-SC/ST farmers belonging to less-irrigated districts are coming under the group of HSU.

18. The analysis on cropping pattern by level of use of subsidy shows a substantial variation in the cropping pattern of LSU and HSU in both irrigated and less-irrigated districts. In irrigated districts, foodgrain crops such as paddy and bajra have accounted for over 62 per cent of GCA among SC/ST group of farmers and over 58 per cent among non-SC/ST group of farmers. This pattern is not true with HSU where high value crops like vegetables and sugarcane have accounted for over 32 per cent of GCA among SC/ST farmers and about 41 per cent of GCA among non-SC/ST farmers. Clearly cultivation of high value crops is more among the high users' of subsidy (HSU) irrespective of the community they belong to.

19. Similar to irrigated districts we could observe variation in the cropping pattern of low (LSU) and high (HSU) subsidy users belonging to less-irrigated districts as well. Among both SC/ST and non-SC/ST farmers, crops like jowar, tur and cotton have together accounted for over 82 per cent of GCA of the low subsidy users (LSU). However, these same crops have accounted for only about 66 per cent and 52 per cent of GCA respectively among SC/ST and non-SC/ST farmers who have used higher amount of subsidy (HSU). Orange crop accounts for over 17 and 43 per cent of GCA respectively among SC/ST and non-SC/ST farmers who have used higher amount of subsidy. This clearly suggests that farmers using higher amount of subsidy cultivate mostly high value of commercial crops.

20. The use of fertiliser (in Rs. terms) is substantially higher among the farmers who come under the category of HSU in both irrigated and less-irrigated districts. As regards the proportion of fertilisers going in to various crops in Irrigated districts, our estimates indicate a substantial difference between LSU and HSU in both SC/ST and non-SC/ST group of farmers. In irrigated districts, nearly 42 per cent of fertiliser used by SC/ST farmers belonging to LSU has gone into paddy crop alone, whereas only 16 per cent fertiliser used by the same group of farmers belonging to HSU has gone into paddy crop. Commercial crops like sugarcane and vegetables have consumed only about 37 per cent of fertiliser utilised by SC/ST farmers belonging to LSU group, whereas the same crops accounted for over 51 per cent of fertilisers utilised by HSU. The same trend is seen among non-SC/ST group of farmers as well.

21. The trend in proportion of fertiliser going into various crops by level of use of subsidy is very clear in less-irrigated districts. Among the low subsidy users, jowar and cotton together consumed 66 to 69 per cent of fertiliser in both SC/ST and non-SC/ST groups. But, in the case of HSU, orange crop alone consumed nearly 30 per cent of fertiliser utilised by SC/ST group and nearly 70 per cent of fertiliser utilised by non-SC/ST group.

22. Though the proportion of electricity consumed by water-intensive crops is generally larger in both irrigated and less-irrigated districts, we could notice a

substantial difference in the consumption of electricity by low (LSU) and high (HSU) users of subsidy. In irrigated districts, paddy and sugarcane consumed about 67 per cent of electricity used by LSU of SC/ST group, but sugarcane alone consumed nearly 60 per cent of electricity used by the same community belonging to HSU group. Similarly, vegetable crops alone consumed nearly 52 per cent of electricity used by non-SC/ST farmers belonging to HSU, whereas the same crop consumed only about 23 per cent of electricity utilised by the low subsidy users of the same community.

23. Electricity is mainly used for two crops namely orange and cotton in less- irrigated districts. These two crops consumed 79-89 per cent of total electricity used by SC/ST and non-SC/ST farmers who are coming under the category of LSU. However, this trend is not the same with high subsidy users (HSU), where orange alone consumed over 87 per cent of electricity used by both SC/ST and non-SC/ST group of farmers.

24. The analysis on total input used per hectare (in rupees) and the proportion of total input used going into major crops by level of subsidy shows that the total input cost incurred by the high subsidy users (HSU) is very high as compared to low subsidy users (LSU) in both irrigated and less-irrigated districts. In irrigated districts, LSU have incurred Rs. 4213/ha, whereas HSU have incurred Rs. 9982/ha, a difference of Rs. 5769/ha. Similarly, in less-irrigated districts paid out costs incurred by LSU and HSU is respectively as Rs. 3950/ha and Rs. 6011/ha, a difference of about Rs. 2061/ha between the two groups. Clearly the difference in total cost incurred by LSU and HSU is less in less-irrigated districts as compared to irrigated districts mainly because of difference in quantity of input used.

25. Our estimates on the proportion of total input cost that goes into different crops indicate a significant difference in this between HSU and LSU. Paddy and groundnut accounted for over 52 per cent of total input used by LSU in irrigated districts, whereas sugarcane and vegetable crops together covered over 58 per cent of the total input cost incurred by HSU in irrigated districts. Similar to irrigated districts, we have also observed a significant difference in the proportion of total input cost going into different crops between LSU and HSU in less-irrigated districts. Crops like jowar and cotton together accounted for nearly 67 per cent of the total input cost incurred by LSU group, whereas orange alone accounted for nearly 50 per cent of the total cost incurred by HSU group in less-irrigated districts. On the whole, HSU incurred major portion of their total input cost for high value crops as compared to the group of LSU.

26. The analysis on costs (paid out costs), gross returns and net returns by level of subsidy shows that the net returns realised by the group of HSU is significantly higher than that of LSU both in irrigated and less-irrigated districts. On an average, the net returns realised by HSU (Rs 14495/ha) is about Rs. 4017/ha higher than the net returns realised by LSU (Rs. 10478/ha) in irrigated districts. Similarly, in less irrigated districts the difference in net returns between HSU (Rs. 10119/ha) and LSU (Rs. 7828/ha) is about Rs. 2291/ha. Almost a

similar trend is observed in SC/ST and non-SC/ST group of farmers. The estimates of cropwise net returns by level of subsidy also indicate the same trend that is noticed at the aggregate level in most of the crops considered for the analysis. Since farmers belonging to the subsidy category of HSU have used higher amount of yield increasing inputs and also have cultivated high value commercial crops by allocating more cropped area, the net returns per hectare realised by HSU is substantially higher than the same realised by LSU group.

5 Policy Recommendations:

1. Though various subsidy schemes have been introduced time to time to help the weaker sections of the farming community, farmers belonging to this group are not aware of this because of poor extension services. The concerned officials (*Gram Sevaks*/VDOs) seldom inform the availability of various subsidy schemes to the weaker sections of the farming community. Therefore, arrangements should be made to disseminate the information about the availability of subsidy including the percentage of subsidy provided various categories of farmers. **(Attention to: Commissionerate of Agriculture, Government of Maharashtra, Pune).**

2. The indirect subsidies utilised by SC/ST farmers account for only one-fourth of the total subsidies mainly because of less use of yield increasing inputs. Resource constraints have been identified as the main reason for this. In order to increase the use of indirect subsidies, institutional credit facilities (crop loan, etc) should be provided in time to utilise the available subsidies. **(Attention to: Commissionerate of Agriculture, Government of Maharashtra, Pune).**

3. Owing to non-availability of inputs in time, farmers belonging to the group of marginal, small and SC/ST are not able to fully utilise the available subsidy. Therefore, proper arrangements need to be made to supply various inputs in time. **(Attention to: Commissionerate of Agriculture, Government of Maharashtra, Pune).**

4. The total subsidies utilised by the farmers having higher irrigation facilities, irrespective of the community, are very high as compared to the farmers having only rainfed cultivated areas. Therefore, steps need to be taken to increase the irrigation facility in order to bring equity in the use of subsidy across irrigated and un-irrigated regions in the state. More subsidy schemes focusing specifically on rainfed regions (example, watershed development programme, etc) need to be introduced. **(Attention to: Department of Irrigation and Directorate of Soil and Water Conservation, Government of Maharashtra Pune).**

5. Crops such as pulses, oilseeds and cotton suffer with low productivity mainly because of low use of inputs in Maharashtra. Despite this, these crops have not received adequate attention through crop production programme. Therefore, direct subsidy schemes with higher allotment of money focusing on

these crops need to be introduced. **(Attention to: Commissionerate of Agriculture, Government of Maharashtra, Pune).**

6. Our study reveals that the low subsidy (less than Rs. 500/ha) users (LSU) are mainly cultivating foodgrain crops to satisfy their own requirements. Our study also indicates that most of the farmers belonging to the group of LSU are small and marginal in irrigated as well as less-irrigated districts. Therefore, any reduction in subsidy will have adverse impact on the food security of the weaker sections of the farming community. **(Attention to: Ministry of Agriculture, Government of India, New Delhi and Commissionerate of Agriculture, Government of Maharashtra, Pune).**

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October 2003

Foreword

Input subsidies for agriculture have been continuously provided since the late seventies in India with the aim of increasing the production and productivity of crops. Quite a few studies, which have analysed the impact of input subsidies, have shown the positive impact of input subsidies on agricultural growth mainly using macro-level data. However, studies have not attempted to estimate the amount of subsidies utilised by SC/ST farmers in comparison with non-SC/ST farmers, using either macro level or sample survey data. Keeping this in view, in this study, an attempt has been made to estimate the share of SC/ST farmers in the total amount of subsidies on fertilisers, canal irrigation and electricity (but not on credit) and also to analyse the overall effect of the differentials in the levels of total amount of input subsidy used by various categories of farmers on crop pattern, input use and returns. This study has been carried out using the data of 200 sample farmers collected from four districts (two each from irrigated and less-irrigated) in Maharashtra, covering four different agro-climatic regions.

This study has been carried out by Dr. A. Narayanamoorthy and Dr. S. S. Kalamkar at the Agro-Economic Research Centre of our Institute as suggested by the Ministry of Agriculture, Government of India, New Delhi.

The study shows that the total subsidies (direct plus indirect) utilised by the farmers belonging to irrigated districts is nearly 90 percent higher than that of the less irrigated districts among both SC/ST and non-SC/ST group of farmers. As regards the share of direct and indirect subsidy, it is estimated that the direct subsidies account for 78 percent of the subsidies utilised by SC/ST farmers in both irrigated and less irrigated districts. But, in the case of non-SC/ST farmers, the indirect subsidies account for over 93 percent of the total subsidies utilised. Farmers utilising higher amount of subsidies in both SC/ST and non-SC/ST have realised higher returns per hectare, as they have cultivated more area under high value commercial crops. Because of less use of yield-increasing inputs by SC/ST farmers, the direct subsidies account for only about 22 percent of subsidies utilised by this group. Therefore, the study suggests that in order to increase the utilisation of indirect subsidies among SC/ST farmers, arrangements should be made to supply institutional credit (crop loan, etc) at the time when inputs are available in the market in order to encourage the utilisation of the various yield-increasing inputs.

It is hoped that the findings of this study would be useful to the policy makers for formulating policies pertaining to agricultural subsides, especially for the weaker sections of the farming community.

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December 1, 2003

Preface

Keeping in view the importance of agriculture in Indian economy, the central and state governments have been providing subsidies to farmers since mid-seventies. As a result of providing subsidies, production and productivity of various agricultural commodities have increased significantly over the last three decades. Besides benefiting the farmers, the agricultural subsidies have also benefited other people who are net purchasers of foodgrains. A number of studies have been carried out focusing various issues on subsidies in Indian agriculture mainly using macro-level data. However, not many studies have attempted to estimate the amount of subsidies used by SC/ST and other group of farmers using field survey data. In this study, an attempt has been made to analyse the direct and indirect subsides utilised by SC/ST and other group of farmers, using field survey data collected from four districts (two irrigated and two less-irrigated) in Maharashtra, covering different agro-climatic regions.

This study was carried out in the Agro-Economic Research Centre of the Institute as per the advise of the Ministry of Agriculture, Government of India, New Delhi. While working on this study, we have benefited from different scholars at different stages of the study. At the outset, I would like to thank Prof. V. S. Chitre, Director of our Institute for his constant encouragement and providing all support that are required for completing the study. We have greatly benefited from discussions with Prof. R. S. Deshpande, Head, Agricultural Development and Rural Transformation Unit, Institute for Social and Economic Change, Bangalore. We express our sincere gratitude to him.

Many officials from Commissionerate of Agriculture, Government of Maharashtra, Pune, helped us especially in providing secondary information on direct subsidies granted under various schemes to agriculture in the state. We express sincere thanks to all the officials who have helped us in our research endeavour. We are also thankful to the Agricultural Officers, Block Development Officers and *Talathi* of the respective study districts/blocks/villages for providing all necessary information for conducting the study.

Shri Mukund N. Deshpande and Shri Mahendra H. Bhalerao did the work of data processing and analysis. We are grateful to them for their excellent research assistance and also working over time without any hesitation. We also thank our field staffs Shri S. S. Dete, Shri S. B. Kate, Shri V. B. Lokare, Shri V. G. Kasbe and Shri Ajit Karbe for collecting both primary and secondary level information. Finally, we express our sincere thanks to all the sample farmers for providing all necessary information without any hesitation. However, none of the individuals and institutions mentioned above are responsible for errors remaining in the study report.

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CHAPTER 1

Introduction

1.1. Introduction:

Agriculture plays a crucial role in the overall growth of economy in India. Despite significant development in sectors like industry and service over the years, nearly 70 percent of the population directly or indirectly still depend on agriculture for their livelihood. Since independence Indian agriculture grew appreciably. Production of foodgrains has increased from 50.8 million tonnes (mt) in 1950-51 to 209.80 mt in 1999-2000, an increase of nearly three percent per annum (see, GOI, 2002). Similarly, a significant growth has been seen in the production of non-foodgrain commodities as well. Input subsidies and output price support programmes followed by the government are two important reasons for the significant growth in production of agricultural commodities (Acharya, 2001). Both input subsidies and output price support programmes have been used as complementary instruments for promoting productivity and holding the price line (Acharya, 2001).

Input subsidies for agriculture were not provided immediately after independence. The thinking process of providing subsidy to agriculture started only after the introduction of green revolution in Indian agriculture. Since the modern inputs (HYVs seed, fertilisers, pesticides, etc) are costly, there was a need to supply these inputs to farmers at a lower price in order to increase the production and productivity of foodgrains. As one of the main objectives of the policymakers during 1960s was to increase the production of foodgrains to achieve self-sufficiency, providing inputs subsidies to agriculture was justified by the policymakers and economists.

Subsidies on inputs started flowing into agriculture during the mid-seventies (see, Dev, 1997). Subsidies are mainly provided for inputs like fertilisers, canal irrigation, electricity (supplied for irrigation pumpsets) and credit. While Central government has been providing subsidies for fertilisers, state governments have been providing for other inputs (Acharya, 2001).

Though the quantum of subsidies supplied to agriculture has been increasing since late 1970s, the rate of increase of total subsidies has been found to be very high since late 1980s. For instance, the total subsidy on three major inputs (fertiliser, electricity, canal irrigation) was only about Rs.8316 crores in 1988-89, but it increased to Rs.25094 crores in 1995-96, an increase of about 3 times within a span of seven years.[1] According to Acharya (2001), "....both the expansion of input use and the rise in the rate of subsidies have contributed to increase in total amount of subsidies" (p.162).

There are no two opinions about the positive impact of inputs subsidies on the production and productivity of crops. However, there has been an argument in recent years that both central and state governments are no longer in a position to provide this huge amount of subsidy to agriculture specifically because of the following two reasons. First, the inputs subsidies provided to agriculture increase the financial burden of the government which in turn affects the overall growth of the economy (Gulati, 1998). Second, some argue that since subsidy discourages efficient use of costly inputs like water, fertilser and electricity, there is no case for continuing the input subsidies to agriculture (Vaidyanathan, 1994). It is true that the input subsidies increase the financial burden of the government, but it is difficult to conclude that the input subsidies reduce the efficiency of scarce inputs, as there are no reliable information to prove this point. Moreover, when subsidy was introduced in agriculture, nobody pointed out that this would ultimately lead to inefficiency in input use. Therefore, in order to make any firm conclusion about the use of subsidies in agriculture, the issues such as who gained from input subsidies? What is share of direct and indirect subsidies utilised by the farmers? whether the use of subsidy is same in irrigated and rainfed regions, etc., need to be studied using field survey data.

1.2. The Literature:

Several studies have attempted to analyse the various issues associated with input subsidies in Indian agriculture. But, unfortunately most of the

[1] A detailed analysis of input subsidies utilised in Maharashtra is presented in Chapter 2.

studies have been carried out using macro level (secondary) information. The available studies can be grouped under three broad categories. They are, (a) studies attempting to quantify the various input subsidies across different states, (b) studies attempting to find out who is benefited from input subsidies (industry versus farmers; small versus large farmers; cultivators versus consumers and urban versus rural areas), (c) studies focussing on impact of input subsidies including reduction of subsidies on agriculture. Let us see the major findings of the selected studies which have analysed the input subsidies in Indian agriculture.

Gulati (1989) attempted to estimate the amount of subsidy for four major inputs (fertilisers, irrigation, electricity and credit) covering the period from 1980-81 to 1986-87 across different major states. The study found that total average subsidy for seven years was about Rs.9000 crores at all-India level. This subsidy approximately accounted for 17 percent of net value added in Indian agriculture. Major and medium irrigation (MMI) alone accoutned for about 70 percent of total input subsidy. While analysing the statewise position, the study found that the share of Uttar Pradesh, Andhra Pradesh and Punjab together accounted for about one-third of total subsidy while accounting only about one-fourth of gross cropped area in India. In terms of percentage of state domestic product in agriculture, the level of susbidy was found to be highest among states like Tamil Nadu (31.7 percent), Punjab (24.5 percent), Haryana (23 percent), Andhra Pradesh (21.3 percent) and Uttar Pradesh (18.2 percent). The same was found to be very low among states like Himachal Pradesh (2.00 percent), Assam (2.4 percent) and Jammu and Kashmir (5.4 percent). Per hectare subsidy was also found to be highest among the developed states.

Acharya (2001) estimated the quantum of subsidy provided to agriculture covering the period from 1980-81 to 1995-96. Unlike Gulati (1989), Acharya considered only three major inputs namely fertilisers, electricity and canal irrigation and excluded credit subsidy from the analysis. As per this study, the total subsidy of three inputs increased from Rs.1437 crores in 1980-81 to Rs.25094 crores in 1995-96. The quantum of subsidy (in current prices)

was found to be much higher in electricity in the recent times, which accounted for about 54 percent in 1995-96. While analysing the input subsidy in real terms, the study found the increase in per unit subsidies has been the maximum for canal irrigation followed by electricity and fertilisers.

Reddy and Deshpande (1992) analysed the structure and regional spread of input subsidies using both macro and micro level data. The study found an extreme concentration of input subsidies in certain states. States like Uttar Pradesh, Punjab, Andhra Pradesh, Tamil Nadu and Maharashtra have accounted for major portion of subsidies, while relatively poor states like Orissa, Assam, Himachal Pradesh, Kerala, West Bengal and Jammu and Kashmir have received a smaller portion of the subsidies. While relating the input subsidies with the agricultural output, the study found no consistent relationship across the states. However, it was pointed out that despite claiming a sizeable share of the subsidies, Maharashtra state has recorded consistently lower growth in productivity of foodgrains.

Quite a few of studies have studied the important issue of who benefited from input subsidies? The main points discussed under this issue are whether subsidies goes to farmer or industry (this applies only in the case of fertiliser), what is the share of subsidies utilised by small and large farmers? whether subsidy benefits the cultivators or consumers and what is the share of subsidy that goes to urban and rural areas?

Gulati (1990) examined the question of fertilser subsidy in relation to crop prices and attempted to find out "Is the Indian cultivator 'net subsidised' through fertiliser prices?" (p.1). The estimates of the study showed that economic subsidy on fertilisers constituted "....roughly 48 percent of what is presented in the Central Government budgets (average of 1981-82 to 1989-90). The rest of the budgeted fertiliser subsidy (52 percent) can be deemed to be going either to the fertiliser industry or its feed stock supplying agencies" (p.4). While comparing crop-fertiliser price ratio of free trade scenario with that of the controlled trade, the study concluded that the Indian farmers have been 'net taxed' rather than 'net subsidised' on account of crop fertiliser pricing (p.9).

In an another study, while studying the question of is Indian farmer being 'protected' or 'exploited' in relation to what he would have got from his produce under a hypothetical situation of free international trade of inputs and outputs of agricultural sector, Gulati (1987) found that Indian wheat and rice cultivators are more or less 'unprotected' from the international prices.

Apart from helping to provide assured returns to the cultivators, the farm input subsidies also provide some gain to governments and industries. The increased production of foodgrains due to incentive environments, there has been a considerable increase in economic access to food. Acharya (2000) estimated that the average per capita income required to buy a quintal of wheat in urban areas declined from 16.2 percent in 1973-74 to 10.1 percent in 1983-84, 7.1 percent in 1990-91 and further to 6.6 percent during 1994-95. Similarly, the percentage of per capita income required to buy one quintal of wheat also declined in rural areas from 15.4 percent in 1973-74 to 5.0 percent in 1994-95. Similar trend was observed in rice as well. This increased economic access to food have helped the industry and governments to keep their wage bills low, as the wages in the organised sector are linked to the prices of consumer goods and foodgrains have a considerable weightage in the price index. Therefore, the benefits of inputs subsidies not only reach to surplus producing farmers but also to other people who are net purchasers of foodgrains (Acharya, 2000).

Inequity in the distribution of subsidy has also been reported by some studies. Intensive agriculture followed in irrigated regions has taken away bulk of the input subsidies. This has created inter-class and inter-regional inequity besides environmental problems. Studies have clearly indicated that bulk of the share of subsidies has been appropriated by fewer well-watered and well developed regions (Subbarao, 1985; Gulati and Sharma, 1995).

While analysing the distribution of subsidy among small versus large farmers, Gulati and Sharma (1998) disproved the common perception that large farmers utilise a major chunk of the subsidy. Utilising the macro-level data, a conclusion is reached that "it is the small farmers who have appropriated proportionately a larger share of subsidies" (Gulati and Sharma,

1998, p.41). This conclusion is arrived by comparing the share of gross cropped area and share of different inputs utilised by small and large size farmers (see, Table 1.1).

Table 1.1: Pattern of Input Use Among Different Farm Size Groups: All India.

(Percentage share)

Particulars	Farmers Category	
	Small and marginal	Medium and large
1. Number of holdings	75.67	24.33
2. Total operated area	29.00	71.00
3. Gross cropped area	32.62	67.38
4. Net irrigated area	38.85	61.15
5. Net irrigated area by Canals	39.50	60.50
6. Net irrigated area by Wells	38.10	61.90
7. Number of tubewells fitted with electric pumpsets	35.30	64.70
8. Fertiliser use	33.94	66.06
9. Short-term credit	42.65	57.35

Source: Gulati and Sharma (1998).

Impact of input subsidies has been one of the important issues of research in Indian agriculture from early seventies. Studies using both macro and micro-level data have examined the positive and negative impact of subsidies that are being provided for different inputs. Acharya (2000) in his analytical study pointed out the impact of removing/reducing subsidy at different levels. First, any withdrawal of input subsidies will squeeze the net income of the farmers which would not only affect the levels of living of farmers but also affect private investment in agriculture due to low savings. Second, since nearly 59 percent of the farmers in the country operate less than one hectare of land, the removal of subsidy will directly affect these groups, as most of these farmers are net buyers. Any increase in output price, which is an alternative way of providing incentives to farmers, will have only very little consequence. Third, the removal of subsidy would increase the cost of production which cannot be compensated completely by hike in product prices across different regions, as prices realised by the farmers for all products and in all the areas are not administered prices. Fourth, in case farmers are compensated for increase in the cost of production, the price of foodgrains

would increase sharply which will not only affect the small farmers who are mostly net buyers but will also increase wages in the 'organised sector'. Therefore, Acharya (2000) concludes that "for achieving the two objectives of assuring remunerative prices to farmers and making available foodgrains to the consumers at affordable prices, the instruments of food and input subsidies must be retained as an essential component of policy of growth with equity" (p.257).

Reddy and Deshpande (1992), while analysing the input subsidies using macro and micro level data, concluded that the impact of reduction of fertilisers subsidy would slide down productivity of crops, input intensity and bring distortion in technological progress in agriculture. The study suggested that it would be detrimental to the long-term objective of sustained growth if blanket policy of subsidy withdrawal is effected over all the regions at the same time.

As mentioned earlier, number of studies have analysed the impact of input subsidies in Indian agriculture using sample survey data. A study carried out to find out the impact of subsidy provided to drip irrigation technology in Maharashtra found that the provision of subsidy has helped to improve the economic viability of drip investment, besides helping the farmers to increase the adoption of this water saving technology (Narayanamoorthy, 1997). Similar to this, an another study carried out using sample survey data collected from two districts in Maharashtra also showed that investment on drip irrigation used for cultivating sugarcane crop is economically more viable under subsidy condition than under without subsidy condition (Narayanamoorthy, 2001). Both the studies mentioned above clearly indicate the role of subsidy in increasing the adoption of capital-intensive technologies like drip method of irrigation.

As in the case of drip method of irrigation, impact of input subsidies on other crops has also been studied by the scholars. Thorat *et al.,* (1986) carried out a study to find out the impact of input subsidies on different parameters of mango cultivation in Konkan region of Maharashtra. The study found benefit-cost ratio, net present worth, internal rate of return were higher under the condition of subsidy as compared to without subsidy condition. The study

suggested that by expanding the subsidy scheme in this region, the rural employment can be increased.

Using the field survey data collected from two districts in Haryana, Pandey and Khanna (1980) evaluated the small farmers development agency (SFDAs) established for weaker sections. The study found an improvement in acquisition of assets among weaker sections due to this programme. While improving the risk bearing ability and credit worthiness, it had made positive impact on income and consumption of the beneficiaries. Similarly, studies by Garg and Dhaliwal (1982) and Yadav et al., (1982) also showed the important role of subsidy in increasing the income of small and marginal farmers. However, in contrast to this, a study carried out in Ganjam district in Orissa to evaluate the effectiveness of the subsidy programme of SFDA concluded that the programmes introduced under this scheme were not successful due to inadequate availability of yield increasing inputs (Mitra, 1982).

While reducing the cost of inputs or machineries used for agriculture, provision of subsidy is also increasing the risk taking capabilities of farmers (Mohan, et al., 1982). Subsidies provided to certain inputs like gypsum have helped to increase the productivity, income and employment. A micro-level study carried out in Karnal district, Haryana state shown that subsidy on gypsum motivates the farmers to exploit the full potential of barren and uncultivated salt affected land, besides increasing the crop output (Joshi and Agnihotri, 1982).

It is clear from the literature survey that studies have dealt with wide range of issues relating to subsidy. While some studies have attempted to estimate the quantum of subsidies which have gone into agricultural sectors, other have analysed who actually benefited from subsidies. Role of input subsidies on productivity of crops, income and employment level has also been evaluated by some studies. Despite of wide range of studies on subsidies, not many studies seem to have analysed the overall impact of important input subsidies on different categories of farmers. In fact, to our knowledge, there are no studies available focusing on the use of input subsidies by SC/ST and other group of farmers. The farmers belonging to the group of SC/ST are not

only small and marginal farmers but also considered to be the weaker sections of the society. Due to this, it is often argued that the subsidies originally allotted for this group of farmers are misused or unutilised or utilised by other categories (non-SC/ST) of farmers. Owing to various reasons, the government is also started reducing the input subsidies provided to agricultural sector. Besides creating negative impact on agricultural growth, the reduction of subsidy may create adverse impact on SC/ST farmers, who are mostly resource poor farmers. What is the amount of subsidy that is reaching to SC/ST farmers? What are the problems faced by SC/ST farmers in getting input subsidies? Does the reduction of subsidy affect SC/ST farmers more than non-SC/ST farmers? are the important questions which require empirical answers. Keeping this in view, an attempt is made in this study to analyse the quantum of input subsidies utilised by SC/ST farmers using both macro and micro level data collected from Maharashtra

1.3 Objectives of the Study:

The broad objectives of the study are:

1. To examine the utilisation pattern of subsidies by different categories of farmers.
2. To assess the share of SC/ST farmers in the total amount of subsidies used.
3. To analyse the overall effect of differences in the levels of input subsidy used by various categories of farmers on crop pattern, cropping intensity, adoption of improved technology, input use, crop productivity and returns.

1.4 Methodology:

This study has been carried out using both macro and micro-level data. While macro-level data have been used to study the distribution of input subsidies on different schemes/programmes in Maharashtra, micro-level data collected from the sample farmers have been used to study the level of use of subsidies by SC/ST and non-SC/ST farmers. Macro-level data on input subsidies

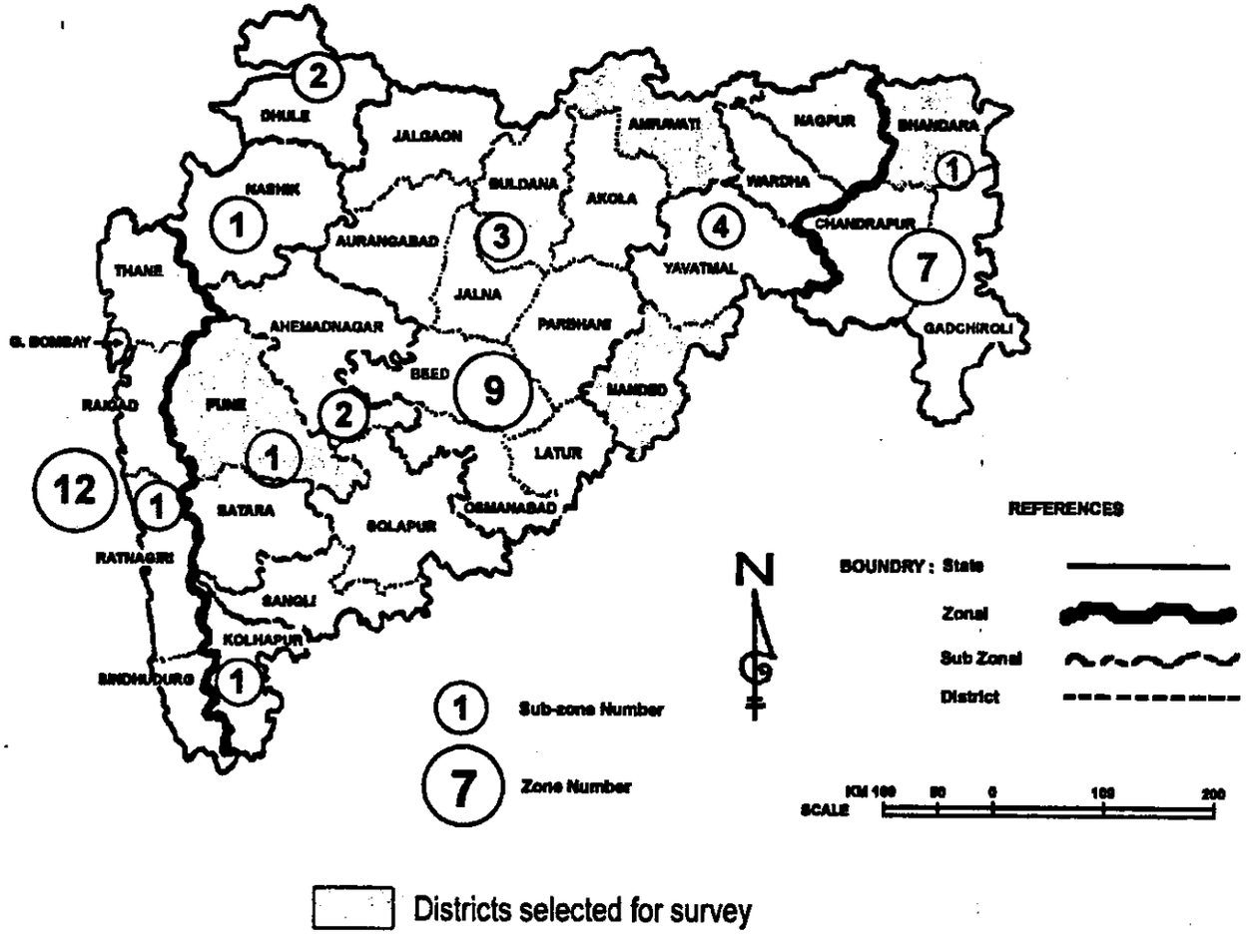
have been collected from different sources/departments (both published and unpublished sources) associated with Commissionerate of Agriculture, Government of Maharashtra, Pune. Macro data on cropping pattern, cropping intensity, area under irrigation and HYVs, fertilisers, etc., have also been collected from the four selected districts to relate with the use of input subsidies.

For collecting primary data, four districts from different agro-climatic zones (ACZs) have been selected based on the percentage of SC/ST farmers as well as area under irrigation and area under rainfed cultivation.[2] As per the classification of Agro-Climatic Regional Planning Unit (ARPU) of Planning Commission located at Ahmedabad, the state has been divided into six ACZs, which are known as konkan, western hills and plains, scarcity region, central plateau, central vidharbha and eastern vidharbha. Out of six ACZs, two zones namely konkan regions and scarcity region could not be considered for selecting sample districts, because of less number of SC/ST farmers (in konkan) as well as skewed distribution of SC/ST farmers (in scarcity region). From the remaining four ACZs, one district each has been selected based on the level of irrigation and rainfed cultivation as well as the distribution of SC/ST farmers. The four districts selected as per this methodology are Pune, Bhandara, Amravati and Nanded (see, Map 1.1). While Pune and Bhandara have been treated as irrigated districts, Amaravati and Nanded have been treated as rainfed (dry or less-irrigated) districts.[3]

After having identified the districts, one block from each district has been identified based on the method which is followed for selecting the districts. Accordingly, Khed, Tumsar, Warud and Bhokar have been selected respectively from Pune, Bhandara, Amravati and Nanded districts. After having selected the districts and blocks, we have selected four villages, one each from each block for selecting sample farmers for survey. It is needless to mention here that there are difficulties in looking at the details of each village, as each

[2] The sample districts have been selected as per the methodology suggested by the Coordinator of the study.
[3] Irrigation details of the selected districts have been discussed in chapter three of this report.

MAP 1.1: MAP OF MAHARASHTRA STATE SHOWING AGRO CLIMATIC ZONE & SUB ZONES.



Source: APRU (1991).

block has over 100 villages. Therefore, in order to reduce the time required for identifying the villages, a detailed discussion has been made with the Block Development Officer (BDO) of the respective block. It is from the discussion with the BDO, the four villages namely Shiroli (Pune district), Pathari (Bhandara district), Zatamziri (Amravati district) and Pimpaldhor (Nanded district) have been selected for detailed sample survey.

The sample farmers for this study have been selected in the following manner. First, the list of farmers including their landholding has been obtained from the respective village administrative officer (*Talathi*). Second, the farmers have been classified based on size of landholdings such as marginal (< 1.00 ha), small (1.00-1.99 ha), semi-medium (2.00-3.99 ha), medium (4.00-9.99 ha) and large (> 10.00 ha). From each district, a sample of 25 farmers from general category (i.e., non-SC/ST) and another 25 farmers belonging to SC/ST group have been selected. Thus, altogether a total of 200 sample farmers (100 from general category and 100 from SC/ST group) have been selected for the detailed survey. Sample farmers from each size category have been selected based on their proportion to the total farmers at the village level. Random sampling method has been followed to select the sample farmers from both general and SC/ST categories. The reference period of the study was 2000.

The methods followed for estimating the quantum of subsidies utilised by the sample farmers have been explained at the appropriate places in the report. As one of the main objectives of the study is to find out the subsidies utilised by SC/ST farmers in comparison to non-SC/ST farmers, we have compared the input subsidies utilised by these two groups of farmers in both irrigated and less-irrigated (rainfed) districts.[4]

1.5 Organisation of the study:

The study report has six chapters. After the introductory chapter, the second chapter on agricultural subsidies in the state presents the scenario of

[4] The terms such as less-irrigated areas, dry areas and rainfed areas are used interchangeably in this report and convey the same meaning.

both direct and indirect subsidies using mainly secondary level information. The third chapter on agro-economic profiles of the selected districts and sample farmers is divided into two sections. While the first section presents the demographic features, rainfall, land use pattern, irrigation details, productivity of crops and use of machineries in the selected districts completely using secondary level data, the section two of the chapter presents the basic features of sample farmers which include landholding details, crop pattern, irrigation and farm assets in value terms. Chapter four of the report presents the analysis on utilisation of agricultural subsidies by different size of farmers using field survey data. Estimates on direct and indirect subsidies are also presented in chapter four. Effects of input subsidies on crop pattern, fertilisers consumption, power consumption, total input use and gross returns are analysed in chapter five. Major findings of the study and policy recommendations are presented in chapter six.

CHAPTER 2

Agricultural Subsidies in Maharashtra: An Overview

2.1 Introduction:

The quantum of subsidy provided to agriculture by any state is directly related with the development of agriculture and allied sectors of the state. Factors like cropping pattern, use of various yield-increasing inputs, development of irrigation, power (electricity) consumption by agricultural sector and the use of institutional credit often determine the quantum of subsidy used by the state. Maharashtra is one of the states where the above-mentioned indicators are moderately developed and therefore, the level of use of subsidy (both direct and indirect) is expected to be higher in the state when compared to many other states in India. In this chapter, we discuss the direct and indirect subsidies given to farmers through various schemes. While the direct subsidies are discussed covering three years data namely 1998-99, 1999-2000 and 2000-01, the indirect subsidies on fertilisers, canal irrigation and electricity are discussed covering the period from 1980-81 to 1995-96.

2.2 Direct Subsidies in Maharashtra:

Generally, the direct subsidies are provided through various schemes to agricultural sector by the central and state governments in order to promote the adoption of certain inputs/machineries in crop cultivation. Unlike indirect subsidies, the schemes implemented by the governments to provide direct subsidies are expected to change time to time depending upon the policies persuaded for the development of agriculture. For instance, during 1970s and 1980s, the emphasis was given for those schemes, which can augment the production of foodgrains. But after achieving the self-sufficiency in cereal production, the approach has changed little bit where more emphasis has been given for the production of non-cereal commodities because of the increasing demand for the same.

By taking into account three years data from 1999-2000 to 2001-02, in this section, we study the current status of direct subsidies provided through various schemes in Maharashtra. The amount of direct subsidies provided under various schemes is reported in Tables 2.1, 2.2 and 2.3. It is evident from the data presented in Tables that the total subsidies provided in Maharashtra have marginally declined between 1999-2000 (Rs. 250.81 crore) and 2001-02 (Rs. 199.93 crore), indicating the general trend that subsidy provided to agricultural sector has been declining in the recent years. Interestingly, the share of central schemes subsidies has not declined between the two time points mentioned above, whereas the state's share in the total subsidies provided to agriculture has declined from 66 percent in 1999-2000 to about 57 percent in 2001-02.

Among the different schemes through which direct subsidies are provided to farmers, the Employment Guarantee Scheme (EGS) accounted for around 30 percent of the total subsidies in all three years considered for the analysis. Since the EGS is linked with the development of horticultural crops in Maharashtra and the area under horticultural crops has been increasing substantially in the recent years, the EGS accounted for the major share in the total direct subsidies. The other scheme that accounts for a major share (12-14 percent) in the total direct subsidy is the Special Component Scheme (SCP). This SCP is formulated specifically to provide subsidies to those farmers belonging to SC group. Though ST cultivators accounts for nearly 13 percent of cultivators in Maharashtra (in 1990-91), the schemes that provide subsidies to this group accounted for only 7-10 percent in all the three years considered for the analysis.

A number of schemes have also been in operation for promoting some specific crop production by providing subsidy in Maharashtra. The important on-going crop production programmes are National Oilseed Production Programme, National Pulses Development Programme, Cotton Development Programme, Integrated Cereals Development Programme, Various Fruit Production Programme, etc. Of these, schemes on various fruit production account for major share in the total subsidies, varying from 9 percent to over

19 percent in different years. This is because of the fact that the cultivation of fruit crops is larger in Maharashtra as compared to many states in India. Since area under oilseeds is relatively higher in Maharashtra (accounts for about 11 percent of India's total area under oilseed crops in 1999-2000), the schemes that promote the production of oilseeds accounted for around 5 percent of the total direct subsidies. Surprisingly, though Maharashtra state accounts for over 37 percent of total cotton area (in 1999-2000) and also the productivity of cotton in the state is one of the lowest in India, the direct subsidies provided for the promotion of cotton production accounted for very low percentage in the total subsidies. Another interesting feature of crop specific schemes is that the share of subsidy provided by the central sector schemes is relatively higher than the state's share in almost all the schemes.

The total subsidies discussed above highlight only the amount of subsidy provided to each scheme in different years. It does not explain the intensity of subsidy provided under each scheme. In order to get an idea about this, we have calculated per hectare and per cultivator subsidy for each scheme. While the per hectare subsidy has been calculated using the area of each crop scheme, the per cultivator subsidy has been computed using the number of cultivators. On schemes related to SC and ST, area operated by these communities and number of cultivators belonging to these two communities are used as a denominator for computing per hectare and per cultivator subsidy. The last two columns of the Tables 2.1, 2.2 and 2.3 present per hectare and per cultivator subsidy for each scheme.

During the three years considered for the analysis, the per hectare total subsidy (all schemes) varied from about Rs. 85 to Rs. 114 and the per cultivator subsidy varied from Rs. 223 to Rs. 293. Since the number of cultivators are relatively lower than the gross cropped area, the total subsidy per cultivator is substantially higher than the per hectare subsidy in Maharashtra. While the per hectare subsidy is found to be generally low among different crop specific programmes, the same is estimated to be relatively higher with EGS, National Oilseed Production Programme and Cotton Development Programme. Though area under pulse crops accounts for over

17 percent of India's total area, both per hectare and per cultivator subsidy is found to be very low in Maharashtra. Importantly, per hectare subsidy provided to SC and ST farmers through various schemes is found to be relatively larger.

Table 2.1: Direct Agricultural Subsidies in Maharashtra by Schemes - 1999-2000.

(Rs. in Lakh)

Name of the Subsidy Scheme	Expenditure			Final Subsidy released	Budget provision (Subsidy granted)	Per Cultivator Subsidy (Rs.)	Per ha. Subsidy (Rs.)
	Central	State	Total				
National Oilseed Production Programme	1114.53 (13.09)	371.51 (2.24)	1486.04 (5.92)	1522.89 (5.72)	1461.02 (5.28)	17.41	54.25
National Pulses Development Programme	424.10 (4.98)	141.36 (0.85)	565.46 (2.25)	573.30 (2.15)	597.00 (2.16)	6.62	15.68
Integrated Cereals Development Programme	718.02 (8.43)	239.35 (1.44)	957.37 (3.82)	989.50 (3.71)	990.08 (3.58)	11.22	9.54
Cotton Development Programme	347.45 (4.08)	110.80 (0.67)	458.25 (1.83)	482.04 (1.81)	481.94 (1.74)	5.37	14.08
Promotion of Agricultural Machinery through small tractors	268.90 (3.16)	0.00 (0.00)	268.90 (1.07)	269.10 (1.01)	291.50 (1.05)	3.15	1.23
Comprehensive Crop Insurance Scheme	0.00 (0.00)	191.26 (1.15)	191.26 (0.76)	191.31 (0.72)	200.00 (0.72)	2.24	0.88
Special Foodgrains Production Programme (Rice)	0.00 (0.00)	139.86 (0.84)	139.86 (0.56)	142.04 (0.53)	142.04 (0.51)	1.64	9.20
Special Component Scheme (SC)	0.00 (0.00)	3078.46 (18.58)	3078.46 (12.27)	3191.63 (11.98)	3057.21 (11.05)	-	-
Schemes to uplift above poverty line (ST)							
a) Tribal Sub-Plan (TSP)	0.00	557.91	557.91	569.35	555.39	42.47	44.21
b) Outside Tribal Sub- Plan (OTSP)	0.00	409.79	409.79	428.38	418.38	31.19	32.47
Total (ST)	0.00 (0.00)	967.70 (5.84)	967.70 (3.86)	997.73 (3.74)	973.77 (3.52)		
Other Schemes	670.99 (7.88)	2943.11 (17.76)	3614.10 (14.41)	3686.48 (13.84)	3370.32 (12.19)	42.34	16.55
TOTAL (A)	3543.99 (41.63)	8183.41 (49.39)	11727.40 (46.76)	12046.02 (45.21)	11564.88 (41.82)	137.39	53.71
Special Central Govt. Assistance to (ST)							
a) Tribal Sub-Plan (TSP)	291.24	0.00	291.24	300.00	300.00	22.17	23.08
b) Outside Tribal Sub- Plan (OTSP)	377.06	0.00	377.06	385.00	385.00	28.70	29.88
c) Modified Area Development Approach (MADA)	262.78	0.00	262.78	252.00	250.00	20.00	20.82
d) ADIM	46.93	0.00	46.93	48.00	50.00	3.57	3.72
TOTAL (B)	978.01 (11.49)	0.00 (0.00)	978.01 (3.90)	985.00 (3.70)	985.00 (3.56)	74.44	77.49
TOTAL (A+B)	4522.00 (53.11)	8183.41 (49.39)	12705.41 (50.66)	13031.32 (48.91)	12549.88 (45.38)	148.85	58.19
Various Fruit Production Schemes	3991.74 (46.89)	902.71 (5.45)	4894.45 (19.51)	5093.24 (19.12)	6828.50 (24.69)	57.34	22.41
Employment Guarantee Scheme (EGS)	0.00 (0.00)	7481.72 (45.16)	7481.72 (29.83)	8519.19 (31.97)	8276.71 (29.93)	87.65	34.26
Total	8513.74 (100.00)	16567.84 (100.00)	25081.58 (100.00)	26643.75 (100.00)	27655.09 (100.00)	293.84	114.86

Sources: Commissionerate of Agriculture, Government of Maharashtra, Pune and GOM (1999).

Table 2.2: Direct Agricultural Subsidies in Maharashtra by Schemes - 2000-01.

(Rs. in Lakh)

Name of the Subsidy Scheme	Expenditure			Amount released	Subsidy granted (Budget provision)	Per Cultivator Subsidy (Rs.)	Per ha. Subsidy (Rs.)
	Central	State	Total				
National Oilseed Production Programme	518.42 (7.71)	190.19 (1.43)	708.61 (3.54)	766.85 (3.96)	1292.54 (5.32)	8.30	27.70
National Pulses Development Programme	240.65 (3.58)	80.16 (0.60)	320.81 (1.60)	334.20 (1.72)	556.32 (2.29)	3.76	9.02
Integrated Cereals Development Programme	129.08 (1.92)	43.03 (0.32)	172.11 (0.86)	123.44 (0.64)	942.00 (3.88)	2.02	1.75
Cotton Development Programme	536.53 (7.98)	178.84 (1.35)	715.37 (3.58)	818.24 (4.22)	418.24 (1.72)	8.38	23.25
Promotion of Agricultural Machinery through small tractors	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	300.00 (1.24)	0.00	0.00
Comprehensive Crop Insurance Scheme	0.00 (0.00)	243.39 (1.83)	243.39 (1.22)	250.00 (1.29)	990.00 (4.08)	2.85	1.09
Special Foodgrains Production Programme (Rice)	0.00 (0.00)	144.55 (1.09)	144.55 (0.72)	146.15 (0.75)	146.15 (0.60)	1.69	9.56
Special Component Scheme (SC)	0.00 (0.00)	2994.48 (22.57)	2994.48 (14.98)	3161.97 (16.32)	2944.59 (12.12)	-	-
Schemes to uplift above poverty line (ST)							
a) Tribal Sub-Plan (TSP)	0.00	607.70	607.70	654.54	504.54	46.26	48.15
b) Outside Tribal Sub- Plan (OTSP)	0.00	439.32	439.32	464.35	407.85	33.44	34.81
Total (ST)	0.00 (0.00)	1047.02 (7.89)	1047.02 (5.24)	1118.89 (5.77)	912.39 (3.76)	-	-
Other Schemes	3158.34 (46.96)	1345.95 (10.14)	4504.29 (22.53)	4758.16 (24.56)	7302.21 (30.06)	52.77	20.24
TOTAL (A)	4583.02 (68.15)	6267.61 (47.24)	10850.63 (54.27)	11477.90 (59.24)	15804.44 (65.06)	127.12	48.75
Special Central Govt. Assistance to (ST)							
a) Tribal Sub-Plan (TSP)	332.22	0.00	332.22	350.00	350.00	25.29	26.32
b) Outside Tribal Sub- Plan (OTSP)	351.73	0.00	351.73	400.00	400.00	26.77	27.87
c) Modified Area Development Approach (MADA)	247.36	0.00	247.36	278.50	300.00	18.83	19.60
d) ADIM	47.99	0.00	47.99	48.30	50.00	3.65	3.80
TOTAL (B)	979.30 (14.56)	0.00 0.00	979.30 (4.90)	1076.80 (5.56)	1100.00 (4.53)	74.54	77.60
TOTAL (A+B)	5562.32 (82.71)	6267.61 (47.24)	11829.93 (59.17)	12554.70 (64.80)	16904.44 (69.59)	138.59	53.15
Various Fruit Production Schemes	1163.04 (17.29)	410.70 (3.10)	1573.74 (7.87)	1566.62 (8.09)	2132.43 (8.78)	18.44	7.07
Employment Guarantee Scheme (EGS)	0.00 (0.00)	6590.25 (49.67)	6590.25 (32.96)	5254.00 (27.12)	5254.00 (21.63)	77.21	29.61
Total	6725.36 (100.00)	13268.56 (100.00)	19993.92 (100.00)	19375.32 (100.00)	24290.87 (100.00)	234.23	89.84

Sources: Same as in Table 2.1

Table 2.3: Direct Agricultural Subsidies in Maharashtra by Schemes - 2001-2002.

(Rs. in Lakh)

Name of the Subsidy Scheme	Expenditure			Amount released	Subsidy granted (Budget provision)	Per Cultivator Subsidy (Rs.)	Per ha. Subsidy (Rs.)
	Central	State	Total				
National Oilseed Production Programme	761.02 (9.27)	255.43 (2.34)	1016.45 (5.32)	1124.24 (4.99)	1324.24 (4.94)	11.91	44.64
National Pulses Development Programme	211.35 (2.57)	70.39 (0.65)	281.74 (1.47)	328.00 (1.46)	178.72 (0.67)	3.30	8.32
Integrated Cereals Development Programme	143.30 (1.75)	48.27 (0.44)	191.57 (1.00)	212.87 (0.94)	212.00 (0.79)	2.24	2.04
Cotton Development Programme	504.64 (6.15)	166.63 (1.53)	671.27 (3.51)	928.71 (4.12)	1610.24 (6.01)	7.86	21.62
Promotion of Agricultural Machinery through small tractors	24.39 (0.30)	0.00 (0.00)	24.39 (0.13)	30.00 (0.13)	230.00 (0.86)	0.29	0.11
Comprehensive Crop Insurance Scheme	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	650.00 (2.43)	0.00	0.00
Special Foodgrains Production Programme (Rice)	0.00 (0.00)	8.81 (0.08)	8.81 (0.05)	10.00 (0.04)	10.00 (0.04)	0.10	0.59
Special Component Scheme (SC)	0.00 (0.00)	2479.97 (22.76)	2479.97 (12.98)	2476.86 (10.99)	2712.35 (10.13)	-	-
Schemes to uplift above poverty line (ST)							
a) Tribal Sub-Plan (TSP)	0.00	363.85	363.85	252.60	421.00	27.69	28.83
b) Outside Tribal Sub- Plan (OTSP)	0.00	302.52	302.52	243.38	386.00	23.03	23.97
Total (ST)	0.00 (0.00)	666.37 (6.12)	666.37 (3.49)	495.98 (2.20)	807.00 (3.01)	-	-
Other Schemes	3919.50 (47.73)	1127.59 (10.35)	5047.09 (26.41)	7496.78 (33.27)	9001.90 (33.60)	59.13	22.55
TOTAL (A)	5564.20 (67.76)	4823.46 (44.27)	10387.66 (54.36)	13103.44 (58.16)	16736.45 (62.48)	121.69	46.41
Special Central Govt. Assistance to (ST)							
a) Tribal Sub-Plan (TSP)	339.90	0.00	339.90	350.00	400.00	25.87	26.93
b) Outside Tribal Sub- Plan (OTSP)	376.49	0.00	376.49	400.00	350.00	28.66	29.83
c) Modified Area Development Approach (MADA)	288.10	0.00	288.10	300.00	350.00	21.93	22.83
d) ADIM	49.41	0.00	49.41	50.00	50.00	3.76	3.92
TOTAL (B)	1053.90 (12.83)	0.00 (0.00)	1053.90 (5.52)	1100.00 (4.88)	1100.00 (4.11)	80.22	83.51
TOTAL (A+B)	6618.10 (80.59)	4823.46 (44.27)	11441.56 (59.88)	14203.44 (63.04)	17836.45 (66.58)	134.04	51.12
Various Fruit Production Schemes	1593.65 (19.41)	208.44 (1.91)	1802.09 (9.43)	2232.32 (9.91)	2857.30 (10.67)	21.11	8.05
Employment Guarantee Scheme (EGS)	0.00 (0.00)	5864.54 (53.82)	5864.54 (30.69)	6094.87 (27.05)	6094.87 (22.75)	68.70	26.20
Total	8211.75 (100.00)	10896.44 (100.00)	19108.19 (100.00)	22530.63 (100.00)	26788.62 (100.00)	223.86	85.38

Sources: Same as in Table 2.1

2.3 Direct Subsidies to SC and ST Farmers:

After having studied the total subsidies by schemes, we have tried to study the composition of subsidies provided to SC and ST farmers in detail in Maharashtra state. The main objective of this analysis is to find out the items (inputs/machineries) which get relatively higher amount of subsidy under different schemes envisaged for the promotion of SC and ST cultivators. Due to non-availability of data on item-wise subsidy, we have considered only two years data (1998-99 and 1999-2000) for this analysis. Table 2.4 presents the item-wise direct subsidies provided to SC and ST farmers in Maharashtra.

As can be seen from Table 2.4, the direct subsidies are mainly given for digging new wells, installing pumpsets and buying new implements. Subsidies on pumpsets and new wells together accounted for 50-70 percent of the total subsidies provided for SC/ST farmers under various schemes in both 1998-99 and 1999-2000. Similarly, both per cultivator and per hectare subsidy are also found to be higher among the items related to irrigation development. Since irrigation development is essential for increasing the growth of agriculture in state like Maharashtra where irrigation is the main constraint, the idea of giving more subsidies for groundwater irrigation development is expected to improve economic conditions of the weaker sections.

2.4 Indirect Subsidies in Maharashtra:

Indirect subsidy is the one that reaches the farmers along with the use of inputs. Therefore, it is highly correlated with the amount of use of inputs by farmers. Generally, those farmers who use more inputs would naturally consume higher subsidy in India. Subsidies on fertilisers, canal irrigation and electricity (used by irrigation pumpsets) generally account for bulk of the total subsidies provided to the agricultural sector (Acharya, 2001 and Gulati and Sharma, 1998). In this section, therefore, we specifically considered these three inputs for detailed analysis.

Table 2.4: Direct Subsidies Provided to SC/ST Farmers in Maharashtra - 1998-99 and 1999-2000.

Sr. No.	Name of Subsidy	Total Expenditure (Rs. in lakh)		% Itemwise subsidy to Total Expenditure		Per Cultivator subsidy (Rs.)		Per ha subsidy granted (Rs.)	
		1998-99	1999-2000	1998-99	1999-2000	1998-99	1999-2000	1998-99	1999-2000
A	**Special Component Plan**								
1	Land development	18.08	16.77	0.79	0.54	3.62	3.36	1.43	1.33
2	Input Kits	123.87	125.09	5.43	4.06	24.81	25.06	9.82	9.91
3	Improved Implements	512.6	631.09	22.48	20.50	102.68	126.41	40.62	50.01
4	Bull Pair	138.5	137.42	6.07	4.46	27.74	27.53	10.97	10.89
5	Bull Cart	75.94	76.57	3.33	2.49	15.21	15.34	6.02	6.07
6	Inwell Bore	21.57	41.97	0.95	1.36	4.32	8.41	1.71	3.33
7	Old well	12.85	20.45	0.56	0.66	2.57	4.10	1.02	1.62
8	Pipe Line	89.24	130.25	3.91	4.23	17.88	26.09	7.07	10.32
9	Pump Set	428.44	530.87	18.79	17.24	85.82	106.34	33.95	42.06
10	New well	815.67	1253.7	35.77	40.72	163.38	251.13	64.63	99.34
11	Agency Charges	43.73	114.28	1.92	3.71	8.76	22.89	3.47	9.06
	Total Expenditure	2280.49	3078.46	100.00	100.00	456.80	616.64	180.70	243.93
B	**Tribal Sub Plan**								
1	Land development	23.29	16.03	2.92	1.89	1.77	1.22	1.52	1.05
2	Input Kits	49.63	50.19	6.22	5.91	3.78	3.82	3.24	3.28
3	Improved Implements	106.05	162.6	13.30	19.15	8.07	12.38	6.92	10.62
4	Bull Pair	34.72	19.37	4.35	2.28	2.64	1.47	2.27	1.26
5	Bull Cart	19.93	18.25	2.50	2.15	1.52	1.39	1.30	1.19
6	Inwell Bore	6.56	3.74	0.82	0.44	0.50	0.28	0.43	0.24
7	Old well	3.56	20.66	0.45	2.43	0.27	1.57	0.23	1.35
8	Pipe Line	7.78	11.84	0.98	1.39	0.59	0.90	0.51	0.77
9	Pump Set	47.46	81.43	5.95	9.59	3.61	6.20	3.10	5.32
10	New well	482.2	440.91	60.47	51.92	36.70	33.56	31.48	28.79
11	Agency Charges	16.25	24.13	2.04	2.84	1.24	1.84	1.06	1.58
	Total Expenditure	797.43	849.15	100.00	100.00	60.70	64.63	52.06	55.44
C	**Out Side tribal Plan**								
1	Land development	9.61	5.21	1.41	0.66	0.73	0.40	0.63	0.34
2	Input Kits	36.4	27.37	5.35	3.48	2.77	2.08	2.38	1.79
3	Improved Implements	99.22	172.3	14.58	21.90	7.55	13.11	6.48	11.25
4	Bull Pair	32.5	24.44	4.78	3.11	2.47	1.86	2.12	1.60
5	Bull Cart	20.4	17.08	3.00	2.17	1.55	1.30	1.33	1.12
6	Inwell Bore	6.58	7.56	0.97	0.96	0.50	0.58	0.43	0.49
7	Old well	2.84	4.44	0.42	0.56	0.22	0.34	0.19	0.29
8	Pipe Line	16.75	16.4	2.46	2.08	1.27	1.25	1.09	1.07
9	Pump Set	108.42	86.35	15.93	10.97	8.25	6.57	7.08	5.64
10	New well	334.54	404.9	49.17	51.46	25.46	30.82	21.84	26.44
11	Agency Charges	13.16	20.8	1.93	2.64	1.00	1.58	0.86	1.36
	Total Expenditure	680.42	786.85	100.00	100.00	51.79	59.89	44.42	51.37
D	**MADA**								
1	Land development	7.95	0.33	3.70	0.13	0.61	0.03	0.52	0.02
2	Input Kits	8.02	9.78	3.73	3.72	0.61	0.74	0.52	0.64
3	Improved Implements	41.66	47.86	19.39	18.21	3.17	3.64	2.72	3.12
4	Bull Pair	6.36	7.11	2.96	2.71	0.48	0.54	0.42	0.46
5	Bull Cart	2.75	4.96	1.28	1.89	0.21	0.38	0.18	0.32
6	Inwell Bore	1.68	0.96	0.78	0.37	0.13	0.07	0.11	0.06
7	Old well	0.52	0.4	0.24	0.15	0.04	0.03	0.03	0.03
8	Pipe Line	3.16	5.17	1.47	1.97	0.24	0.39	0.21	0.34
9	Pump Set	25.49	34.39	11.86	13.09	1.94	2.62	1.66	2.25
10	New well	112.09	144.53	52.17	55.00	8.53	11.00	7.32	9.44
11	Agency Charges	5.16	7.29	2.40	2.77	0.39	0.55	0.34	0.48
	Total Expenditure	214.84	262.78	100.00	100.00	16.35	20.00	14.03	17.16

Table 2.4 Continues ...

Sr. No.	Name of Subsidy	Total Expenditure (Rs. in lakh)		% Itemwise subsidy to Total Expenditure		Per Cultivator subsidy (Rs.)		Per ha subsidy granted (Rs.)	
		1998-99	1999-2000	1998-99	1999-2000	1998-99	1999-2000	1998-99	1999-2000
E	**ADIM**								
1	Land development	0.4	0	1.36	0.00	0.03	0.00	0.03	0.00
2	Input Kits	2.27	1.68	7.69	3.58	0.17	0.13	0.15	0.11
3	Improved Implements	2.69	14.41	9.11	30.71	0.20	1.10	0.18	0.94
4	Bull Pair	0.95	0.73	3.22	1.56	0.07	0.06	0.06	0.05
5	Bull Cart	0.28	0.12	0.95	0.26	0.02	0.01	0.02	0.01
6	Inwell Bore	0	0	0.00	0.00	0.00	0.00	0.00	0.00
7	Old well	0	0	0.00	0.00	0.00	0.00	0.00	0.00
8	Pipe Line	0.23	0.05	0.78	0.11	0.02	0.00	0.02	0.00
9	Pump Set	7.79	3.49	26.39	7.44	0.59	0.27	0.51	0.23
10	New well	14	24.72	47.43	52.67	1.07	1.88	0.91	1.61
11	Agency Charges	0.91	1.73	3.08	3.69	0.07	0.13	0.06	0.11
	Total exp.	29.52	46.93	100.00	100.00	2.25	3.57	1.93	3.06

Sources: GOI (1991); GOM (1999) and Commissionerate of Agriculture, Govt. of Maharashtra, Pune.

2.5 Fertiliser Subsidy:

Subsidy on fertilisers in Indian agriculture has been provided almost regularly since November 1977 when the retention price scheme (RPS) was introduced. Subsidy for imported fertilisers is generally calculated "as the difference between c.i.f prices plus pool handling charges and the prices charged by the farmers net of dealers' margin and sales tax. The subsidy on domestic fertilisers, based on the 'retention price scheme', is estimated as the difference between the prices obtained by farmers and the normative cost of the respective fertilisers" (Acharya, 2001). The amount of subsidy provided for fertilisers using the above estimated is presented in Table 2.5.

Figure: 2.1 Per Hectare Subsidy on Fertiliser

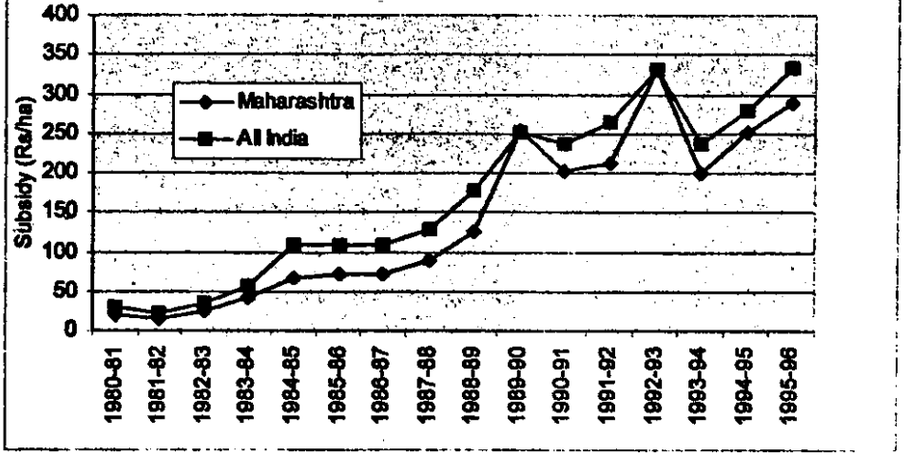


Table 2.5: Total and Per Hectare Subsidy on Fertiliser: Maharashtra and India.

Year	Total Subsidy (Rs. in crore)		Gross Cropped Area ('000 ha)		Per ha subsidy (Rs.)	
	Maharashtra	India	Maharashtra	India	Maharashtra	India
1980-81	38.54	505.00	19642	172638	19.62	29.25
1981-82	32.70	375.00	20386	177101	16.04	21.17
1982-83	48.89	600.00	20267	173772	24.12	34.53
1983-84	86.77	1042.00	20787	180768	41.74	57.64
1984-85	136.35	1927.00	20470	176414	66.61	109.23
1985-86	147.58	1924.00	20777	177619	71.03	108.32
1986-87	143.95	1897.00	20324	176405	70.83	107.54
1987-88	182.30	2164.00	20324	170120	89.70	127.20
1988-89	256.02	3201.00	20324	181116	125.97	176.74
1989-90	517.10	4542.00	20324	180758	254.43	251.28
1990-91	442.19	4389.00	21866	185742	202.23	236.30
1991-92	426.90	4800.00	20133	182242	212.04	263.39
1992-93	701.75	6136.00	21171	185487	331.47	330.80
1993-94	424.84	4400.00	21361	186420	198.89	236.03
1994-95	537.08	5241.00	21358	188053	251.47	278.70
1995-96	617.39	6235.00	21327	186561	289.49	334.21
1996-97*	650.11	6536.00	21836	189592	297.72	344.72
1997-98	684.57	6851.00	21384	190762	320.13	359.11
1998-99	720.85	7181.00	22155	192600	325.37	372.83
1999-2000	759.05	7527.00	22351	194000	339.61	387.98
2000-01	799.28	7890.00	22256	194000	359.13	406.68
AGR (1980-81 to 2000-01)	15.68	14.06	--	--	15.17	13.48

Notes: ACGR- Annual Growth Rate (in per cent).
* - Data on subsidy from 1996-97 to 2000-01 are estimated based on growth rate of subsidy from 1990-91 to 1995-96.
Source: Computed using data from Acharya (2001).

For the India as a whole, the subsidy on fertilisers has increased from Rs. 505 crore in 1980-81 to 7890 crore in 2000-01, an increase of about 14 percent per annum.[1] During the same period, the total subsidy on fertilisers in

[1] Data on subsidy provided to fertilisers, canal irrigation and electricity are not available from 1996-97 to 2000-01. The figures reported here are estimated based on the growth rate of subsidy during the period from 1990-91 to 1995-96. These figures may not tally with the actual figures and therefore, readers are advised to look at these figures cautiously.

Table 2.6: Statewise Share of Fertiliser Subsidy.

(per cent)

Year	Andhra Pradesh	Gujarat	Haryana	Karnataka	Madhya Pradesh	Maharashtra	Punjab	Tamil Nadu	Uttar Pradesh	West Bengal	India	India (Rs. in crore)
1980-81	10.44	6.47	4.19	6.24	3.57	7.63	13.67	8.90	20.87	5.13	100.00	505.00
1981-82	10.81	6.61	4.15	6.33	2.24	8.72	13.53	8.46	20.93	4.25	100.00	375.00
1982-83	10.83	6.28	4.08	6.65	3.74	8.15	13.20	7.01	22.97	4.07	100.00	600.00
1983-84	11.79	6.51	3.96	6.32	4.09	8.33	12.87	7.61	21.31	4.79	100.00	1042.00
1984-85	11.94	6.14	4.10	7.20	4.54	7.08	12.75	8.49	19.64	4.94	100.00	1927.00
1985-86	10.18	4.83	4.27	6.37	5.01	7.67	12.59	7.66	20.56	4.69	100.00	1924.00
1986-87	10.43	4.65	4.80	6.55	6.87	7.59	12.90	7.80	19.41	5.77	100.00	1897.00
1987-88	11.01	5.03	4.49	6.35	5.78	8.42	12.66	7.73	18.18	6.39	100.00	2164.00
1988-89	12.27	5.74	4.62	6.34	6.20	8.00	10.12	6.97	19.35	5.75	100.00	3201.00
1989-90	13.24	6.01	4.62	6.73	5.84	11.38	9.90	6.76	18.08	5.80	100.00	4542.00
1990-91	12.91	5.63	4.67	6.64	6.47	10.07	9.55	6.62	17.85	6.00	100.00	4389.00
1991-92	12.43	5.76	5.00	7.12	6.36	8.89	9.78	6.59	17.67	5.93	100.00	4800.00
1992-93	12.46	5.90	5.01	6.42	6.52	11.44	9.87	6.57	17.94	6.01	100.00	6136.00
1993-94	12.48	5.41	5.43	6.51	6.26	9.66	9.70	6.32	18.53	6.02	100.00	4400.00
1994-95	12.12	6.03	5.25	6.07	6.61	10.25	9.47	6.45	18.28	5.56	100.00	5241.00
1995-96	12.62	5.43	5.22	6.75	5.95	9.90	9.10	5.44	18.77	6.11	100.00	6235.00

Source: Same as in Table 2.5.

Maharashtra increased from Rs. 38.54 crore to Rs. 799 crore, an increase of about 16 percent per annum. Per hectare subsidy of fertilisers, which indicates the real picture of subsidy provided to farmers, also increased from 19.62 in 1980-81 to Rs. 359.13 in 2000-01 in Maharashtra (see, Figure 2.1).

Similar to the amount of subsidy, the Maharashtra's share of fertilisers subsidy to the country's total subsidy on fertilisers also increased from about 7.63 percent in 1980-81 to nearly 10 percent in 1995-96. This is relatively higher when compared to states like Karnataka, MP, Punjab, Tamil Nadu and West Bengal (see, Table 2.6). A significant increase in fertiliser consumption, which increased from 421 thousand tonnes in 1980-81 to 1374 thousand tonnes in 1995-96 is the main reason for the substantial increase of subsidy on fertilisers in the state. Since the state has the large amount of gross cropped area (over 11 percent of India's GCA), the share of fertilisers subsidy in the state is relatively higher when compared to many other states.

2.6 Subsidy on Canal Irrigation:

Subsidy on canal irrigation is one of the major subsidies, which have been increasing along with the growth of canal irrigation mainly due to low water rates that are prevailing in different states. While subsidies on canal irrigation can be estimated using different methodologies, the central water commission (CWC) has been estimating subsidy as the difference between working expenses plus interest on capital outlays and gross receipts from the supply of irrigation water (see, Acharya, 2001; CWC, 1998). The total and per hectare subsidy provided for canal irrigation are presented in Table 2.7.

The subsidy on canal irrigation is seen to have increased from Rs. 598 crore in 1980-81 to Rs. 10163 crore in 2000-01 at all India level, while the same increased from Rs. 16.31 crore to Rs. 353.18 crore in Maharashtra during the same period. The annual compound growth rate of subsidy on canal irrigation is varied from about 14 percent in Maharashtra to about 15 percent for the country as a whole. However, the per hectare subsidy on canal irrigation is relatively lower in Maharashtra as compared to all-India average (see, Figure 2.2). For instance, during 2000-01, the per hectare subsidy on

canal irrigation at all India level was about 41 percent higher than that of Maharashtra state, Rs. 3373/ha as against Rs. 5729/ha. There are two main reasons why the subsidy on canal irrigation is relatively less in Maharashtra as compared to the national level average. First, unlike other states, the water rates in the state have been periodically revised. Second, water rates prevailing in the state are highest in the country (see, Deshpande and Narayanamoorthy, 2001; World Bank, 2002). As result of lower subsidy given to farmers in the state, the share of the state in the total subsidy on canal irrigation was only about 3 percent during 1995-96. This is very low as compared to other major states in India (see, Table 2.8).

Table 2.7: Estimates of Subsidy on Canal Irrigation - Maharashtra and India.

Year	Total Subsidy (Rs. in crore)		Canal (net) Area ('000 ha)		Per ha (canal) subsidy (Rs.)	
	Maharashtra	India	Maharashtra	India	Maharashtra	India
1980-81	16.31	598.00	780	15292	209.21	391.05
1981-82	17.36	654.00	785	15946	221.20	410.13
1982-83	20.59	759.00	807	16185	255.05	468.95
1983-84	20.68	808.00	814	16764	253.93	481.99
1984-85	28.02	1076.00	795	16275	352.67	661.14
1985-86	28.74	1146.00	787	16180	365.23	708.28
1986-87	38.19	1520.00	905	16495	422.13	921.49
1987-88	92.63	1628.00	745	15746	1243.19	1033.91
1988-89	55.17	2230.00	971	17102	567.94	1303.94
1989-90	66.21	2422.00	1007	17124	657.63	1414.39
1990-91	67.15	2505.00	999	17453	672.10	1435.28
1991-92	90.27	3109.00	981	17301	919.90	1797.01
1992-93	112.51	3420.00	943	16986	1193.36	2013.42
1993-94	107.03	3880.00	996	17111	1074.60	2267.55
1994-95	140.17	4502.00	1017	17280	1377.73	2605.32
1995-96	164.86	5253.00	1010	17120	1632.12	3068.34
1996-97*	192.00	5994.00	1028	17262	1867.66	3472.48
1997-98	223.60	6840.00	1050	17612	2129.51	3883.70
1998-99	260.40	7805.00	1042	17741	2499.07	4399.47
1999-2000	303.27	8906.00	1168	17741	2596.45	5020.24
2000-01	353.18	10163.0	1047	17741	3373.28	5728.59
AGR (1980-81 to 2000-01)	15.73	14.47	--	---	13.86	13.87

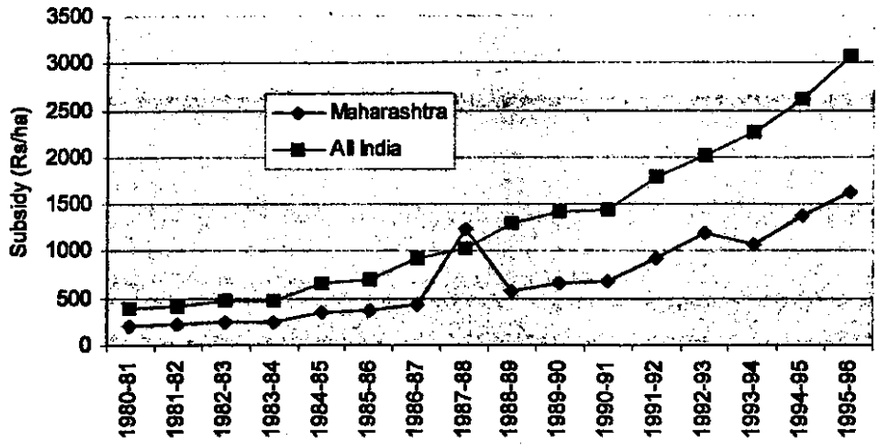
Notes and Source: Same as in Table 2.5.

Table 2.8: Statewise Share of Subsidy on Canal Irrigation.

Year	Andhra Pradesh	Gujarat	Haryana	Karnataka	Madhya Pradesh	Maharashtra	Punjab	Tamil Nadu	Uttar Pradesh	West Bengal	India	India (Rs. in crore)
1980-81	11.07	2.40	7.59	3.57	6.76	2.73	9.35	5.81	20.78	6.28	100.00	598.00
1981-82	11.31	2.71	7.62	3.74	6.98	2.65	8.52	5.80	20.63	6.18	100.00	654.00
1982-83	11.34	2.74	8.20	3.94	7.55	2.71	9.51	4.97	21.65	4.42	100.00	759.00
1983-84	11.39	2.66	7.34	4.10	7.51	2.56	9.16	5.35	20.63	4.49	100.00	808.00
1984-85	11.31	2.71	7.58	4.45	7.99	2.60	8.82	5.66	21.00	4.57	100.00	1076.00
1985-86	11.58	3.18	7.67	4.78	8.21	2.51	9.17	5.03	21.64	1.41	100.00	1146.00
1986-87	10.91	2.66	7.37	4.90	8.54	2.51	8.82	5.02	20.56	4.39	100.00	1520.00
1987-88	10.02	1.89	7.67	4.82	8.60	5.69	8.90	3.83	19.04	4.51	100.00	1628.00
1988-89	11.29	2.17	7.47	5.11	8.67	2.47	8.80	4.89	18.48	4.33	100.00	2230.00
1989-90	11.40	2.85	8.20	5.08	8.45	2.73	8.85	4.77	19.17	4.33	100.00	2422.00
1990-91	11.06	2.79	7.91	5.10	9.09	2.68	9.04	4.55	18.89	4.24	100.00	2505.00
1991-92	10.54	2.71	7.97	5.29	9.61	2.90	8.21	4.81	18.52	4.14	100.00	3109.00
1992-93	10.11	3.26	7.95	5.29	9.87	3.29	7.99	4.98	18.96	4.20	100.00	3420.00
1993-94	9.70	3.10	7.91	5.46	10.32	2.76	8.98	4.75	18.69	4.19	100.00	3880.00
1994-95	9.29	3.43	8.00	5.36	10.56	3.11	8.88	4.88	18.18	4.15	100.00	4502.00
1995-96	8.98	3.46	8.02	5.54	10.48	3.14	7.91	4.50	17.94	4.18	100.00	5253.00

Source: Same as in Table 2.5.

Figure 2.2: Per Hectare Subsidy on Canal Irrigation



2.7 Subsidy on Electricity:

Subsidy on electricity supplied to agriculture (irrigation) accounts for the major share in the total subsidies given to agriculture. This has been increasing at a faster rate especially since mid-eighties mainly because of two reasons. First, majority of the states supplying electricity to farmers either following flat-rate tariff system or complete free, both of which have increased the subsidy. Second, the significant growth of groundwater irrigation (which currently accounts for over 58 percent of irrigated area) which took place in Indian agriculture is also responsible for the substantial increase of subsidy on electricity. While many methods are followed for estimating the total subsidy on electricity, generally "the difference between the unit cost of generation and supply and the average user charges (tariff) multiplied by the total electricity supplied to agricultural sector provides an estimate of the electricity subsidy to this sector" (Acharya, 2001).

The electricity subsidy estimated using the above method for the period from 1980-81 to 2000-01 is presented in Table 2.9. As expected, subsidy on electricity has increased significantly over the years both in Maharashtra and all-India level. While the total subsidy on electricity has increased from Rs. 39.74 crore in 1980-81 to Rs. 6801 crore in 2000-01 in Maharashtra, the same has increased from Rs. 334 crore to Rs. 35819 crore at all India level. Though there is no wide difference in the annual compound growth rate of subsidy

between Maharashtra and all-India, the per hectare (well irrigated area) subsidy is found to be substantially higher in Maharashtra since 1980-81 as compared to the all-India average. The per hectare subsidy on electricity is estimated to be Rs. 35569 in Maharashtra during 2000-01, whereas the same is only about Rs. 10823 for India as a whole (see, Figure 2.3).

Table 2.9: Subsidy on Electricity: Maharashtra and India.

Year	Total Subsidy (Rs. in Crore)		Well (net) area ('000 ha)		Per ha subsidy (Rs.)	
	Maharashtra	India	Maharashtra	India	Maharashtra	India
1980-81	39.74	334.00	1055	17695	376.58	188.75
1981-82	49.57	401.00	1199	18737	413.39	214.02
1982-83	82.92	630.00	1118	19347	741.42	325.63
1983-84	104.93	753.00	1087	19392	964.96	388.30
1984-85	156.58	973.00	1163	20394	1346.46	477.10
1985-86	206.98	1322.00	1162	20418	1781.39	647.47
1986-87	254.22	1845.00	1132	20822	2246.55	886.08
1987-88	329.74	2608.00	1263	21796	2611.18	1196.55
1988-89	399.05	2935.00	1419	23214	2812.39	1264.32
1989-90	524.85	3761.00	1568	23886	3347.47	1574.56
1990-91	604.35	4605.00	1672	24694	3614.53	1864.83
1991-92	845.38	5889.00	1732	26037	4880.95	2261.78
1992-93	1031.00	7335.00	1737	26920	5936.55	2724.74
1993-94	1131.00	8966.00	1571	27762	7197.86	3229.59
1994-95	1647.00	10941.00	1760	28912	9357.42	3784.24
1995-96	2250.00	13606.00	1870	29697	12031.44	4581.61
1996-97*	2807.10	16512	2059	30818	13633.32	5357.99
1997-98	3502.14	20039	2090	31585	16756.64	6344.55
1998-99	4369.27	24320	1904	33096	22947.83	7348.21
1999-2000	5451.10	29514	1920	33096	28391.13	8917.79
2000-01	6800.79	35819	1912	33096	35568.98	10822.63
AGR (1980-81 to 2000-01)	25.04	23.30	–	–	21.49	19.94

Notes and Source: Same as in Table 2.5

Unlike the subsidy on canal irrigation, both per hectare subsidy and the state share in the total subsidy on electricity are found to be very high in Maharashtra as compared to many states and all-India average (see, Table 2.10). The substantial increase in the subsidy on electricity is possibly because of the following three reasons. First, the electricity has been supplied to farmers using flat-rate tariff system where there is no incentive to farmers to conserve electricity as the marginal cost of electricity under flat-rate tariff system is arguably near zero (see, Narayanamoorthy, 1997a; World Bank, 2001). Second, because of less development of canal irrigation, farmers have been heavily relying on groundwater irrigation for cultivation, which ultimately must have increased the consumption of electricity in agriculture. Presently, area under groundwater irrigation accounts for over 64.63 (in 2000-01) percent of net irrigated area, which is relatively higher than the national level average. Thirdly, Maharashtra state has more number of electric pumpsets than any other states, which obviously must have consumed more amount of electricity.

Figure 2.3: Per Hectare Subsidy on Electricity

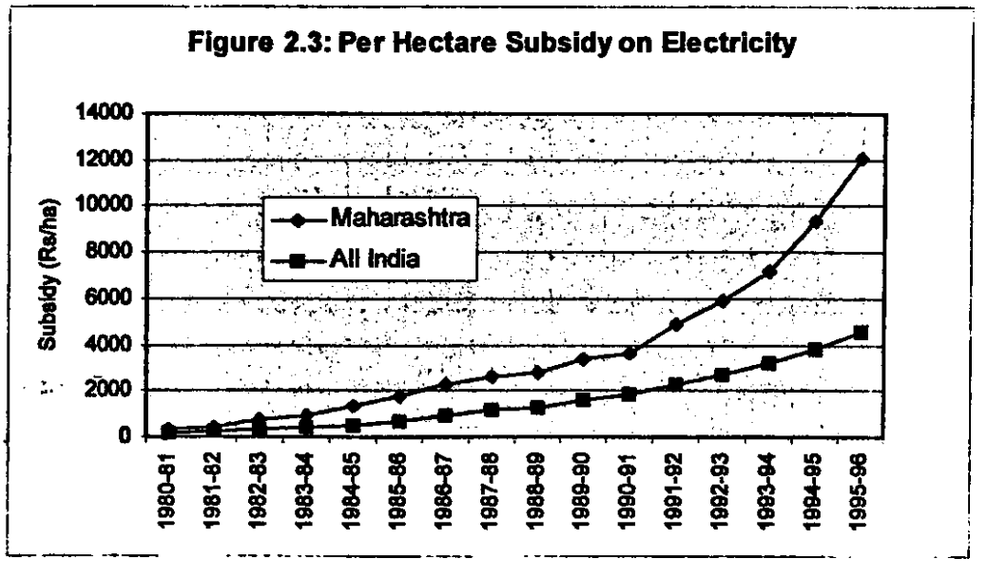


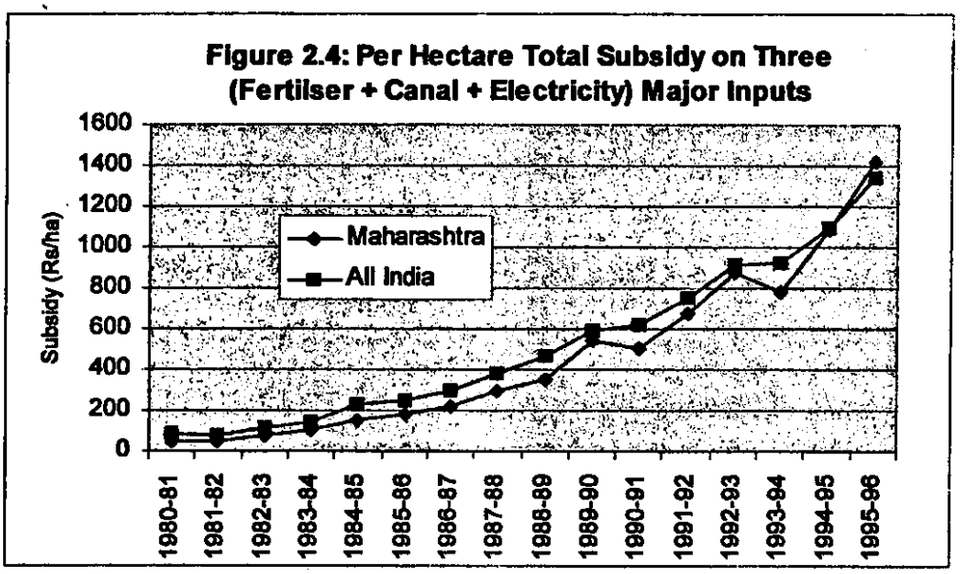
Table 2.10: Statewise Share of Electricity Subsidy.

Year	Andhra Pradesh	Gujarat	Haryana	Karnataka	Madhya Pradesh	Maharashtra	Punjab	Tamil Nadu	Uttar Pradesh	West Bengal	India	India (Rs. in crore)
1980-81	6.74	9.21	6.58	2.71	2.38	11.90	12.77	16.34	19.27	0.50	100.00	334.00
1981-82	6.61	8.66	7.62	2.81	2.59	12.36	12.24	16.29	18.64	0.43	100.00	401.00
1982-83	8.22	7.78	7.45	2.69	3.30	13.16	11.87	14.07	19.15	0.53	100.00	630.00
1983-84	8.92	7.83	7.14	2.93	3.05	13.93	12.01	12.13	19.29	0.55	100.00	753.00
1984-85	11.64	7.79	6.56	2.95	3.32	16.09	11.28	11.57	17.30	0.53	100.00	973.00
1985-86	11.52	7.36	5.83	4.99	3.29	15.66	11.82	12.06	15.96	0.51	100.00	1322.00
1986-87	11.89	7.48	5.52	7.60	3.54	13.78	12.13	10.45	16.82	0.49	100.00	1845.00
1987-88	11.78	10.94	6.17	7.06	3.20	12.64	12.03	8.84	16.68	0.66	100.00	2608.00
1988-89	11.91	11.36	5.55	7.39	3.35	13.60	10.85	9.19	15.54	0.66	100.00	2935.00
1989-90	12.43	11.70	5.77	8.10	2.39	13.96	11.77	7.34	16.49	0.41	100.00	3761.00
1990-91	12.84	11.29	5.39	8.79	5.02	13.12	10.13	8.06	15.42	0.25	100.00	4605.00
1991-92	12.33	11.91	6.04	7.79	5.82	14.36	9.47	7.70	14.05	1.11	100.00	5889.00
1992-93	9.90	14.38	6.23	6.78	5.74	14.06	9.37	8.77	14.11	1.42	100.00	7335.00
1993-94	10.32	13.45	6.02	7.45	8.43	12.61	8.89	8.48	13.69	1.28	100.00	8966.00
1994-95	12.34	11.57	4.48	7.96	10.09	15.05	7.14	8.66	11.65	1.54	100.00	10941.00
1995-96	12.85	12.10	4.50	8.15	10.41	16.54	6.09	8.33	10.30	1.24	100.00	13606.00

Source: Same as in Table 2.5.

2.8 Total Subsidy on Three Major Inputs:

The major items of indirect subsidies are fertilisers, canal irrigation, electricity and institutional credit. Of the four inputs, we have discussed above three major input subsidies separately. It is seen that while the per hectare subsidy on fertilisers and canal irrigation are found to be relatively lower in Maharashtra than that of the all-India average, the same on electricity is found to be significantly higher in Maharashtra. In this section, we combine all the three major input subsidies together to find out the status of Maharashtra in utilising the subsidies at all-India level. The total subsidies on three major inputs from 1980-81 to 2000-01 are presented in Table 2.11.



The total subsidies on three major inputs has increased from Rs. 95 crore in 1980-81 to Rs. 7953 crore in 2000-01 in Maharashtra, an increase of about 21 percent per annum. The growth rate of total subsidies in Maharashtra is seen to have increased relatively faster as compared to the national level average, where it increased by 18.18 percent per annum. The same trend is noted in the growth rate of per hectare subsidy as well. However, per hectare subsidy in Maharashtra is relatively lower as compared to the national average in almost 15 years out of 21 years considered for the analysis, though the gap between the two has narrowed down over the years. For instance, per hectare total subsidy was only about Rs. 48 in Maharashtra as against the national average of about Rs. 83 during 1980-81. Similarly, during 1994-95, the

Table 2.11: Total Subsidy of Three Major Inputs: Maharashtra and All India.

Year	Fertiliser (Rs. In crore)		Canal (Rs. In crore)		Electricity (Rs. In crore)		Total Subsidy (Rs. In crore)		Gross Cropped Area ('000 ha)		Per hectare Subsidy (Rs.)	
	Maharashtra	India	Maharashtra	India	Maharashtra	India	Maharashtra	India	Maharashtra	India	Maharashtra	India
1980-81	39	505	16	598	40	334	95	1437	19642	172638	48.16	83.24
1981-82	33	375	17	654	50	401	100	1430	20386	177101	48.87	80.74
1982-83	49	600	21	759	83	630	152	1989	20267	173772	75.20	114.46
1983-84	87	1042	21	808	105	753	212	2603	20787	180768	102.17	144.00
1984-85	136	1927	28	1076	157	973	321	3976	20470	176414	156.79	225.38
1985-86	148	1924	29	1146	207	1322	383	4392	20777	177619	184.48	247.27
1986-87	144	1897	38	1520	254	1845	436	5262	20324	176405	214.70	298.29
1987-88	182	2164	93	1628	330	2608	605	6400	20324	170120	297.52	376.20
1988-89	256	3201	55	2230	399	2935	710	8366	20324	181116	349.46	461.92
1989-90	517	4542	66	2422	525	3761	1108	10725	20324	180758	545.25	593.34
1990-91	442	4389	67	2505	604	4605	1114	11499	21866	185742	509.32	619.08
1991-92	427	4800	90	3109	845	5889	1363	13798	20133	182242	676.77	757.13
1992-93	702	6136	113	3420	1031	7335	1845	16891	21171	185487	871.60	910.63
1993-94	425	4400	107	3880	1131	8966	1663	17246	21361	186420	778.46	925.12
1994-95	537	5241	140	4502	1647	10941	2324	20684	21358	188053	1088.23	1099.90
1995-96	617	6235	165	5253	2250	13606	3032	25094	21327	186561	1421.79	1345.08
1996-97	650	6536	192	5994	2807	16512	3649	29042	21836	189592	1671.2	1531.8
1997-98	685	6851	224	6840	3502	20039	4410	33730	21384	190762	2062.4	1768.2
1998-99	721	7181	260	7805	4369	24320	5351	39305	22155	192600	2415.0	2040.8
1999-2000	759	7527	303	8906	5451	29514	6513	45948	22351	194000	2914.2	2368.4
2000-01	799	7890	353	10163	6801	35819	7953	53871	22256	194000	3573.5	2776.9
AGR	15.68	14.06	15.73	14.47	25.04	23.30	21.87	18.18	--	--	21.36	17.61

Note and Source: Same as In Table 2.5.

Table 2.12: Statewise Share in Total Subsidy (Canal + Electricity + Fertiliser).

Year	Andhra Pradesh	Gujarat	Haryana	Karnataka	Madhya Pradesh	Maharashtra	Punjab	Tamil Nadu	Uttar Pradesh	West Bengal	India	India (Rs. In crore)
1980-81	9.84	5.41	6.16	4.31	4.62	6.58	11.66	9.34	20.46	4.53	100.00	1437.00
1981-82	9.86	5.40	6.71	4.16	4.51	6.97	10.88	9.44	20.15	4.07	100.00	1430.00
1982-83	10.20	5.41	6.72	4.36	5.05	7.66	11.37	8.47	21.25	3.08	100.00	1989.00
1983-84	10.84	5.70	5.93	4.65	4.85	8.16	11.47	8.22	20.52	3.47	100.00	2603.00
1984-85	11.69	5.62	5.65	5.41	5.18	8.07	11.33	8.47	19.44	3.76	100.00	3976.00
1985-86	10.95	5.16	5.63	5.54	5.33	8.73	11.47	8.30	19.45	2.58	100.00	4392.00
1986-87	11.08	5.07	5.79	6.44	6.18	8.29	11.45	7.93	18.84	3.52	100.00	5262.00
1987-88	11.07	6.64	5.98	6.25	5.45	9.45	11.44	7.19	17.79	3.58	100.00	6400.00
1988-89	11.88	6.76	5.71	6.38	5.86	8.49	10.02	7.19	17.78	3.59	100.00	8366.00
1989-90	12.54	7.29	5.83	6.84	5.22	10.33	10.32	6.51	17.77	3.58	100.00	10725.00
1990-91	12.48	7.28	5.66	7.16	6.46	9.69	9.67	6.75	17.11	3.58	100.00	11499.00
1991-92	11.96	7.70	6.11	6.99	6.86	9.88	9.29	6.67	16.32	3.47	100.00	13798.00
1992-93	10.87	9.05	6.14	6.34	6.86	10.92	9.27	7.20	16.48	3.65	100.00	16891.00
1993-94	10.73	9.07	6.30	6.76	8.30	9.64	9.12	7.09	16.05	3.15	100.00	17246.00
1994-95	11.62	8.40	5.44	6.92	9.31	11.24	8.11	7.28	14.75	3.13	100.00	20684.00
1995-96	11.98	8.64	5.41	7.26	9.32	12.08	7.22	6.81	14.01	3.07	100.00	25094.00

Source: Same as in Tables 2.5.

per hectare subsidy in Maharashtra was about Rs. 1088, but the same was about Rs. 1099 at all-India level (see, Figure 2.4). The relatively lower amount of per hectare total subsidies in Maharashtra is possibly due to lower amount of subsidy provided to canal irrigation. Though the per hectare of subsidies is lower in Maharashtra, the state accounted for about 12 percent of the India's total subsidies on three major inputs which is the second largest among the major states in India (see, Table 2.12).

2.9 Share of Direct and Indirect Subsidies:

After having analysed the direct and indirect subsidies separately in Maharashtra, we have also tried to find out the share of direct and indirect (fertilisers, canal irrigation and electricity) subsidies including per hectare and per cultivator subsidy provided to the farmers in Maharashtra during the year 1999-2000 and 2000-01. It is evident from Table 2.13 that the direct subsidy accounts for only around three percent in the total subsidy and the remaining subsidy is provided in the form of indirect subsidy. Since direct subsidy is provided only for selected schemes, its share in the total subsidies was very low, as expected.

Table 2.13: Share of Direct and Indirect Subsidies in Maharashtra: 1999-2000 and 2000-01.

Year	Subsidy (in lakh)			Per ha (Rs)			Per Cultivator* (Rs)		
	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total
1999-2000	25082 (3.71)	651342 (96.29)	676424 (100.0)	112	2814	3026	236	6123	6359
2000-2001	19994 (2.45)	795326 (97.55)	815320 (100.0)	90	3574	3663	188	7476	7664

Notes: Figures in parentheses are percentage to total subsidy.
*- Per hectare subsidy is estimated using the number of cultivators during the year 1995-96.
Sources: Estimated using the data collected from Commissionerate of Agriculture, Government of Maharashtra, Pune and Acharya (2001).

On the whole, the analysis on subsidy indicates that the indirect subsidy provided to fertilisers, canal irrigation and electricity has increased substantially since 1980-81 in both Maharashtra and all India level.

CHAPTER 3

Agro Economic Profile of the Selected Districts and Sample Farmers

3.0 Introduction:

As mentioned earlier, the level of the use of subsidy in agriculture is directly related with the development of agriculture in a region. The districts that are developed in terms of agriculture generally consume higher subsidy than the districts with less development in agriculture. This is because of the fact that the bulk of the subsidy is routed through various yield increasing and yield-protecting inputs in agriculture. Therefore, in order to study the issues on agricultural subsidy of any region, one needs to understand first the agro-economic profile of the selected districts/regions. It is in this context, in this section, we discuss the agro-economic profile of the selected districts. This section is divided into two. While the first section discusses about the agro-economic profile of the selected districts using available secondary level information, the second section highlights the basic features of the sample farmers.

3.1.1 Main Features of the Selected Districts[1]:

The four districts selected for the detailed analysis are Pune, Bhandara, Amravati and Nanded. While Pune and Bhandara are treated as irrigated districts, the remaining two districts are treated as dry or less irrigated districts. Not surprisingly, each of the selected districts has different agro-climatic features. Pune district lies in the Bhima and Nira river basin and it is located between 17^0 54′ and 19^0 24′ north latitudes and between 73^0 19′ and 75^0 10′ east longitudes. The head quarters of this district is Pune, which is known as "The Queen of the Deccan' because of its old historical associations. The district climate is generally dry and invigorating. The district get rainfall through

[1] This section is written based on the information available from ARPU (1998) and District Census Handbook of the selected districts published by the Maharashtra Census Directorate, Maharashtra State, Mumbai.

south west monsoon which spreads from June to October. From March to May, the temperature is generally hot. Pune district comes under the agro climatic region of Western Hills and Plains where the climate is semi-arid having shallow to medium and deep black soils with sandy loam to loamy texture and neutral reaction.

Bhandara falls under the Eastern Vidharbha region where the climate is dry sub-humid. It lies in the Wainganga basin in the extreme north-east of Maharashtra. It is located between 20^0 39′ and 21^0 38′ north latitudes and 79^0 27′ and 80^0 42′ east longitudes. The north and eastern part of the district is covered by Madhya Pradesh State. Bhandara town is the headquarter of the district. This district also gets rainfall through south-west monsoon. July is the rainiest month of the year and May is the hottest month of the year. Kali, Kanhar, Morand, Khardi, Sihar and Bardi are the main soils found in the district. These soils are suitable for growing paddy, wheat and minor millets. Bhandara is also one of the important mineral producing districts of Maharashtra. The soil type of the region is medium to deep sandy loam to clayey soils with neutral to slightly acidic soil reaction. Besides getting high rainfall, this region is also famous for minor surface (tanks) irrigation.

Amravati, which is considered as a dry or less-irrigated district for the analysis, comes under the agro-climatic region of Central Plateau as per the classification of Agro-Climatic Regional Planning Unit (ARPU). The climate of this district is semi-arid and the soil type is medium to deep black clay loam to clayey soils with neutral to slightly alkaline reaction. Amravati situated in the northern border of Maharashtra having Madhya Pradesh state one of its borders. It lies between 20^0 32′ and 21^0 46′ north latitudes and 76^0 37′ and 78^0 27′ east longitudes. Amravati city is its head quarter and the same is known as principal cotton market. Except during monsoon (June-September), the climate of the district is generally dry throughout the year. The soils of the districts are derived from deccan trap. Cotton, jowar, orange and chilly are suitable for this kind of soil and climate.

Nanded district is situated in the southern border of Maharashtra with Andhra Pradesh state as one of its borders. It lies between 18^0 15′ and 19^0 55′

north latitudes and between 77^0 7′ and 78^0 15′ east longitudes. The head quarter of the district is Nanded city and it gets rain mainly through south-west monsoon. The climate of the district is dry during most part of the year and temperature touches about 41^0C during May. The important soil types of the district are medium to deep black clayey soils, neutral to slightly alkaline reaction. These soils are suitable for cultivating crops like jowar, bajra, tur, cotton and some pulse and oilseed crops.

3.1.2 Rainfall in Sample Districts:

Since the share of irrigated area is very low in Maharashtra, monsoon rain plays a critical role in agricultural development in the state. As expected, the average annual rainfall of the irrigated districts is substantially higher than the counterpart in all the three years considered for the analysis (see Table 3.1). Though there are substantial variations in the level of rainfall between the irrigated and dry districts, all the four districts get over 75 per cent of total rainfall during the south-west monsoon especially between June and October. Failure in monsoon will have serious implications on the growth of agriculture in all the four selected districts.

Table 3.1: Annual rainfall of the Selected Districts.

(in mm)

Particulars	Irrigated Districts		Unirrigated Districts		Maharashtra State
	Pune	Bhandara	Amravati	Nanded	
1996	1292.1	825.6	824.7	943.3	1096.73
1997	1375.7	1512.9	970.8	967.2	1164.60
1998	1138.1	1346.8	973.8	1023.1	1334.24
Average	1268.6	1228.4	923.1	977.9	1198.53
Normal rainfall	1171.2	1426.3	873.2	967.5	1185.77

Source: GOM (1999).

3.1.3 Population and Workforce of the Selected Districts:

Distribution of workforce generally reveals the level of development of a particular region. Theories on economic development indicate that the workforce relying on agriculture would generally be lower in developed country as compared to the underdeveloped country. Therefore, workforce employed in non-farm activities is expected to be relatively higher in the irrigated districts as

compared to those with less irrigation facilities. Population and workforce details are presented in Table 3.2.

Table 3.2: Population and Agricultural Workers in the Selected Irrigated and Unirrigated Districts-2001.

Sr No.	Particulars	Irrigated Districts		Unirrigated Districts		Maharashtra State
		Pune	Bhandara	Amravati	Nanded	
1	Total Population (in Lakhs)					
	Total	72.24 (3)	11.36 (30)	26.06 (13)	28.68 (11)	967.52
	Male	37.68	5.73	13.44	14.76	503.34
	Female	34.56	5.63	12.62	13.92	464.18
2	Rural Population (in Lakhs)					
	Total	30.29 (3)	9.60 (28)	17.07 (15)	21.79 (9)	557.33
	Male	15.56	4.84	8.79	11.18	284.43
	Female	14.73	4.77	8.28	10.61	272.89
3	% of Urban Population in Total Population 2001	58.01 (4)	15.44 (29)	34.51 (8)	24.02 (18)	42.40
4	% of SC/ST Population in Total Population*	15.32 (22)	31.57 (8)	31.86 (7)	29.99 (9)	20.36
5	Total Workers (in Lakhs)	30.49	5.49	11.20	12.28	420.53
	Male	20.49	3.03	7.24	7.19	269.25
	Female	10.00	2.46	3.96	5.09	151.29
6	% of Total Workers to Total Population					
	Total	42.21	48.36	42.99	42.81	43.46
	Male	54.38	52.92	53.90	48.73	53.49
	Female	28.94	43.70	31.39	36.54	32.59
7	% of Rural Workers to Rural Population					
	Total	53.07	51.44	39.32	47.60	50.43
	Male	57.39	54.24	56.29	50.36	54.18
	Female	48.50	48.60	42.00	44.70	46.52
8	% of Cultivators in Total Rural Workers					
	Total	50.68	27.18	23.11	36.56	41.69
	Male	47.56	29.13	28.84	40.53	42.49
	Female	54.58	24.98	14.96	31.84	40.71
9	% of Agriculture Laboures in Total Rural Workers					
	Total	23.74	50.27	63.45	48.32	38.39
	Male	17.36	39.65	53.67	39.28	30.3
	Female	31.72	62.29	77.35	59.07	48.22
10	% of NFRE in Total Rural Workers					
	Total	25.58	22.55	13.45	15.12	19.92
	Male	35.08	31.22	17.49	20.19	27.21
	Female	13.70	12.73	7.70	9.09	11.07

Notes: * Figures related to 1991 Census; NFRE-non- farm rural employment.
Figures in parentheses indicate rank of the districts.
Source: www.censusindia.net

Among the four districts selected, Pune stands as the biggest districts in terms of population, while Bhandara stands as the smallest district. Percentage of population living in urban areas is very high (about 58 per cent) in Pune as compared to other selected districts, because of its strong base in industrial and service sectors. On the other hand, because of low industrial development

in Bhandara, only 15 percent of its population lives in urban area. Percentage of total rural workers to total rural population is substantially lower in Amravati district as compared to other selected districts. This is possibly because of predominant rainfed cultivation in this region, where employment opportunities are relatively lower. Percentage of cultivators to total rural workers is substantially higher in Pune district as compared to the states' average. Since Pune is relatively prosperous district because of availability of both surface and groundwater irrigation, a large percentage of workforce still relies on agriculture. Interestingly, as expected, percentage of rural workforce involved in non-farm rural employment (NFRE) is found to be higher in both irrigated districts. On an average, about 24 per cent of total workers is employed in NFRE in irrigated districts, whereas the same is only about 14 per cent in dry (rainfed) districts. This clearly indicates that there is close nexus between agricultural growth and NFRE, as found by many studies earlier (Dev, 1990; Narayanamoorthy, et.al., 2002). On the whole, some distinct differences are seen in workforce between irrigated and less-irrigated districts selected for the analysis.

3.1.4 Land Use Pattern:

Data on land use pattern explains how extensively lands are utilised for different purposes in a district/region. Table 3.3 presents the detailed land use pattern for four selected districts as well as Maharashtra state as a whole. Against our expectation, the land use pattern of irrigated districts is not much different from the districts with less irrigation facility. We have expected that because of higher availability of irrigation, the share of area cultivated more than once and net sown area would be higher in irrigated districts like Pune and Bhandara as compared to other two districts. But this is not borne out by the data. Similarly, we could not observe any distinct difference between the two groups of districts in both current fallow and other fallow as well. However, the land put under non-agricultural use is found to be relatively higher among the irrigated districts as compared to the less-irrigated districts. On the whole, data on land use pattern shows mixed findings between the irrigated and unirrigated districts.

Table 3.3: Land Utilisation Pattern of Selected Districts- 1999-2000.

('00 ha)

Sr. No.	Items	Irrigated Districts		Unirrigated Districts		Maharashtra State
		Pune	Bhandara	Amravati	Nanded	
I	Geographical area	15620	9279	12217	10331	307583
II	Reporting Area for Land Utilisation Statistics (1 to 5)	15620	9279	12217	10331	307583
1	Forest	1640 (10.50)	2679 (28.87)	3101 (25.38)	855 (8.28)	53651 (17.44)
2	Not Available For Cultivation (a+b)	2518 (16.12)	1056 (11.38)	624 (5.11)	545 (5.28)	29427 (9.57)
	a) Barren and Uncultivated land	1460 (9.35)	178 (1.92)	195 (1.60)	187 (1.81)	16979 (5.52)
	b) Land under Non-agri. use	1058 (6.77)	878 (9.46)	429 (3.51)	358 (3.47)	12448 (4.05)
3	Other Uncultivated Land excluding Fallow land (a+b+c)	1224 (7.84)	1677 (18.07)	695 (5.69)	1013 (9.81)	24540 (7.98)
	a) Cultivable waste	374 (2.39)	276 (2.97)	94 (0.77)	357 (3.46)	8894 (2.89)
	b) Permanent pasture	715 (4.58)	1314 (14.16)	531 (4.35)	595 (5.76)	13405 (4.36)
	c) Misc trees & grooves	135 (0.86)	87 (0.94)	70 (0.57)	61 (0.59)	2241 (0.73)
4	Fallow Land (a+b)	468 (3.00)	249 (1.59)	279 (1.79)	831 (5.32)	23053 (7.49)
	a) Current Fallow	193 (1.24)	168 (1.81)	136 (1.11)	694 (6.72)	11540 (3.75)
	b) Other Fallow	275 (1.76)	81 (0.87)	143 (1.17)	137 (1.33)	11513 (3.74)
5	Net Area Sown	9770 (62.55)	3618 (38.99)	7518 (61.54)	7087 (68.60)	176912 (57.52)
6	Gross cropped area	11745 (75.19)	4284 (46.17)	10484 (85.81)	8225 (79.61)	223512 (72.67)
7	Area sown more than once	1975	666	2966	1138	46600
8	Cropping Intensity	120.21	118.41	139.45	116.06	126.34
III	Net Irrigated Area	2325	2059	595	586	29719
IV	Gross Irrigated Area	2865	2365	791	748	36625

Note: Figures in parentheses are percentage to geographical area.
Source: Commissionerate of Agriculture, Pune.

3.1.5 Cropped Area and Irrigation Details of Selected Districts:

Area under cultivation and area under irrigation of the selected districts are presented in Table 3.4. Though the level of irrigation is relatively higher in the selected irrigated districts, cropping intensity and irrigation intensity are not higher as compared to less-irrigated districts. Since area under rabi crops is

relatively higher in less irrigated districts, the cropping intensity is found to be higher in these districts. The share of irrigated area to gross cropped area is very high in Bhandara as compared to any other districts in Maharashtra. However, its cropping intensity is very low. This is because of the fact that the farmers belonging to Bhandara get surface water only for one season which restricts the farmers cultivating crops more than one season. Area under well irrigation accounts for a substantial share in the gross irrigated area of all other districts and therefore, cropping intensity and irrigation intensity is found to be higher in other districts.

Table 3.4: Cropped Area and Irrigated Area in Selected Districts- 1999-2000.

(Area '00 ha)

Particulars	Irrigated Districts		Unirrigated Districts		Maharashtra State
	Pune	Bhandara	Amravati	Nanded	
Net Sown Area (NSA)	9770	3618	7518	7087	176912
Gross Cropped area	11745	4284	10484	8225	223512
Net Irrigated area	2325	2059	595	586	29719
Gross Irrigated area	2865	2365	791	748	36625
% NIA to NSA	23.80	56.91	7.91	8.27	16.79
%GIA to GCA	24.39	55.21	7.54	9.09	16.39
Cropping Intensity	120.21	118.41	139.45	116.06	126.34
Irrigation Intensity	123.23	114.86	132.94	127.65	123.24

Source: Commissionerate of Agriculture, Pune.

With regard to sourcewise irrigation, we could observe some distinct differences between irrigated and dry districts. While the surface source accounts for major share of irrigation in the irrigated districts, groundwater source accounts for major share of irrigation in the dry districts (see Table 3.5). Interestingly, in both the dry districts, percentage of well irrigated area to net irrigated area is substantially higher than the state's average. Since the quality (certainity and controllability) of groundwater irrigation is generally better than surface irrigation, cropping intensity of the dry districts is relatively higher than that of the irrigated districts.

Table 3.5: Sourcewise Irrigation details of the Selected Districts- 1999-2000.

(Area in '00 ha)

Particulars	Irrigated Districts		Unirrigated Districts		Maharashtra State
	Pune	Bhandara	Amravati	Nanded	
Surface Irrigation	1012.00 (43.53)	1770.00 (85.96)	28.00 (4.71)	163.00 (27.82)	10511.00 (35.37)
Well Irrigation	1313.00 (56.47)	289.00 (14.04)	567.00 (95.29)	423.00 (72.18)	19208.00 (64.63)
Net Irrigation	2325.00 (100.00)	2059.00 (100.00)	595.00 (100.00)	586.00 (100.00)	29719.00 (100.00)
Gross Irrigation	2865.00	2365.00	791.00	748.00	36625.00

Note: Figures in parentheses are percentage to net irrigated area.
Source: Commissionerate of Agriculture, Pune.

3.1.6 Cropping Pattern:

Though cropping pattern is determined by various factors, irrigation availability plays a dominant role in determining it. Therefore, the cropping pattern of the irrigated districts is expected to be different from those of less (dry) irrigated district. Table 3.6 presents the cropping pattern of four selected districts. As expected, the important foodgrain crops such as paddy, wheat and jowar account for major share in GCA of the irrigated districts as compared to the less-irrigated districts. For instance, on an average, cereal crops account for about 57 per cent of GCA in irrigated districts, whereas the same accounts for only about 25 per cent in less-irrigated districts. Pulse crops, which are cultivated predominantly under rainfed condition, account for about 18 per cent of GCA in less-irrigated districts, but the same accounted for only about 7 per cent in irrigated districts. Since pulses are relatively less remunerative crops, farmers belonging to irrigated districts may not have preferred to allocate more area for pulse crops. Similar to pulse crops, area under oilseed crops is also found to be higher with the less-irrigated districts than the counterpart. Since oilseed crops are not very much remunerative, farmers of the irrigated districts may not have cultivated these crops extensively. In the case of other commercial crops also, we could notice a considerable difference between the two groups of districts selected for analysis. Cotton, which is an important commercial crop in the state, accounted for over 33 per cent of GCA in less-

irrigated districts, but the presence of same crop is very negligible in the irrigated districts. Sugarcane, which is water-intensive crop, accounted for nearly 6 per cent of GCA in Pune district, but the same is less in other districts. Because of availability of both surface (canal) and groundwater irrigation, farmers belonging to Pune district have been traditionally cultivating sugarcane crop.

Table 3.6: Districtwise Cropping Pattern: 1999-2000.

(Area in ha)

Name of the Crop	Irrigated Districts				Unirrigated Districts				Maharashtra State	
	Pune		Bhandara		Amravati		Nanded			
	Area	%	Area	%	Area	%	Area	%	Area	%
Cereals										
1) Hy. Jowar	4000	0.34	84	0.02	118400	11.29	203000	24.68	1918000	8.58
2) Paddy	62000	5.28	336700	78.59	9500	0.91	30200	3.67	1520200	6.80
3) Bajra	159400	13.57	-	-	1600	0.15	900	0.11	1736400	7.77
4) Maize	-	0.00	115	0.03	768	0.07	200	0.02	279900	1.25
5) Wheat	59900	5.10	15318	3.58	11471	1.09	34000	4.13	1049100	4.69
6) Rabi Jowar	495200	42.16	859	0.20	56	0.01	31800	3.87	3272700	14.64
Total Cereals	811400	69.08	353076	82.42	143795	13.72	301200	36.62	10036100	44.90
Pulses										
1) Tur	6700	0.57	6720	1.57	87404	8.34	49800	6.05	1040900	4.66
2) Mung	13400	1.14	275	0.06	54500	5.20	35300	4.29	647200*	2.90
3) Udid	3700	0.32	182	0.04	8900	0.85	42500	5.17	533800*	2.39
4) Gram	44200	3.76	4915	1.15	29958	2.86	29200	3.55	932500	4.17
Total Pulses	101600	8.65	30487	7.12	182208	17.38	158600	19.28	3605500	16.13
Oilseeds										
1) Groundnut	48300	4.11	551	0.13	12200	1.16	8000	0.97	406500	1.82
2) Sesamum	3200	0.27	650	0.15	4029	0.38	8200	1.00	130100	0.58
3) Niger	2500	0.21	-	-	100	0.01	2100	0.26	67400	0.30
4) Sunflower	6600	0.56	24	0.01	1902	0.18	11000	1.34	401500	1.80
5) Soybean	2100	0.18	6575	1.53	133500	12.73	5900	0.72	1163600	5.21
6) Safflower	19500	1.66	114	0.03	3435	0.33	6800	0.83	317400	1.42
7) Linseed	500	0.04	5458	1.27	2.0	-	1400	0.17	97800	0.44
Total Oilseeds	83200	7.08	13572	3.17	156498	14.93	44900	5.46	2739200	12.26
Other Commercial Crops										
1) Cotton	500	0.04	NA	-	348000	33.19	272000	33.07	3253900	14.56
2) Sugarcane	65100	5.54	973	0.23	34000	3.24	15700	1.91	590100	2.64
3) Total Fruits*	15900	1.35	1000	0.23	40800	3.89	6700	0.81	386200	1.73
4) Total Vegetables*	54400	4.63	8100	1.89	4700	0.45	1500	0.18	273300	1.22
Total	135900	11.57	10073	2.35	427500	40.78	295900	35.98	4503500	20.15
Others	42400	3.61	21192	4.95	138399	13.20	21900	2.66	1466900	6.56
GCA	1174500	100.0	428400	100.00	1048400	100.0	822500	100.00	22351200	100.0

Note: * figures relate to 1997-98.

Sources: Commissionerate of Agriculture, Pune; Department of Agriculture of the selected districts. agri.mah.nic.in

The share of the area under vegetable crops to GCA is also found to be higher with the irrigated districts as compared to less-irrigated districts. Since irrigation is necessary for cultivating vegetables, the area under vegetable crops is found to be higher with the irrigated districts. On the whole, our data on cropping pattern show a considerable difference between irrigated and less-irrigated district selected for the analysis.

3.1.7 Area under Irrigated Crops:

After having analysed the total cropping pattern of the selected districts, we have also analysed area under irrigated crops to understand the important crops that are cultivated using irrigation. Table 3.7 presents the cropwise percentage of irrigated area to cropped area. As expected, there are considerable differences in cropwise irrigated area between the irrigated and dry districts. While considerable percentage of cropped area of foodgrains such as paddy, wheat and pulses are cultivated using irrigation in irrigated districts, the same is found to be relatively lower in less irrigated districts. Interestingly, irrigated area under different crops is also substantially varied between the two irrigated districts namely Pune and Bhandara. This is possibly because of two reasons. First, the source of irrigation used for crop cultivation is totally different in these two districts, as mentioned earlier. Second, these two districts are drawn from different agro-climatic regions.

Though there are differences in the share of area under irrigated foodgrain crops between the irrigated and less irrigated district, the same difference is not seen in the crops like sugarcane, fruits and vegetables between the two group of districts. In all these crops, the percentage of irrigated area to cropped area is over 80 per cent. This means that farmers try to use the available irrigation mostly to those crops, which provide higher remuneration to them. On the whole, the analysis on cropwise irrigated area shows that both in foodgrain and non-foodgrain crops, the share of irrigated area to cropped area is found to be higher among the irrigated districts as compared to the other two less-irrigated districts considered for the analysis.

Table 3.7: Cropwise Percentage of Irrigated area to Cropped Area - 1997-98.

Name of the Crop	Irrigated Districts						Unirrigated Districts						Maharashtra State		
	Pune District			Bhandara District			Amravati District			Nanded District					
	GIA (%)	GCA (%)	PIACA	GIA (%)	GCA (%)	PIACA	GIA (%)	GCA (%)	PIACA	GIA (%)	GCA (%)	PIACA	GIA (%)	GCA (%)	PIACA
Rice	0.76	5.45	3.39	85.85	63.85	65.40	0.00	1.00	0.00	5.19	4.09	12.46	11.56	7.01	28.47
Wheat	14.08	4.57	75.23	4.21	4.30	47.67	20.91	1.83	100.0	21.50	2.64	79.82	18.28	3.63	87.09
Jowar	22.23	40.05	13.56	0.09	0.65	6.90	0.00	13.81	0.00	4.47	28.77	1.52	13.84	25.25	9.46
Bajra	3.61	11.98	7.35	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.11	0.00	2.34	8.28	4.89
Maize	3.16	1.27	60.93	0.00	0.04	0.00	0.00	0.08	0.00	0.00	0.07	0.00	1.07	0.99	18.61
Total Cereals	43.87	65.93	16.26	90.16	69.27	63.31	20.91	17.72	10.34	31.16	35.73	8.55	47.11	46.67	17.43
Gram	6.11	3.53	42.28	1.01	2.29	21.36	9.89	4.96	17.45	9.30	2.45	37.20	6.70	3.31	34.99
Total Pulses	7.69	6.11	30.77	1.19	16.01	3.62	10.14	20.73	4.28	9.30	18.12	5.04	7.47	16.15	7.99
Sugarcane	14.60	3.57	100.0	2.06	1.00	100.0	4.06	0.36	100.0	26.69	2.62	100.0	13.48	2.33	100.0
Fruits	4.95	1.33	90.57	0.37	0.22	80.00	51.33	4.53	99.26	8.94	0.79	110.45	7.69	1.81	73.51
Vegetables	18.34	4.57	98.16	3.71	1.80	100.0	4.94	0.52	82.98	1.93	0.18	106.67	7.26	1.28	98.10
Cotton	0.07	0.02	100.0	0.00	0.00	0.00	0.13	38.62	0.03	0.00	33.05	0.00	3.58	14.49	4.27
Groundnut	2.47	4.20	14.40	0.14	0.09	75.00	1.77	1.45	10.69	6.64	0.79	82.09	4.06	2.55	27.54
Sunflower	0.34	0.39	21.28	0.00	0.04	0.00	0.00	0.39	0.00	5.31	3.09	16.86	2.55	1.92	22.95
Oilseed	2.85	7.47	9.33	0.27	10.38	1.29	1.77	16.93	0.92	12.08	8.02	14.77	7.21	12.51	9.95
Gross Area	100.0	100.00	24.43	100.0	100.0	48.64	100	100.0	8.76	100.0	100.0	9.81	100.0	100.0	17.27

Note: PIACA- % Irrigated area to cropped area.
Source: GOM (2002).

3.1.8 Use of Yield Increasing Inputs:

Under this section, we have considered two inputs namely fertilisers and coverage of HYV/Hybrid varieties. Both of these inputs are proved to be an important yield increasing inputs. Let us first look at the spread of HYV/Hybrid varieties in the selected districts. Due to the non-availability of data, we have presented area under HYV/Hybrid only for some selected crops. Data presented in Table 3.8 do not show any significant difference in the coverage of HYV/Hybrid varieties among different crops between irrigated and unirrigated districts. This is against our expectation. Our expectation was that the adoption HYV/hybrid varieties would be higher in irrigated districts when compared to less irrigated districts, as risk associated with crop cultivation is higher in less irrigated or rainfed areas. The high coverage of HYV/Hybrid varieties seems to indicate that the farmers by and large are aware of the importance of using quality seeds in crop cultivation.

Table 3.8: Coverage of HYV/Hybrid Varieties - 1998-99.

(Percentage to total area)

Name of the Crop	Irrigated Districts		Unirrigated Districts		Maharashtra State
	Pune	Bhandara	Amravati	Nanded	
Rice	96.0	92.0	97.0	97.0	90.0
Kharif Jowar	93.0	-	93.0	100.0	92.0
Rabi Jowar	76.0	100.0	-	87.0	81.0
Bajra	99.0	-	26.0	67.0	91.0
Wheat	76.0	100.0	100.0	100.0	95.0
Maize	57.0	50.0	89.0	-	76.0
Cotton	100.0	-	90.9	94.3	93.9

Source: GOM (1999).

The other yield increasing input that we have considered for the analysis is fertiliser. Fertiliser consumption of a region is mostly determined by the availability of irrigation and cropping pattern followed. Macro level estimates indicate that paddy and wheat together consumes over 60 per cent of fertiliser at all India level. Similarly, irrigated area alone consumes over 68 per cent of fertiliser (NCAER, 1991). However, the consumption of fertiliser in the selected districts shows a trend which is different from what is seen generally at the all India level (see Table 3.9). Though the consumption of fertiliser is relatively higher in irrigated districts as compared to one (Amravati) of the less-irrigated

districts, the same is found to be very high in Nanded districts, which is one of the less-irrigated districts selected for the analysis. This higher consumption of fertiliser by Nanded district is possibly because of intensive cultivation of crops like banana and cotton, both consume relatively higher amount of fertilisers.

Table 3.9: Fertiliser Consumption - 1999-2000.

Particulars	Irrigated Districts				Unirrigated Districts				Maharashtra State	
	Pune		Bhandara		Amravati		Nanded			
	Total (mt)	Per ha (kg)	Total (mt)	Per ha (kg)	Total (mt)	Per ha (kg)	Total (mt)	Per ha (kg)	Total (mt)	Per ha (kg)
N	64419	54.85	28530	66.63	32051	30.57	67629	82.22	1143709	51.17
P	27955	23.80	8466	19.77	14131	13.48	37524	45.62	551991	24.70
K	11784	10.03	1272	2.97	6303	6.01	18591	22.60	234792	10.50
Total	104158	88.68	38268	89.37	52485	50.06	123744	150.45	1930492	86.37

Sources: http://agri.mah.nic.in/agri/input/html/dist_mat_consumption.htm .
Commissionerate of Agriculture, Pune.

3.1.9 Use of Machineries in Agriculture:

Use of machineries such as pumpsets, tractors, threshers etc., varies with region depending upon the development of agriculture. Generally, use of machineries is found to be higher in irrigated region because of intensive cultivation. In order to understand level of use of machineries in the selected districts, we have considered four machineries namely tractors, pumpsets, combined harvesters and threshers. It is evident from Table 3.10 that use of machineries is relatively higher in irrigated districts as compared to less irrigated districts. For instance, the availability of tractor per thousand hectares of net cropped area comes to about 8 for irrigated districts, whereas the same is only about 3 for Amravati district and 1 for Nanded district. Similarly, pumpsets (both electric plus oil engine) available per thousand hectares of cropped area is about 56 (average of two districts) for irrigated districts, but the same comes to only about 1 per thousand hectares of cropped area for unirrigated districts. The same trend is observed in threshers and combined harvesters as well.

Table 3.10: Use of Machineries in Selected Districts - 1997-98.

Particulars	Irrigated Districts				Unirrigated Districts				Maharashtra State	
	Pune		Bhandara		Amravati		Nanded			
	Total	Per '000 ha	Total	Per '000 ha	Total	Per '000 ha	Total	Per '000 ha	Total	Per '000 ha
Tractors										
i) Crawler Tractors	229	0.23	124	0.44	139	0.19	1	0.00	3177	0.18
ii) Hand Tractors	160	0.16	66	0.23	24	0.03	6	0.01	4023	0.23
iii) Four Wheeled Tractors	7703	7.90	2211	7.76	2256	3.01	1123	1.51	81353	4.59
Total	8092	8.30	2401	8.43	2419	3.23	1130	1.52	88553	5.00
Pump Sets										
i) Electric pump sets	51026	52.36	8914	31.30	30361	40.56	28480	38.31	851824	48.07
ii) Oil Engines	10242	10.51	5079	17.83	960	1.28	580	0.78	112259	6.33
Combined Harvesters	253	0.26	8	0.03	25	0.03	2	0.00	1937	0.11
Threshers	1315	1.35	430	1.51	900	1.20	83	0.11	18935	1.07

Source: GOM (2002).

3.1.10 Productivity of Principal Crops:

Productivity of crops is determined by many factors apart from irrigation. We have seen earlier that the use of yield increasing inputs in irrigated districts is not very much different from the less irrigated districts. Therefore, it is expected that there may not be a substantial difference in productivity of different crops between the two groups of districts. Table 3.11 presents the productivity of principal crops. As expected, except in the case of rice, bajra, groundnut and cotton, productivity of all other crops is not higher in irrigated districts as compared to less irrigated districts. However, productivity of many crops in Pune district is relatively higher than other three districts. This is possibly because of relatively higher availability of groundwater and canal irrigation in Pune district. Though Bhandara district has higher percentage of irrigated area, the source of irrigation is tank (surface) which is poor in terms of quality (reliability and certainity). Therefore, the productivity of many crops is relatively lower in Bhandara district. This indicates that the source of irrigation is an important determinant of productivity of crops, as proved by various studies in Indian agriculture.

Table 3.11: Productivity of Principal Crops - 1999-2000.

(Kg/ha)

Name of the Crop	Irrigated Districts		Unirrigated Districts		Maharashtra State
	Pune	Bhandara	Amravati	Nanded	
Rice	1446	1415	632	599	1683
Wheat	1740	757	1611	1170	1369
Jowar	711	400	1115	1279	904
Bajra	739	--	513	513	653
Total Cereals	882	1371	1150	1201	1045
Tur	688	911	1048	1152	834
Gram	674	418	750	616	643
Total Pulses	594	517	807	716	613
Total Foodgrains	854	1256	947	1020	931
Groundnut	1205	745	781	508	950
Soybean	1900	1350	1837	1619	1392
Oil seed	999	664	741	644	974
Sugarcane	100368	87545	103278	76155	106999
Cotton(in lint)	593	--	130	110	162

Source: www.agri.mah.nic.in.

3.2.0 Basic Features of Sample Farmers:

In the earlier section, we have presented the agro-economic profile of the selected districts using secondary level information. In this section, using the primary level data, we analyse the basic features of the sample farmers. Specifically, we look into the demographic details including the educational status of the sample farmers, land holding details, cropping pattern, area under irrigation, coverage of HYVs in different crops, productivity of different crops and farm assets of the sample farmers. For analysing the above-mentioned parameters, the sample farmers belonging to both irrigated and less-irrigated districts have been grouped into three categories namely marginal (< 1 hectare), small (1-1.99 ha) and large (> 2 ha)[2].

[2] Though sample farmers have been originally selected by making five categories viz., marginal (< 1 ha), small (1 ha – 1.99 ha), semi-medium (2 ha –3.99 ha), medium (4 ha – 9.99 ha) and large (> 10 ha), we have regrouped semi-medium, medium and large under one group as large, since a very few farmers belonging SC/ST group own land more than 2 ha in our study area.

3.2.1 Population and Workers:

Size of family is determined by number of factors apart from resource base of the family and the educational status of the head of the household. It is argued that poor family tends to have more number of children in order to increase their total earning capacity. Table 3.12 presents the data on average size of family and share of workers to total population separately for SC/ST and other groups for both irrigated and unirrigated districts. Against our expectation, the average size of family increases along with the landholding size in both SC/ST and other groups in both irrigated and less-irrigated districts. The average size of family belonging to SC/ST group is 5.77 among marginal category farmers, but the same is 9.25 among large size farmers of irrigated districts. Similarly, the average size of family belonging to non-SC/ST category is 5.46 among marginal farmers, whereas the same is 8.54 among large size farmers living in irrigated districts. Almost a similar trend is observed in unirrigated districts as well. This indicates that in both districts and in both the groups of farmers, family size increases along with land holding size.

As regards percentage of workers to total population, we could observe some kind of negative relationship between the size of holding and percentage of workers to total population in irrigated as well as less-irrigated districts. Since the farmers belonging to marginal category are generally poor, higher percentage of population belonging to this category one way or other involved in some kind of works in order to increase their family income. However, with regard to percentage of agricultural workers to total workers, the trend is totally different from what is seen from percentage of workers to total population. That is, there is some kind of positive relationship between the land size category and percentage of agricultural workers to total workers in both SC/ST and non SC/ST groups. This is true in both irrigated and unirrigated districts. This indicates that majority of the workers belonging to large size category mainly involve in works relating to agriculture. On the whole, our survey data on population and workers shows that the average family size increases with holding size and percentage of workers to total population is somewhat negatively related with the size of land holding in both SC/ST and non-SC/ST groups.

Table 3.12: Family Size and Percentage of Workers of the Sample Households.

Farm Size	No. of Households			Total Population			Average Size of Family			% of Workers to Total Population			% of Agri. to Total Workers		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
	Irrigated Districts														
Marginal	31	26	57	179	142	321	5.77	5.46	5.63	59.22	59.86	59.50	86.79	85.88	86.39
Small	15	11	26	157	102	259	10.47	9.27	9.96	38.85	50.00	43.24	93.44	92.16	92.86
Large	4	13	17	37	111	148	9.25	8.54	8.71	59.46	57.66	58.11	90.91	82.81	84.88
Total	50	50	100	333	355	688	6.66	7.10	6.88	56.76	56.34	56.54	89.42	86.50	87.92
	Unirrigated Districts														
Marginal	10	12	22	58	65	123	5.80	5.42	5.59	60.34	64.62	62.60	91.43	88.10	89.61
Small	21	21	42	126	130	256	6.00	6.19	6.10	58.73	46.15	52.34	91.89	95.00	93.28
Large	19	17	36	129	105	234	6.79	6.18	6.50	59.69	60.00	59.83	97.40	95.24	96.43
Total	50	50	100	313	300	613	6.26	6.00	6.13	59.42	55.00	57.26	94.09	93.33	93.73
	Irrigated + Unirrigated Districts														
Marginal	41	38	79	237	207	444	5.78	5.45	5.62	59.49	61.35	60.36	87.94	86.61	87.31
Small	36	32	68	283	232	515	7.86	7.25	7.57	47.70	47.84	47.77	92.59	93.69	93.09
Large	23	30	53	166	216	382	7.22	7.20	7.21	59.64	58.80	59.16	95.96	88.98	92.04
Total	100	100	200	646	655	1301	6.46	6.55	6.51	58.05	55.73	56.88	91.73	89.59	90.68

Source: Estimated using sample survey data.

Table 3.13: Educational Qualification of the Head of the Sample Households.

(In numbers)

Farm Size	Illiterate			Primary			High School			Higher Secondary			Graduate and above			Total		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
	Irrigated Districts																	
Marginal	6 (19.4)	13 (50.0)	19 (33.3)	11 (35.5)	7 (26.9)	18 (31.6)	12 (38.7)	4 (15.4)	16 (28.1)	1 (3.2)	2 (7.7)	3 (5.3)	1 (3.2)	0 (0.0)	1 (1.8)	31 (100.0)	26 (100.0)	57 (100.0)
Small	8 (53.3)	4 (36.4)	12 (46.2)	2 (13.3)	2 (18.2)	4 (15.4)	3 (20.0)	3 (27.3)	6 (23.1)	2 (13.3)	2 (18.2)	4 (15.4)	0 (0.0)	0 (0.0)	0 (0.0)	15 (100.0)	11 (100.0)	26 (100.0)
Large	2 (50.0)	6 (46.2)	8 (47.1)	1 (25.0)	5 (38.5)	6 (35.3)	0 (0.0)	2 (15.4)	2 (11.8)	0 (0.0)	0 (0.0)	0 (0.0)	1 (25.0)	0 (0.0)	1 (5.9)	4 (100.0)	13 (100.0)	17 (100.0)
Total	16 (32.0)	23 (46.0)	39 (39.0)	14 (28.0)	14 (28.0)	28 (28.0)	15 (30.0)	9 (18.0)	24 (24.0)	3 (6.0)	4 (8.0)	7 (7.0)	2 (4.0)	0 (0.0)	2 (2.0)	50 (100.0)	50 (100.0)	100 (100.0)
	Unirrigated Districts																	
Marginal	4 (40.0)	5 (41.7)	9 (40.9)	2 (20.0)	4 (33.3)	6 (27.3)	4 (40.0)	2 (16.7)	6 (27.3)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (8.3)	1 (4.5)	10 (100.0)	12 (100.0)	22 (100.0)
Small	11 (52.4)	10 (47.6)	21 (50.0)	5 (23.8)	3 (14.3)	8 (19.0)	3 (14.3)	8 (38.1)	11 (26.2)	1 (4.8)	0 (0.0)	1 (2.4)	1 (4.8)	0 (0.0)	1 (2.4)	21 (100.0)	21 (100.0)	42 (100.0)
Large	8 (42.1)	6 (35.3)	14 (38.9)	6 (31.6)	5 (29.4)	11 (30.6)	3 (15.8)	4 (23.5)	7 (19.4)	0 (0.0)	0 (0.0)	0 (0.0)	2 (10.5)	2 (11.8)	4 (11.1)	19 (100.0)	17 (100.0)	36 (100.0)
Total	23 (46.0)	21 (42.0)	44 (44.0)	13 (26.0)	12 (24.0)	25 (25.0)	10 (20.0)	14 928.0)	24 (24.0)	1 (2.0)	0 (0.0)	1 (1.0)	3 (6.0)	3 (6.0)	6 (6.0)	50 (100.0)	50 (100.0)	100 (100.0)
	Irrigated + Unirrigated Districts																	
Marginal	10 (24.4)	18 (47.4)	28 (35.4)	13 (31.7)	11 (28.9)	24 (30.4)	16 (39.0)	6 (15.8)	22 (27.8)	1 (2.4)	2 (5.3)	3 (3.8)	1 (2.4)	1 (2.6)	2 (2.5)	41 (100.0)	38 (100.0)	79 (100.0)
Small	19 (52.8)	14 (43.8)	33 (48.5)	7 (19.4)	5 (15.6)	12 (17.6)	6 (16.7)	11 (34.4)	17 (25.0)	3 (8.3)	2 (6.3)	5 (7.4)	1 (2.8)	0 (0.0)	1 (1.5)	36 (100.0)	32 (100.0)	68 (100.0)
Large	10 (43.5)	12 (40.0)	22 (41.5)	7 (30.4)	10 (33.3)	17 (32.1)	3 (13.0)	6 (20.0)	9 (17.0)	0 (0.0)	0 (0.0)	0 (0.0)	3 (13.0)	2 (6.7)	5 (9.4)	23 (100.0)	30 (100.0)	53 (100.0)
Total	39 (39.0)	44 (44.0)	83 (41.5)	27 (27.0)	26 (26.0)	53 (26.5)	25 (25.0)	23 (23.0)	48 (24.0)	4 (4.0)	4 (4.0)	8 (4.0)	5 (5.0)	3 (3.0)	8 (4.0)	100 (100.0)	100 (100.0)	200 (100.0)

Note: Figures in brackets are percentage to each category of total.
Source: Estimated using sample survey data.

3.2.2 Educational Status:

Though the educational qualification of farmers is determined by many factors, land holding size also plays a crucial role in determining the educational level of the farmers by providing resource support. Therefore, one may expect that the level of education would be higher among the households having higher amount of land holdings. Table 3.13 presents the educational qualification of the sample farmers by land size category. It shows that the percentage of illiterate farmers are marginally higher in unirrigated districts as compared to irrigated districts, as expected. However, we could not observe any uniform trend between land size category and percentage of illiterate farmers in both SC/ST and non-SC/ST groups. It was expected that the percentage of illiterate farmers would be higher among the small and marginal land size category as compared to the large size category. But, this is not supported by our sample survey data. As mentioned earlier, since educational level of the farmers is determined by the availability of infrastructural (road, school facility, etc.) facilities, there is a need to relate the educational level with the indicators of development (for details see, Narayanamoorthy and Kamble, 2003).

3.2.3 Land Holding Details:

In this section, besides presenting the average land holding size of the sample households, area leased out and area leased in by different categories of farmers are also discussed. Table 3.14 presents the land holding details of the sample households. The average landholding size of non-SC/ST group is higher than the SC/ST group in both irrigated and less-irrigated districts. This is also true across different land size categories. Interestingly, the average landholding size is considerably higher in less-irrigated districts as compared to irrigated districts among both SC/ST and non-SC/ST groups. This is expected because the demand for land in irrigated region is always higher as compared to less irrigated regions due to its income generating capacity.

As regards land leased-in and leaded-out, a very few farmers in our sample have involved in it. Percentage of leased-in and leased-out land to total land holding is found to be relatively higher in irrigated districts when

compared to less irrigated districts. As the income generating capacity of the land is higher in irrigated districts, there is a demand for both leased-in and leased-out land. While the percentage of land leased-out is almost negligible among non-SC/ST groups in irrigated districts, the same is about 4.92 per cent in irrigated districts and 1.21 per cent in less irrigated districts among SC/ST group. Economic factors have been reported as the main reasons for involving in market on land leased-out by SC/ST group of farmers.

3.2.4 Irrigation Status:

Apart from increasing the agricultural growth, irrigation availability also determines the use of subsidy by the farmers. Therefore, it is necessary to understand the irrigation status of the sample farmers before analysing the level of subsidy used by various land size categories of the sample farmers. Table 3.15 presents irrigation status of the sample farmers by land size category. The irrigation status of the farmers belonging to different size categories is not the same between SC/ST and non-SC/ST groups and also between irrigated and less-irrigated districts. In irrigated districts, percentage of irrigated area declines when land size increases among non-SC/ST group. But, this not true in the case of SC/ST group, where percentage of irrigated area increases along with land holding size. Many of the sample farmers belonging to SC/ST group have own irrigation wells and therefore, percentage of irrigated area of this group is higher than small/marginal size category.

The irrigation status of different size category of farmers belonging to unirrigated or less irrigated districts is totally different from what is seen in irrigated districts. While the percentage of irrigated area increases along with the land size among non-SC/ST group, the same is not true in the case of SC/ST group. Though there are differences in percentage of irrigated area between SC/ST and non-SC/ST groups across different size categories, percentage of irrigated area of the sample farmers belonging to irrigated districts is substantially higher than the less-irrigated districts. The average percentage of irrigated area comes to about 48 per cent for SC/ST group of farmers belonging to the irrigated districts, whereas the same is only about 15 per cent in less-irrigated districts. Similarly, the percentage of irrigated

Table 3.14: Land Holding Details of the Sample Household.

Farm Size	Total Land Holding			Total Area Leased-In			Total Area Leased-Out			Average Size of Holding		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
	Irrigated Districts											
Marginal	18.91	15.38	34.29	0.4	0.8	1.2	1.16	0.00	1.16	0.61	0.59	0.60
Small	22.26	13.94	36.2	0.4	3.2	3.6	1.54	0.00	1.54	1.48	1.27	1.39
Large	13.73	39.24	52.97	0.0	0.0	0.0	0.00	0.00	0.00	3.40	3.07	3.12
Total	54.9	68.56	123.46	0.8	4.0	4.8	2.70	0.00	2.70	1.10	1.37	1.23
	Unirrigated Districts											
Marginal	6.2	8.54	14.74	0.0	0.0	0.0	0.00	0.00	0.0	0.62	0.71	0.67
Small	32.3	30.87	63.17	1.0	1.6	2.6	0.00	1.00	1.0	1.55	1.47	1.51
Large	60.45	65.63	126.08	0.0	0.0	0.0	1.20	0.00	1.2	3.18	3.86	3.52
Total	98.95	105.04	203.99	1.0	1.6	2.6	1.20	1.00	2.2	1.98	2.10	2.04
	Irrigated + Unirrigated Districts											
Marginal	25.11	23.92	49.03	0.4	0.8	1.2	1.16	0.0	1.16	0.62	0.63	0.62
Small	54.56	44.81	99.37	1.4	4.8	6.2	1.54	1.0	2.54	1.52	1.40	1.46
Large	74.18	104.87	179.05	0.0	0.0	0.0	1.2	0.0	1.2	3.23	3.50	3.38
Total	153.85	173.6	327.45	1.8	5.6	7.4	3.9	1.0	4.9	1.54	1.74	1.64

Source: Estimated using sample survey data.

Table 3.15: Irrigation Status of Sample Farmers.

Farm Size	GIA			GCA			% GIA to GCA		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
	Irrigated Districts								
Marginal	9.86	12.48	22.34	20.81	22.49	43.3	47.38	55.49	51.59
Small	11.52	8.55	20.07	25.65	19.99	45.64	44.91	42.77	43.97
Large	7.13	18.2	25.33	12.33	53.91	66.24	57.83	33.76	38.24
Total	28.51	39.23	67.74	58.79	96.39	155.18	48.49	40.70	43.65
	Unirrigated Districts								
Marginal	2.2	1.53	3.73	6.82	8.42	15.24	32.26	18.17	24.48
Small	3.57	3.4	6.97	30.79	27.56	58.35	11.59	12.34	11.95
Large	8.6	15.25	23.85	52.82	57.53	110.35	16.28	26.51	21.61
Total	14.37	20.18	34.55	90.43	93.51	183.94	15.89	21.58	18.78
	Irrigated + Unirrigated Districts								
Marginal	12.06	14.01	26.07	27.63	30.91	58.54	43.65	45.33	44.53
Small	15.09	11.95	27.04	56.44	47.55	103.99	26.74	25.13	26.00
Large	15.73	33.45	49.18	65.15	111.44	176.59	24.14	30.02	27.85
Total	42.88	59.41	102.29	149.22	189.9	339.12	28.74	31.28	30.16

Source: Estimated using sample survey data.

area is about 40 per cent among non-SC/ST group in irrigated districts, but the same is only about 21 per cent in less-irrigated districts.

3.2.5 Area under HYVs/Hybrids:

The adoption of HYVs/Hybrids in different crops is mostly determined by the expected income of the crops. Therefore, the coverage of HYVs/Hybrids is normally higher in those crops, which are expected to generate higher income. Let us see the coverage of HYVs/Hybrids by different land size category farmers in selected crops. It is evident from Table 3.16 that the coverage of HYVs/Hybrids is not very much different between SC/ST and non-SC/ST group of farmers in almost all the crops presented. This is also true both in irrigated and less irrigated districts, except in the case of tur crop. Since tur is a less remunerative crop and also cultivated predominantly under rainfed condition, farmers reluctant to use HYVs/Hybrids varieties in this kind of crop. On the whole, our sample survey data do not show any distinct difference in the coverage of area under HYVs/Hybrids between SC/ST and non-SC/ST group of farmers in both irrigated and less-irrigated districts.

3.2.6 Cropping Pattern:

Cropping pattern of the sample farmers belonging to irrigated and less-irrigated districts is presented in Table 3.17. As expected, there is a distinct difference in cropping pattern between the two districts. Water consuming crops accounts for a very low share of area in less-irrigated districts, whereas the same crops account for considerable percentage of cropped area in irrigated districts. For instance, sugarcane, vegetables, paddy and wheat together account for nearly 50 per cent of GCA among non-SC/ST group and about 53 per cent of GCA among SC/ST group of farmers belonging to irrigated districts. But, except wheat, other water consuming crops are not seen in the cropping pattern of less-irrigated districts. Rainfed crops such as cotton, jowar, tur, mung and udid (black gram) account for nearly 85 per cent of GCA among both SC/ST and non-SC/ST group of farmers in less-irrigated districts mainly due to non-availability of irrigation facility.

Table 3.16: Coverage of Area under HYVs/Hybrids in Selected Crops.

(% to total area under crop)

Farm Size	Irrigated Districts																	
	Jowar			Wheat			Bajra			Groundnut			Sugarcane			Paddy		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
Marginal	74.6	52.5	58.8	100.0	100.0	100.0	90.6	100.0	94.5	84.8	100.0	92.5	86.4	74.4	80.2	94.7	73.9	85.3
Small	50.0	100.0	73.5	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	78.9	91.3
Large	100.0	67.3	67.3	100.0	94.4	94.4	68.8	100.0	94.2	100.0	100.0	100.0	100.0	56.6	80.5	100.0	100.0	100.0
Total	60.4	67.5	66.0	100.0	95.7	96.5	90.3	100.0	95.9	94.6	100.0	98.1	93.7	79.1	85.5	98.0	82.5	90.9

Farm Size	Unirrigated Districts														
	Jowar			Tur			Cotton			Wheat			Mung		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
Marginal	100	100	100	18.02	40.26	30.94	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.0
Small	100	100	100	17.70	39.02	28.81	100.00	100.00	100.00	100.00	100.00	100.00	14.29	0.00	7.69
Large	100	100	100	6.06	55.39	31.20	100.00	100.00	100.00	100.00	100.00	100.00	25.00	25.00	25.00
Total	100	100	100	11.45	47.60	30.29	100.00	100.00	100.00	100.00	100.00	100.00	23.08	18.18	21.31

Source: Estimated using sample survey data.

Table 3.17: Cropping Pattern of Sample Farmers.

(per cent to GCA)

Farm Size	Irrigated Districts																							
	Paddy			Jowar			Bajra			Groundnut			Wheat			Vegetables			Sugarcane			GCA		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
Marginal	36.95	28.28	32.45	5.67	13.21	9.58	20.47	13.29	16.74	15.86	14.90	15.36	0.00	3.78	1.96	6.49	12.67	9.70	14.18	13.87	14.02	100.0 (20.8)	100.0 (22.5)	100.0 (43.3)
Small	34.54	30.77	32.89	6.24	7.10	6.62	27.29	13.61	21.30	17.50	11.01	14.66	4.29	1.25	2.96	3.12	19.76	10.41	3.12	15.01	8.33	100.0 (25.7)	100.0 (20.0)	100.0 (45.6)
Large	30.25	8.16	12.27	0.00	10.48	8.53	25.95	25.97	25.97	11.35	22.72	20.61	0.00	6.59	5.36	11.35	21.41	19.54	21.09	3.93	7.13	100.0 (12.3)	100.0 (53.9)	100.0 (66.2)
Total	34.50	17.54	23.97	4.73	10.42	8.26	24.60	20.45	22.02	15.63	18.47	17.39	1.87	4.82	3.71	6.04	19.03	14.11	10.80	8.55	9.40	100.0 (58.8)	100.0 (96.4)	100.00 (155.2)
Farm Size	Unirrigated Districts																							
	Jowar			Tur			Cotton			Mung			Udid			Wheat			Orange			GCA		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
Marginal	48.53	31.71	39.24	16.28	18.29	17.39	17.60	35.75	27.62	0.00	0.00	0.00	0.00	0.00	0.00	11.73	0.00	5.25	5.87	14.25	10.50	100.0 (6.8)	100.0 (8.4)	100.0 (15.24)
Small	39.95	39.55	39.76	14.68	17.85	16.18	28.58	31.20	29.82	2.27	2.18	2.23	1.62	0.73	1.20	0.65	0.73	0.69	7.21	7.26	7.23	100.0 (30.8)	100.0 (27.6)	100.0 (58.4)
Large	33.70	31.60	32.61	12.50	11.92	12.20	29.16	27.53	28.31	6.06	2.78	4.35	3.81	6.43	5.17	2.27	2.09	2.17	7.19	15.56	11.55	100.0 (52.8)	100.0 (57.5)	100.0 (110.4)
Total	36.95	33.95	35.42	13.52	14.24	13.89	28.09	29.36	28.73	4.31	2.35	3.32	2.78	4.17	3.48	2.43	1.50	1.96	7.10	12.99	10.10	100.0 (90.4)	100.0 (93.5)	100.0 (183.9)

Note: Figures in parentheses are gross cropped area..
Source: Estimated using sample survey data.

As regards the cropping pattern of SC/ST and non-SC/ST group of farmers, our survey data show some marginal differences between the two group of farmers in both irrigated and less irrigated districts. While foodgrain crops account for about 65 per cent and 53 per cent among SC/ST and non-SC/ST groups respectively in irrigated districts, the same crops account for nearly 60 per cent and 56 per cent respectively in less-irrigated districts. Since the farmers belonging to SC/ST group are relatively poor, they have allocated relatively more area for foodgrain crops in order to satisfy their own requirement of foodgrains. Though there are differences in the cropping pattern of SC/ST and non-SC /ST groups of farmers at the aggregate level, we could not observe any uniform trend across different land size categories in both group of farmers. On the whole, our survey data indicate a substantial difference in the cropping of irrigated and less-irrigated districts.

3.2.7 Productivity of Crops:

Productivity of crops is generally higher in irrigated regions as compared to less-irrigated or rainfed regions. This is mainly because of two reasons. First, higher use of yield increasing inputs increases the productivity of crops. Second, because of less moisture stress, crops cultivated under irrigated condition produce higher output. Table 3.18 presents the productivity of principal crops for irrigated and unirrigated districts. It is not possible to relate the productivity of all the crops of irrigated districts with less irrigated districts because of varied cropping pattern between the two groups of districts. Though crops like jowar and wheat are commonly cultivated in both the districts, the productivity of these two crops are not very high in irrigated districts as compared to less irrigated districts. This is mainly because of varied climatic and soil condition prevailing in these two group of districts. However, the productivity of most of the crops cultivated by non-SC/ST farmers is higher than SC/ST farmers in both irrigated as well as less irrigated districts. This is because of the fact that the farmers belonging to non-SC/ST have used higher amount of yield-increasing inputs utilising the higher percentage of irrigated area. On the whole, what emerges from the above is that there is a substantial difference in productivity of majority of crops between SC/ST and non-SC/ST farmers in both irrigated and less-irrigated districts.

Table 3.18: Productivity of Principal Crops of Sample Farmers.

(Kg/ha)

Farm Size	Irrigated Districts																	
	Paddy			Jowar			Bajra			Groundnut			Wheat			Sugarcane		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
Marginal	2133	2486	2292	1610	2441	2205	1880	1906	1891	1152	940	1045	--	2235	2235	37322	38490	37920
Small	2483	2382	2442	3313	1197	2318	1600	4393	2382	824	1114	919	3455	2600	3296	37125	40667	39921
Large	3351	2341	2804	--	1434	1434	2344	1571	1715	786	1257	1209	--	1887	1887	35385	35377	35381
Total	2510	2410	2465	2590	1698	1892	1847	2012	1942	936	1180	1097	3455	1989	2270	36504	38480	37620
	Unirrigated Districts																	
Farm Size	Jowar			Tur			Cotton			Mung			Udid			Wheat		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
Marginal	2251	2191	2224	1000	630	785	442	698	625	--	--	--	--	--	--	3125	--	3125
Small	1955	1881	1920	803	624	710	636	695	666	536	542	538	600	750	643	2000	2000	2000
Large	1635	1906	1772	682	822	753	636	707	672	867	469	734	485	527	512	1667	3083	2375
Total	1814	1921	1866	756	727	741	627	702	666	808	489	693	508	538	527	2227	2929	2500

Source: Estimated using sample survey data.

Table 3.19: Farm Assets of Sample Farmers.

(Value in Rs/ha)

Farm Size	Equipments			Animals			Farm Buildings and Sheds			All Total		
	SC/ST	Other	Total	SC/ST	Other	Total	SC/ST	Other	Total	SC/ST	Other	Total
	Irrigated Districts											
Marginal	10007	18917	14003	9332	19522	13902	487	878	662	19825	39317	28568
Small	5669	9510	7148	6119	14648	9403	521	344	453	12309	24503	17005
Large	3434	7350	6335	1078	5914	4660	66	2617	1956	4578	15881	12951
Total	6604	10384	8703	5965	10743	8618	395	1765	1156	12964	22891	18477
	Unirrigated Districts											
Marginal	9383	2015	5114	9097	4251	6289	226	0	95	18706	6266	11498
Small	4229	2440	3355	7827	2964	5450	1121	81	613	13176	5485	9418
Large	2052	11785	7118	2299	2301	2300	41	229	139	4392	14314	9557
Total	3222	8244	5808	4530	2654	3564	405	167	282	8157	11065	9654
	Irrigated + Unirrigated Districts											
Marginal	9853	12883	11331	9274	14070	11614	422	564	492	19548	27517	23436
Small	4817	4640	4737	7130	6599	6890	876	163	554	12823	11401	12182
Large	2308	10125	6886	2073	3653	2998	46	1122	676	4427	14900	10561
Total	4429	9089	6900	5042	5849	5469	402	798	612	9872	15736	12981

Source: Estimated using sample survey data.

3.2.8 Farm Assets:

Under farm assets, we have considered farm equipments, animals, farm sheds and buildings. The current value of these assets has been collected from the sample farmers to estimate value of farm assets. In order to understand the position of farm assets by different land size category of farmers, we have calculated per hectare value of farm assets separately under three headings namely (a) equipments, (b) animals, and (c) farm buildings and sheds. Per hectare value of farm assets of sample farmers belonging to irrigated and less irrigated districts is presented in Table 3.19.

It is evident from the table that the value of equipments per hectare is substantially higher in irrigated districts when compared to less irrigated districts in both SC/ST and non-SC/ST groups. For instance, the average value of equipments of SC/ST farmers comes to Rs. 6604/ha in irrigated districts, whereas the same is only about Rs. 3322/ha in less irrigated districts. Similar trend is observed in non-SC/ST groups as well. Sample farmers belonging to irrigated districts own more number of pumpsets, bullock carts, etc., and therefore, the average value of equipments is higher in irrigated districts as compared to its counterpart.

Similar to the value of equipments, the average per hectare value of animal and farm buildings is also found to be substantially higher in irrigated districts as compared to less irrigated districts. Farmers belonging to irrigated districts not only have more number of animals such as buffaloes, cows, etc., but also have high value exotic varieties of cows. Because of this, the average value of animals comes to very high for those farmers belonging to irrigated districts. Though the average value of farm assets is found to be substantially higher in non-SC/ST group as compared SC/ST group, we could not observe any trend in the value of farm assets across different land size category of farmers in the selected districts. On the whole, our survey results show a substantial difference in the value of farm assets between irrigated districts and less-irrigated districts and also between SC/ST and non-SC/ST group of farmers.

CHAPTER 4

Utilisation of Agricultural Subsidies: An Evidence from Field Survey

4.1 Introduction:

In this section, using the field survey data collected from the sample farmers, we analyse the utilisation of direct subsidies, indirect subsidies, total subsidies (direct plus indirect) and food subsidies. The problems in accessing subsidies especially by SC/ST farmers are also discussed in this chapter. In order to understand the level of use of subsidies by different land size categories of farmers, the sample farmers have been grouped into three categories as marginal, small and large, as followed in chapter three in this report.

4.2 Direct Subsidies:

Direct subsidies are given to various inputs through different government schemes especially to the weaker section of the farming community. These subsidies are generally provided for inputs like seeds, fertilisers, pesticides and credit (for buying farm machineries, digging wells, etc.). These subsidies can be availed from the government managed outlets (inputs). The level of subsidy provided to various farm inputs varies depending upon the monsoon and the performance of the agriculture. We have estimated the direct subsidies received by the sample farmers for various inputs that they used. Table 4.1 presents the direct subsidies received by the sample farmers belonging to both irrigated and unirrigated districts.

The use of both direct and indirect subsidies is generally expected to be higher in irrigated regions because of use of higher inputs. This has been confirmed by various studies as well (see, section on review of literature). However, not many studies have analysed how the use of subsidy varies between SC/ST and non-SC/ST farmers. Therefore, we aim to study this aspect more specifically. Our survey results presented in Table 4.1 indicate that use of subsidies is relatively higher in irrigated districts as compared to less-irrigated districts among SC/ST and non-SC/ST group of farmers. For instance, in

irrigated districts, the average subsidy used by SC/ST farmers is estimated to be Rs. 1383/ha and the same is Rs. 48/ha for non-SC/ST farmers. But, the situation is different in less-irrigated districts, where the average subsidy used by SC/ST farmers is Rs. 654/ha and the same is completely absent among non-SC/ST farmers. The same trend is seen in inputs like seed, fertilisers and pesticides as well. Among the different items of subsidies, "others" account for a major share of subsidies in both SC/ST and non-SC/ST group of farmers. Since quite a few farmers have received subsidies for digging wells, purchasing pumpsets and livestock, the "others" category account for a major share of subsidies.

We have also tried to study how the use of subsidies varies across different categories of farmers. This is done specifically to test the argument that the subsidies are mostly cornered by large farmers and only a very less quantum of subsidy reaches to the weaker sections (marginal and small) of the farming community. However, our results do not support this argument. In both irrigated and less-irrigated districts, subsidies used by the marginal and small farmers are substantially higher than the large size farmers. While estimating the direct subsidy per farm, we could also observe almost similar kind of trend (see, Table 4.1a). This is because of the fact that the direct subsidies are specifically provided for the weaker sections of the farming community and therefore, the amount of subsidies utilised by the marginal and small farmers are very high. On the whole, our survey results indicate that the direct subsidies used by the farmers belonging to irrigated districts are very high as compared to less-irrigated districts.

4.3 Indirect Subsidies:

Under the indirect subsidies, we originally plan to consider three major inputs namely electricity, fertiliser and canal irrigation. However, though we have selected two irrigated districts along with two less irrigated districts for sample survey, farmers directly using public canal irrigation did not figure in our survey. Therefore, we could not estimate subsidy on canal irrigation.

Table 4.1: Direct Subsidy Utilised by Sample Farmers.

(Rs./ha)

Farm Size	Seed			Fertiliser			Pesticides			Others*			Total		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
	Irrigated														
Marginal	23	4	13	72	16	43	10	0	5	1562	187	848	1667	207	908
Small	12	0	7	23	0	13	0	0	0	1782	0	1001	1817	0	1021
Large	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	13	1	6	36	4	16	3	0	1	1330	44	531	1383	48	554
	Unirrigated														
Marginal	0	0	0	0	0	0	0	0	0	6598	0	2953	6598	0	2953
Small	0	0	0	41	0	22	0	0	0	373	0	197	414	0	219
Large	0	0	0	2	0	1	0	0	0	24	0	11	26	0	12
Total	0	0	0	15	0	7	0	0	0	639	0	314	654	0	321
	Irrigated + Unirrigated														
Marginal	17	3	10	54	12	32	7	0	3	2805	136	1396	2884	150	1441
Small	5	0	3	33	0	18	0	0	0	1013	0	550	1052	0	571
Large	0	0	0	2	0	1	0	0	0	19	0	7	21	0	8
Total	5	0	3	23	2	11	1	0	1	911	22	413	941	24	428

Note: * Others mainly includes machineries and livestock.
Source: Estimated using sample survey data.

Table 4.1a: Direct Subsidy Utilised by Sample Farmers

(Rs. per Farm)

Farm Size	Seed			Fertilizer			Pesticides			Others*			Total		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
	Irrigated														
Marginal	15	3	10	48	14	33	6	0	4	1048	162	644	1119	179	690
Small	20	0	12	40	0	23	0	0	0	3047	0	1758	3107	0	1792
Large	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	16	2	9	42	7	25	4	0	2	1564	84	824	1626	93	859
	Unirrigated														
Marginal	0	0	0	0	0	0	0	0	0	4500	0	2045	4500	0	2045
Small	0	0	0	60	0	30	0	0	0	548	0	274	608	0	304
Large	0	0	0	6	0	3	0	0	0	66	0	35	72	0	38
Total	0	0	0	27	0	14	0	0	0	1155	0	578	1182	0	591
	Irrigated/ Unirrigated														
Marginal	12	2	7	37	9	24	5	0	3	1890	111	1034	1943	122	1067
Small	8	0	4	52	0	27	0	0	0	1589	0	841	1649	0	873
Large	0	0	0	5	0	2	0	0	0	54	0	24	59	0	26
Total	8	1	4	35	4	19	2	0	1	1360	42	701	1404	47	725

Note: * Others mainly includes machineries and livestock.
Source: Estimated using sample survey data.

Table 4.2: Indirect Subsidies Utilised by Sample Farmers.

(Rs/ ha)

Farm Size	Fertiliser			Electricity			Total		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
	Irrigated Districts								
Marginal	149	229	191	262	841	563	412	1070	753
Small	136	182	156	183	589	361	319	770	517
Large	141	161	157	326	387	376	466	548	533
Total	142	181	166	241	535	424	383	716	590
	Unirrigated Districts								
Marginal	155	124	138	108	320	225	263	444	363
Small	159	188	173	60	85	72	218	274	244
Large	160	129	144	75	234	157	234	363	301
Total	159	146	152	72	198	136	231	344	288
	Irrigated + Unirrigated Districts								
Marginal	151	200	177	224	699	475	375	899	652
Small	149	185	165	116	297	199	264	482	364
Large	156	144	149	122	308	239	278	452	388
Total	152	164	159	139	369	268	291	533	426

Source: Estimated using sample survey data.

Table 4.2a: Indirect Subsidies Utilised by Sample Farmers

(Rs. per farm)

Farm Size	Fertilizer			Electricity			Total		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
	Irrigated								
Marginal	100	198	145	176	727	427	276	925	572
Small	233	330	274	313	1070	633	546	1400	907
Large	433	667	612	1004	1606	1464	1437	2273	2076
Total	167	349	258	283	1031	657	450	1380	915
	Unirrigated								
Marginal	106	87	95	74	225	156	180	311	251
Small	233	247	240	88	112	100	320	359	340
Large	443	436	440	207	790	483	651	1227	923
Total	287	273	280	130	370	250	418	643	530
	Irrigated/ Unirrigated								
Marginal	102	163	131	151	568	352	253	731	483
Small	233	276	253	181	441	304	414	717	557
Large	442	536	495	346	1144	798	787	1680	1293
Total	227	311	269	207	700	454	434	1011	723

Source: Estimated using sample survey data

Though quite a few sample farmers have lifted water from river using electric pumpsets for cultivating crops, these farmers are considered only for estimating electric subsidy, as they are not treated as canal irrigated farmers.

The indirect subsidies on fertilisers and electricity are estimated in the following manner. Fertiliser subsidy to farmers represents the difference between the fertiliser prices which farmers pay under the administrated price systems and the prices which they would have otherwise paid to purchase fertilisers in the open market in a free market environment, as defined by Hanumantha Rao Committee Report (GOI, 1998). Using this method, Gulati and Narayanan (2000) have estimated subsidy on urea, DAP and MOP for the farmers pertaining to the year 1999-2000. As per this estimate, during the year 1999-2000, the subsidy provided was Rs. 1165/tonne for urea, Rs. 2403/tonne for DAP, Rs. 3806.63/tonne for MOP and 45.85 percent of concession for other form of fertilisers. By taking into these subsidy figures, we have estimated subsidies on fertilisers utilising the data on fertiliser consumption collected from sample farmers for all three seasons (kharif, rabi, and summer).

The subsidy on electricity is estimated by deducting the average cost of power supply (Rs/kwh) from the tariff charged for the purpose of agriculture. The average cost of power supply was Rs. 3.40/per kwh and the average amount of tariff charged for the purpose of agriculture was Rs. 0.90/kwh in Maharashtra state during the year 2000-01. That is, the subsidy on electricity provided for farmers comes to Rs. 2.50/kwh. In order to estimate the total subsidy on electricity, first we have estimated the total consumption of electricity using the working hours of pumpset and horsepower of the pumpset for each sample farmers having electric pumpsets. After having estimated the total consumption of electricity by each farmer, we have multiplied the total consumption of electricity with the amount of subsidy provided to per unit of electricity (i.e., Rs. 2.50/kwh) to arrive at the total subsidy on electricity.

The estimates on indirect subsidies (per hectare and per farm) on fertilisers and electricity utilised by the sample farmers are presented separately for irrigated and less-irrigated districts in Tables 4.2 and 4.2a. First let us look at the subsidy on fertilisers. It is evident from the table that though

the average per hectare subsidy utilised by the farmers belonging to irrigated districts (Rs. 166/ha) is marginally higher than the farmers belonging to less-irrigated districts (Rs. 152/ha), this is not true with the farmers belonging to the group of SC/ST. That is, the average per hectare subsidy on fertilisers utilised by SC/ST farmers belonging to less-irrigated districts is marginally higher than the subsidy utilised by the same group of farmers belonging to irrigated districts. Though this result is against our expectation, varying cropping pattern followed by the farmers of irrigated and less-irrigated districts has been seen as the main reason for this unexpected result.

Unlike the subsidy on fertilisers, we have observed a clear cut difference in the use of electricity subsidy by the farmers belonging to irrigated and less-irrigated districts. While the average subsidy on electricity utilised by the farmers of irrigated districts comes to Rs. 424/ha, the same comes to only Rs. 136/ha for the farmers belonging to less-irrigated districts. The same kind of trend is seen in both SC/ST and non-SC/ST groups. This is because of the fact that the farmers of irrigated districts not only have more number of pumpsets but have also operated more number of hours for irrigating their crops.

As in the case of per hectare subsidy, per farm indirect subsidy is also found to be higher in irrigated districts as compared to less irrigated districts (see, Table 4.2a). On the whole, though we could not find any clear trend in the use of subsidy across different categories (land size) of farmers, the total indirect subsidies used by the farmers belonging to SC/ST and non-SC/ST groups are substantially higher in irrigated districts (average subsidy is Rs 590/ha) as compared to less-irrigated districts (average subsidy is only Rs. 288/ha).

4.4 Total Subsidies (Indirect + Direct):

After having analysed the indirect and direct subsidies separately, we have studied the total subsidies used by different categories of farmers in both irrigated and less-irrigated districts. Tables 4.3 and 4.3a present per hectare and per farm total subsidies (direct plus indirect) utilised by various categories of sample farmers. As noted earlier, the average total subsidies utilised by the

Table 4.3: Total Subsidies (Direct + Indirect) Utilised by Sample Farmers.

(Rs./ha)

Farm Size	Irrigated Districts								
	Direct			Indirect			Total		
	SC/ST	Other	Total	SC/ST	Other	Total	SC/ST	Other	Total
Marginal	1667	207	908	412	1070	753	2078	1276	1662
Small	1817	0	1021	319	770	517	2136	770	1538
Large	0	0	0	466	548	533	466	548	533
Total	1383	48	554	383	716	590	1765	764	1143
	Unirrigated Districts								
Marginal	6598	0	2953	263	444	363	6862	444	3316
Small	414	0	219	218	274	244	633	274	463
Large	26	0	12	234	363	301	260	363	313
Total	654	0	321	231	344	288	885	344	610
	Irrigated + Unirrigated Districts								
Marginal	2884	150	1441	375	899	652	3259	1050	2092
Small	1052	0	571	264	482	364	1316	482	935
Large	21	0	8	278	452	388	299	452	396
Total	941	24	428	291	533	426	1232	557	854

Source: Estimated using sample survey data.

Table 4.3a: Total Subsidies (Direct + Indirect) Utilised by Sample Farmers

(Rs. per Farm)

Farm Size	Direct			Indirect			Total		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
	Irrigated								
Marginal	1119	179	690	276	925	572	1395	1104	1262
Small	3107	0	1792	546	1400	907	3653	1400	2700
Large	0	0	0	1437	2273	2076	1437	2273	2076
Total	1626	93	859	450	1380	915	2076	1473	1774
	Unirrigated								
Marginal	4500	0	2045	180	311	251	4680	311	2297
Small	608	0	304	320	359	340	928	359	643
Large	72	0	38	651	1227	923	722	1227	960
Total	1182	0	591	418	643	530	1600	643	1121
	Irrigated/ Unirrigated								
Marginal	1943	122	1067	253	731	483	2196	854	1550
Small	1649	0	873	414	717	557	2063	717	1430
Large	59	0	26	787	1680	1293	846	1680	1318
Total	1404	47	725	434	1011	723	1838	1058	1448

Source: Estimated using sample survey data.

Table 4.4: Share of Direct and Indirect Subsidies Utilised by Sample Farmers.

(percent)

Farm Size	Irrigated Districts					
	SC/ST			Others		
	Direct	Indirect	Total	Direct	Indirect	Total
Marginal	80.19	19.81	100.00	16.20	83.80	100.00
Small	85.05	14.95	100.00	0.00	100.00	100.00
Large	0.00	100.00	100.00	0.00	100.00	100.00
Total	78.32	21.68	100.00	6.31	93.69	100.00
	Unirrigated Districts					
Marginal	96.16	3.84	100.00	0.00	100.00	100.00
Small	65.50	34.50	100.00	0.00	100.00	100.00
Large	9.91	90.09	100.00	0.00	100.00	100.00
Total	73.90	26.10	100.00	0.00	100.00	100.00
	Irrigated + Unirrigated Districts					
Marginal	88.49	11.51	100.00	14.33	85.67	100.00
Small	79.92	20.08	100.00	0.00	100.00	100.00
Large	6.99	93.01	100.00	0.00	100.00	100.00
Total	76.39	23.61	100.00	4.40	95.60	100.00

Source: Estimated using sample survey data.

Table 4.4a: Share of SC/ST farmers in utlisation of Direct and Indirect Subsidies.

(percent)

Farm Size	Direct			Indirect			Total		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
	Irrigated								
Marginal	88.18	11.82	100.00	26.26	73.74	100.00	60.10	39.90	100.00
Small	100.00	0.00	100.00	34.72	65.28	100.00	78.06	21.94	100.00
Large	0.00	0.00	0.00	16.28	83.72	100.00	16.28	83.72	100.00
Total	94.59	5.41	100.00	24.59	75.41	100.00	58.49	41.51	100.00
	Unirrigated								
Marginal	100.00	0.00	100.00	32.47	67.53	100.00	92.61	7.39	100.00
Small	100.00	0.00	100.00	47.13	52.87	100.00	72.10	27.90	100.00
Large	100.00	0.00	100.00	37.21	62.79	100.00	39.68	60.32	100.00
Total	100.00	0.00	100.00	39.39	60.61	100.00	71.35	28.65	100.00
	Irrigated/ Unirrigated								
Marginal	94.49	5.51	100.00	27.16	72.84	100.00	73.51	26.49	100.00
Small	100.00	0.00	100.00	39.39	60.61	100.00	76.40	23.60	100.00
Large	100.00	0.00	100.00	26.43	73.57	100.00	27.86	72.14	100.00
Total	96.79	3.21	100.00	30.02	69.98	100.00	63.47	36.53	100.00

Source: Estimated using sample survey data.

farmers of irrigated districts (Rs.1143) is about 87 per cent higher than the subsidies utilised by the farmers of less irrigated districts, which is about Rs. 610/ha. This is also true with SC/ST and non-SC/ST group of farmers. For instance, while the total subsidy utilised by SC/ST farmers belonging to irrigated districts is about 99 per cent higher than same group of farmers belonging to less-irrigated districts, the same comes to about 122 per cent for non-SC/ST group of farmers. This is mainly because of two reasons. First, farmers belonging to irrigated districts have used relatively higher amount of fertilisers and electricity, which have increased the indirect subsidies utilised by the farmers. Secondly, quite a few farmers belonging to irrigated districts have purchased pumpsets and also installed new irrigation wells using subsidy and therefore, the direct subsidies are also higher.

One of the objectives of the study is to find out the share of direct and indirect subsidies in the total subsidies utilised by SC/ST and non-SC/ST group of farmers. Therefore, after having studied the total subsidies, we have studied the share of direct and indirect subsidies by farmers' community. It is very clear from Table 4.4 that the direct subsidies account for 73 to 78 per cent of the total subsidies utilised by SC/ST farmers in both irrigated and less-irrigated districts. On the other hand, indirect subsidies account for 93-100 per cent of the total subsidies utilised by non-SC/ST farmers in both districts. Since most of the direct subsidies are specifically earmarked for the weaker section (SC/ST, marginal and small farmer) of the farming community, the direct subsidies account for major share in the total subsidies utilised by SC/ST farmers.

We have also estimated the share of SC/ST farmers in the utilisation of direct, indirect and total subsidies. Data presented in Table 4.4a clearly show that over 96 percent of direct subsidy is utilised by SC/ST farmers, whereas the same group of farmers have utilised only 30 percent of indirect subsidy. Owing to less use of inputs in cultivation by SC/ST farmers, they could utilise only a limited amount of indirect subsidy. On the whole, our estimate indicates that per hectare subsidy utilised by SC/ST farmers is substantially higher than the subsidy utilised by non-SC/ST farmers.

4.5 Costs and Returns: With and Without Subsidy

Besides estimating direct and indirect subsidies utilised by SC/ST and other farmers, an attempt is also made to compare the costs and returns of those sample farmers who have not utilised any form of subsidy and those who have used subsidy. In our sample, altogether eight farmers (three SC/ST and five non-SC/ST farmers) have not utilised any kind of subsidy during the survey period. Tables 4.5 and 4.5a present per hectare and per farm costs and returns of the sample farmers who have utilised subsidy and who have not utilised subsidy.

As expected, the returns of the sample farmers are substantially higher for those farmers who have utilised subsidy as compared to the non-users of subsidy in both irrigated and less irrigated districts. Similar kind of trend is observed among both SC/ST and non-SC/ST group of farmers. However, the difference in net returns between the users of subsidy and non-users of subsidy is found to be larger in irrigated districts as compared to less irrigated districts. Altogether, our survey results clearly show the important role of subsidy in increasing the net returns of the cultivators.

4.6 Food Subsidy Utilised by Sample Farmers:

Besides estimating direct and indirect subsidies utilised by the farmers, an attempt is also made to estimate the subsidies on food items consumed by the sample farmers. The commodities considered for estimating food subsidies are wheat, rice, sugar and kerosene. The subsidy on each item is computed by deducting the procurement price with the issue price (i.e., price paid by the consumers) of each commodity that the farmers purchased from the public distribution system (PDS) operated by the government agencies. The procurement as well as issue prices of commodities like wheat and rice vary with the consumers living above poverty line (APL) and below poverty line (BPL). Therefore, for estimating subsidies on these items, the average price of APL and BPL have been used. As per own estimate, the average subsidy comes to Rs. 1.45/kg for wheat, Rs. 1.71/kg for rice, Rs. 2.37/kg for sugar and Rs. 3.14/litere for kerosene. In order to arrive at total subsidies per household

on the above-mentioned food items, we have multiplied the quantity consumed by each household with the amount of subsidy per kg. Table 4.6 presents food subsidy utilised (for two months) by the sample farmers in irrigated and less-irrigated districts.

Against our expectation, the food subsidies utilised by the farmers belonging to irrigated districts are higher than the subsidies utilised by the farmers belonging to less-irrigated districts. This is found to be true not only with SC/ST farmers but also with non-SC/ST farmers. On an average, the difference in food subsidy between irrigated and less-irrigated districts comes to Rs. 13/household. However, the same difference is found to be larger among SC/ST (Rs. 19/household) group of farmers as compared to non-SC/ST group (Rs. 7/household). There are two reasons why the food subsidies utilised by less-irrigated districts are lower than that of irrigated districts. First, due to resource constraints, farmers belonging to SC/ST group living in less-irrigated districts could not purchase all the commodities from PDS. Second, since the allotment of food items distributed through PDS is made based on family size, the subsidies utilised by the farmers belonging to less irrigated districts are relatively less due to relatively smaller size of family. On the whole, our study clearly reveals that the farmers belonging to irrigated districts not only utilised higher amount of input subsidies but also enjoyed with higher amount of food subsidies.

4.7 Problems in Accessing Subsidies

Though various subsidy schemes have been introduced time to time by the governments especially to help the weaker sections of the farming community, farmers have been facing number of problems in accessing subsidies due to various reasons. Some reports indicate that the subsidies specially allotted for the weaker sections (SC/ST farmers, marginal and small) of the farming community are misused by the large and resourceful farmers most of the time. In order to understand the major problems faced by the farmers in accessing subsidies, we had a detailed discussions with the sample farmers belonging to all four selected districts. In this section, we discuss the

Table 4.5: Costs, Gross Returns and Net Returns on Sample Farms: with and without subsidy.

(Rs./ha)

Districts	Gross Return			Costs			Net Return		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
	With Subsidy								
Irrigated	17945	20821	19719	6159	8163	7395	11786	12657	12323
Unirrigated	11499	13643	12584	4316	4336	4326	7183	9307	8258
Irrigated + Unirrigated	14045	17276	15844	5044	6274	5729	9001	11003	10116
	Without Subsidy								
Irrigated	9906	2620	4154	3213	1133	1571	6694	1487	2583
Unirrigated	9125	9029	9067	2475	1558	1923	6650	7471	7144
Irrigated + Unirrigated	9385	5482	6680	2721	1323	1752	6665	4159	4928
Ration between With and Without Subsidy									
Irrigated	1.81	7.95	4.75	1.92	7.20	4.71	1.76	8.51	4.77
Unirrigated	1.26	1.51	1.39	1.74	2.78	2.25	1.08	1.25	1.16
Irrigated + Unirrigated	1.50	3.15	2.37	1.85	4.74	3.27	1.35	2.65	2.05

Source: Estimated using sample survey data.

Table 4.5a: Costs, Gross Returns and Net Returns on Sample Farms: with and without subsidy.

(Rs. per farm)

Districts	Gross Return			Costs			Net Return		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
	With Subsidy								
Irrigated	21680	40509	31094	7440	15883	11662	14239	24626	19433
Unirrigated	20846	26441	23585	7824	8404	8108	13022	18037	15477
Irrigated + Unirrigated	21259	33549	27340	7634	12183	9885	13624	21366	17455
	Without Subsidy								
Irrigated	3963	3930	3946	1285	1700	1493	2678	2230	2454
Unirrigated	14600	7283	9113	3960	1257	1933	10640	6027	7180
Irrigated + Unirrigated	7508	5942	6529	2177	1434	1713	5332	4508	4817
Ration between With and Without Subsidy									
Irrigated	5.47	10.31	7.88	5.79	9.34	7.81	5.32	11.04	7.92
Unirrigated	1.43	3.63	2.59	1.98	6.69	4.20	1.22	2.99	2.16
Irrigated + Unirrigated	2.83	5.65	4.19	3.51	8.50	5.77	2.56	4.74	3.62

Source: Estimated using sample survey data.

Table 4.6: Food Subsidy Utilised by Sample Households.

(Rs/household for two months)

Farm Size	Wheat			Rice			Sugar			Kerosene			Total		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
	Irrigated Districts														
Marginal	22	23	23	15	23	19	10	10	10	22	17	20	70	73	71
Small	28	20	25	22	19	21	11	15	13	23	28	25	84	82	84
Large	18	18	18	4	14	12	12	14	13	39	22	26	74	69	70
Total	24	21	22	16	20	18	11	12	11	24	21	22	74	74	74
	Unirrigated Districts														
Marginal	15	27	21	11	16	14	8	10	9	7	21	15	40	74	59
Small	15	21	18	11	17	14	8	10	9	13	18	15	47	66	57
Large	20	16	18	14	15	14	13	12	12	26	19	23	72	62	68
Total	17	21	19	12	16	14	10	11	10	17	19	18	55	67	61
	Irrigated + Unirrigated Districts														
Marginal	20	24	22	14	21	17	10	10	10	18	18	18	62	73	68
Small	21	21	21	16	18	17	9	12	11	17	21	19	63	72	67
Large	19	17	18	12	15	14	12	13	13	28	21	24	72	65	68
Total	20	21	21	14	18	16	10	11	11	20	20	20	65	70	68

Source: Estimated using sample survey data.

major problems encountered by the sample farmers in accessing subsidies. Since the problems associated with accessing input subsidies are different from food subsidies, we have presented the major problems associated with input and food subsidies separately in Box 4.1.

Box 4.1: Problems in Assessing Subsidy by Sample Farmers.

A. Major Problems Faced by the Farmers in Accessing Input Subsidy

- Lack of information about direct subsidies
- Village Development Officer/*Gram Sevaks* seldom approach weaker sections (SC/ST, marginal farmers)
- Very limited availability of direct subsidies
- Pesticides and fertilisers are not available in time
- Required to visit many times to get subsidy from the concerned authority
- Less accessibility to institutional credit

B. Major Problems Faced by the Farmers in Accessing Food Subsidy

- Quality of wheat and paddy supplied through PDS is substandard
- Allotted quantity (quota) is not available in time
- Kerosene is not available most of the time

Source: Sample survey data.

The sample farmers have faced six major problems in accessing input subsidies. They are (a) lack of information about direct subsidies; (b) *Gram Sevaks*/VDOs seldom inform the availability of subsidies to the weaker sections; (c) a very limited availability of direct subsidies; (d) pesticides and fertilisers are not available in time; (e) farmers required to visit number of times to get subsidy from the concerned authority and (f) less accessibility to institutional credit. All these problems were mainly reported by the marginal and small farmers belonging to SC/ST and non-SC/ST group. Majority of the marginal and small farmers reported that they rarely get information about the availability of direct subsidies through Village Development Officer (VDO) and *Gram Sevak*. Farmers belonging to weaker sections reported that the direct subsidies are

misused by the rich farmers most of the time, as there is close nexus between VDOs and rich farmers. The other major problem reported by the farmers belonging to weaker section is that they need to visit many times to get the subsidy from the concerned authority despite producing all the required documents to avail the subsidy. This kind of attitude not only discourages the farmers belonging to the weaker section to approach the concerned authority again and again but also consumes time and resource. Since direct subsidies are provided for a limited number of farmers, there is a high demand for the same from various categories of farmers.

The problems associated with food subsidies are totally different from what is seen in input subsidies. Sample farmers have reported three major problems concerning food subsidies. They are (a) quality of wheat and rice supplied through PDS is substandard; (b) allotted quantity (quota) is not available in time and (c) kerosene is not available most of the time. These problems are commonly reported by the small and marginal farmers belonging to SC/ST and non-SC/ST groups. The supply of substandard quality of wheat and paddy mainly makes lot of hardships to the weaker sections of the farming community, as resource rich farmers do not rely on PDS for purchasing these commodities. Kerosene is one of the essential commodities used by the weaker section of farming community, as it is used for cooking and lighting purposes. But, most of the farmers have faced problems in getting kerosene from PDS. Some farmers reported that since kerosene is sold in bulk in the black market by the employees working in PDS, it is not available for consumers most of the time. On the whole, our discussions with the sample farmers reveal that the weaker sections of the farming community have been mainly facing problems in accessing subsidies.

CHAPTER 5

Effects of Input Subsidies on Agriculture

5.1 Introduction:

After having analysed the utilisation of agricultural subsidies in the previous chapter, in this chapter, we try to study the effects of input subsidies on crop pattern, fertiliser consumption, power consumption, total input use, cost of cultivation as well as net returns using the primary data collected from the sample farmers. For this purpose, we have divided the sample farmers into three groups based on per hectare use of subsidies. Farmers using input subsidies upto Rs. 500/ha are classified as Less Subsidy Users (LSU), those farmers using input subsidies Rs. 500-750/ha are classified as Medium Subsidy Users (MSU) and the farmers who have used input subsidies above Rs. 750/ha are classified as High Subsidy Users (HSU).

First let us understand the distribution of sample farmers by level of utilisation of subsidies before going to study the effect of input subsidies on various parameters mentioned above. Data presented in Table 5.1 indicate that the farmers utilising less subsidy (i.e.,LSU) are substantially higher in less-irrigated districts as compared to irrigated districts, as expected. For instance, above 49 per cent farmers belonging to irrigated districts are coming under the category of LSU, but the same is about 83 per cent in less-irrigated districts. Since the utilisation of both direct and indirect subsidies are relatively low in less-irrigated districts, majority the farmers have come under the group of LSU. Though the same trend exists am ong SC/ST farmers in both irrigated and less-irrigated districts, it is not the same among non-SC/ST farmers. That is, while majority (56 per cent) of non-ST/ST farmers belonging to irrigated districts are coming under group of HSU, only about 8 per cent of non-SC/ST farmers belonging to less-irrigated districts are coming under the group of HSU. This seems to suggest that irrigation is essential for utilising higher amount of subsidy in agriculture.

Table 5.1 Distribution of Sample Farmers by Level of Subsidy.

Subsidy Level	SC/ST	Others	Total
	Irrigated Districts		
LSU (< Rs. 500/ha)	30 (60.00)	19 (38.00)	49 (49.00)
MSU (Rs. 500 – 750/ha)	6 (12.00)	3 (6.00)	9 (9.00)
HSU (> Rs. 750/ha)	14 (28.00)	28 (56.00)	42 (84.00)
Total	50 (100.00)	50 (100.00)	100 (100.00)
	Unirrigated Districts		
LSU (< Rs. 500/ha)	40 (80.00)	43 (86.00)	83 (83.00)
MSU (Rs. 500 – 750/ha)	2 (4.00)	3 (6.00)	5 (5.00)
HSU (> Rs. 750/ha)	8 (16.00)	4 (8.00)	12 (12.00)
Total	50 (100.00)	50 (100.00)	100 (100.00)
	Irrigated + Unirrigated Districts		
LSU (< Rs. 500/ha)	70 (70.00)	62 (62.00)	132 (66.00)
MSU (Rs. 500 – 750/ha)	8 (8.00)	6 (6.00)	14 (7.00)
HSU (> Rs. 750/ha)	22 (22.00)	32 (32.00)	54 (27.00)
Total	100 (100.00)	100 (100.00)	200 (100.00)

Note: Figures in parentheses are percentage to total.
Source: Estimated using sample survey data.

5.2 Effect of Subsidy on Cropping Pattern:

One of the objectives of this chapter is to study the effect of subsidy on cropping pattern. Table 5.2 presents the cropping pattern of irrigated and less-irrigated districts by level of use of subsidy. As can be seen from Table 5.2, there is a substantial variation in the cropping pattern of LSU and HSU in irrigated districts. Foodgrain crops such as paddy and bajra have accounted for over 62 per cent of GCA among SC/ST groups of farmers and over 58 per cent among non-SC/ST group of farmers. This pattern is not true with HSU where high value crops like vegetables and sugarcane have accounted for over 32 per cent of GCA among SC/ST farmers and about 41 per cent of GCA among non-SC/ST farmers. This clearly suggests that the cultivation of high value crops is more among the high users' of subsidy (HSU) irrespective of the community they belong to.

As in the case of cropping pattern of irrigated districts, we could observe some differences in the cropping pattern of low (LSU) and high (HSU) subsidy using farmers belonging to less-irrigated districts as well. Among both SC/ST and non-SC/ST farmers, crops like jowar, tur and cotton have together accounted for over 82 per cent of GCA of the low subsidy users (LSU). However, these same crops have accounted for only about 66 per cent and 52 per cent of GCA respectively among SC/ST and non-SC/ST farmers, who have used higher amount of subsidy (HSU). Orange crop accounts for over 17 and 43 per cent of GCA respectively among SC/ST and non-SC/ST farmers who have used higher amount of subsidy. This again clearly suggest that farmers using higher amount of subsidy cultivate mostly high value of commercial crops.

5.3 Area under HYVs/Hybrids by Level of Subsidy:

We have also studied the relationship between the level of use of subsidy and percentage of cropped area under HYVs/Hybrids in different crops. It is expected that the percentage of area under HYVs/Hybrids would be higher among those farmers who come under the category of HSU in both districts. Table 5.3 presents the percentage area under HYVs/Hybrid varieties by level of use of subsidy.

Table 5.2: Cropping Pattern of Sample Farmers by Level of Subsidy.

(Per cent to GCA)

Subsidy Level	Irrigated Districts																				
	Paddy			Jowar			Bajra			Groundnut			Wheat			Vegetables			Sugarcane		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
LSU	43.83	28.79	35.79	4.92	11.02	8.19	23.93	29.36	26.83	16.61	13.91	15.17	0.31	4.28	2.43	4.00	6.15	5.15	4.31	6.21	5.32
MSU	15.21	5.09	10.88	7.60	37.02	20.18	30.89	17.81	25.30	13.31	29.39	20.18	9.51	--	5.44	4.75	10.69	7.29	14.92	0.00	8.54
HSU	28.11	11.24	15.21	2.41	5.88	5.07	21.76	14.35	16.09	15.16	20.11	18.95	--	5.96	4.56	11.10	29.71	25.33	21.45	11.57	13.90
Total	34.50	17.54	23.97	4.73	10.42	8.26	24.60	20.45	22.02	15.63	18.47	17.39	1.87	4.82	3.71	6.04	19.03	14.11	10.80	8.55	9.40
Subsidy Level	Unirrigated Districts																				
	Jowar			Tur			Cotton			Mung			Udid			Wheat			Orange		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
LSU	36.97	36.41	36.68	12.63	15.08	13.88	32.85	30.62	31.71	5.24	2.42	3.80	3.55	3.63	3.60	1.13	0.54	0.83	3.43	9.49	6.54
MSU	32.56	26.76	28.95	13.95	9.15	10.96	16.28	26.76	22.81	2.33	2.82	2.63	--	8.45	5.26	9.30	5.63	7.02	23.26	20.42	21.49
HSU	40.14	17.93	33.27	18.82	16.33	18.05	7.14	17.93	10.47	--	--	--	--	--	--	5.35	3.98	4.93	17.84	43.82	25.88
Total	36.95	33.95	35.42	13.52	14.24	13.89	28.09	29.36	28.73	4.31	2.35	3.32	2.78	4.17	3.48	2.43	1.50	1.96	7.10	12.99	10.10

Source: Estimated using sample survey data.

Table 5.3: Area under HYVs to Total Cropped Area by Level of Subsidy.

Subsidy Level	Irrigated Districts														
	Jowar			Wheat			Bajra			Sugarcane			Paddy		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
LSU	50.0	92.7	80.8	100.0	100.0	100.0	94.9	100.0	97.9	100.0	60.3	75.3	97.1	76.2	88.1
MSU	100.0	68.7	75.5	100.0	-	100.0	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0
HSU	21.1	31.9	30.7	-	93.4	93.4	70.8	100.0	90.7	88.2	86.5	87.1	100.0	93.0	96.1
Total	60.4	67.5	66.0	100.0	95.7	96.5	90.3	100.0	95.9	93.7	79.1	85.5	98.0	82.5	90.9
Subsidy Level	Unirrigated Districts														
	Jowar			Tur			Cotton			Wheat			Mung		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
LSU	100.0	100.0	100.0	9.0	45.9	29.5	100.0	100.0	100.0	100.0	100.0	100.0	24.3	22.2	23.6
MSU	100.0	100.0	100.0	-	53.8	28.0	100.0	100.0	100.0	100.0	100.0	100.0	-	-	-
HSU	100.0	100.0	100.0	28.4	61.0	37.5	100.0	100.0	100.0	100.0	100.0	100.0	-	-	-
Total	100.0	100.0	100.0	11.4	47.6	30.3	100.0	100.0	100.0	100.0	100.0	100.0	23.1	18.2	21.3

Source: Estimated using sample survey data.

Our data do not show any clear cut trend between the level of use of subsidy and area under HYVs/Hybrid varieties in both irrigated and less-irrigated districts. However, against our expectation, the percentage of area under HYVs in crops like jowar, bajra and sugarcane is relatively lower among those farmers who come under the category of HSU as compared to the category of LSU belonging to irrigated districts. This is particularly true in the case of SC/ST farmers. As mentioned earlier, the adoption of HYVs/Hybrid varieties is determined by many factors and the expected income from the crops is one of the important factors. Therefore, one may not be able to see a direct relationship between the area under HYVs and the level of use of subsidy in all crops.

5.4 Fertiliser Consumption by Level of Subsidy:

In this section, an attempt is made to find out the proportion of fertiliser (in terms of money value) which is going into various crops by level of use of subsidy. Table 5.4 presents estimates on proportion of fertilisers going into various crops for irrigated and less-irrigated districts. It is evident from the table that the use of fertiliser (in Rs. terms) is substantially higher among the farmers who come under the category of HSU in both irrigated and less-irrigated districts. This is expected because higher subsidy users are generally resource rich farmers.

As regards the proportion of fertilisers going in to various crops, we could notice a substantial difference between LSU and HSU in both SC/ST and non-SC/ST group of farmers. In irrigated districts, nearly 42 per cent of fertiliser used by SC/ST farmers belonging to LSU has gone into paddy crop alone, whereas only 16 per cent fertiliser used by the same group of farmers belonging to HSU has gone into paddy crop. Commercial crops like sugarcane and vegetables have consumed only about 37 per cent of fertiliser utilised by SC/ST farmers belonging to LSU group, whereas the same crops accounted for over 51 per cent of fertilisers utilised by HSU. The same trend is seen among non-SC/ST group of farmers as well.

Table 5.4: Fertiliser Consumption by Level of Subsidy.

Subsidy Level	Fertiliser Consumption (Rs./ha)			Proportion going to various crops (per cent)														
				Irrigated Districts														
				Paddy			Groundnut			Sugarcane			Vegetables			Bajra		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
LSU	820	719	766	41.5	26.8	34.2	12.5	9.9	11.2	26.3	18.8	22.5	7.8	10.9	9.4	8.9	15.6	12.3
MSU	1717	830	1338	9.7	1.8	7.6	8.4	24.8	12.8	36.7	0.0	26.9	4.2	18.9	8.1	18.3	27.3	20.7
HSU	1639	1804	1765	16.0	5.1	7.5	13.1	15.8	15.2	31.6	21.3	23.5	19.4	32.2	29.4	11.9	10.6	10.9
Total	1200	1304	1265	24.0	9.6	14.8	11.7	15.0	13.8	30.9	19.6	23.7	11.1	27.0	21.3	12.4	12.5	12.5
Subsidy Level	Fertiliser Consumption (Rs./ha)			Unirrigated District														
				Jowar			Tur			Cotton			Orange			Wheat		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
LSU	1163	940	1049	31.8	31.6	31.7	11.0	13.0	11.9	37.5	34.7	36.3	6.2	13.8	9.7	1.1	0.4	0.8
MSU	1352	839	1033	11.0	17.0	14.1	9.0	8.7	8.9	25.8	38.3	32.1	44.3	23.5	33.8	6.0	5.4	5.7
HSU	1108	2063	1404	29.6	7.2	19.4	16.2	4.3	10.8	7.2	21.2	13.6	29.0	61.9	43.9	11.0	5.3	8.4
Total	1174	985	1078	29.2	27.0	28.2	11.4	11.4	11.4	32.7	33.7	33.2	13.1	20.4	16.5	2.8	1.6	2.2
Subsidy Level	Fertiliser Consumption (Rs./ha)			Irrigated + Unirrigated Districts														
				Jowar			Paddy			Cotton			Sugarcane			Vegetables		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
LSU	1055	866	957	24.7	25.4	25.0	10.2	7.5	8.9	28.3	25.1	26.8	6.5	5.2	5.9	1.9	3.0	2.4
MSU	1553	835	1169	6.2	20.6	11.7	5.9	0.7	3.9	10.1	24.7	15.7	22.3	0.0	13.8	2.6	6.7	4.1
HSU	1418	1827	1695	15.0	6.5	8.8	10.8	4.6	6.3	2.4	2.1	2.2	21.3	19.1	19.7	13.1	29.0	24.7
Total	1185	1147	1164	19.5	16.1	17.6	9.6	5.5	7.4	19.7	14.2	16.7	12.3	11.3	11.8	4.4	15.6	10.6

Source: Estimated using sample survey data.

The trend in proportion of fertiliser going into various crops by level of use of subsidy is very clear in less-irrigated districts. Among the low subsidy users, jowar and cotton together consumed 66 to 69 per cent of fertiliser in both SC/ST and non-SC/ST groups. But, in the case of HSU, orange crop alone consumed nearly 30 per cent of fertiliser utilised by SC/ST group and nearly 70 per cent of fertiliser utilised by non-SC/ST group. On the whole, our analysis clearly suggests that high subsidy users allocate major portion of fertiliser to high value commercial crops.

5.5 Electricity Consumption by Level of Subsidy:

As mentioned earlier, electricity consumption in terms of rupees has been estimated by multiplying the unit cost of power supply (Rs. 3.40/kwh) prevailed during 2000-01 with the total units consumed by the farmers.[1] Cropwise consumption of electricity is estimated using the number of hours of irrigation and horsepower of the pumpsets used by the sample farmers. Table

[1] It is worth mentioning here that the actual cost (value) of power paid by the farmers seems to be higher than the subsidy received by them. This is because of the fact that most of the farmers in our study area own dug wells, where pumpsets are operated only for a limited hours due to limited water availability. This indicates that electricity subsidy utilised by the farmers varies with type of wells owned by the farmers. We present below the actual cost of power (per hectare) paid by the sample farmers for the purpose of comparison with subsidy utilised on account of electricity by the farmers. The actual cost of power per hectare is calculated by dividing the total cost paid by the farmers for electricity with gross cropped area.

(Rs/ha)

Subsidy Level	SC/ST	Others	Total
Irrigated districts			
LSU	731	535	626
MSU	856	1097	959
HSU	1570	1163	1259
Total	978	914	938
Unirrigated districts			
LSU	205	338	273
MSU	1047	581	757
HSU	535	1394	801
Total	326	432	380
Irrigated + Unirrigated districts			
LSU	371	404	388
MSU	941	765	847
HSU	1140	1184	1170
Total	583	677	635

5.5 presents consumption of electricity (in Rs.) by level of subsidy and the proportion of electricity going into various crops.

Since electricity is used for irrigating the crops, the proportion of electricity going into water-intensive crops is generally larger in both irrigated and less-irrigated districts. However, we could notice a substantial difference in the consumption of electricity by low (LSU) and high (HSU) users of subsidy. In irrigated districts, paddy and sugarcane consumed about 67 per cent of electricity used by the LSU of SC/ST group, but sugarcane alone consumed nearly 60 per cent of electricity used by the same community belonging to HSU group. Similarly, vegetable crops alone consumed nearly 52 per cent of electricity used by non-SC/ST farmers belonging to HSU, whereas the same crop consumed only about 23 per cent among the low subsidy users of the same community.

Electricity is mainly used for two crops namely orange and cotton in less-irrigated districts. These two crops consumed 79–89 per cent of total electricity used by SC/ST and non-SC/ST farmers who are coming under the category of LSU. However, this trend is not the same with high subsidy users (HSU), where orange alone consumed over 87 per cent of electricity used by both SC/ST and non-SC/ST group of farmers. On the whole, the following points emerged out from the above analysis: (a) consumption of electricity among the farmers belonging to the category of HSU is very high as compared to the category of LSU in both SC/ST and non-SC/ST group of farmers, (b) major portion of electricity used by the category of HSU has gone into water-intensive high value crops.

5.6 Total Input Used by Level of Subsidy:

In the previous two sections, we have separately analysed the consumption of electricity and fertiliser by level of subsidy used by the sample farmers. In this section, we study the total input used per hectare (in rupees) and the proportion of total input used going into major crops by level of subsidy. The total input cost is estimated by taking into account all the paid out cost incurred by the farmers. Data presented in Table 5.6 clearly show that the

Table 5.5: Electricity Consumption (in Rs.) by Level of Subsidy.

Subsidy Level	Power Consumption (Rs./ha)			Proportion going to various crops (per cent)											
				Irrigated Districts											
				Paddy			Sugarcane			Vegetables			Wheat		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
LSU	113	179	148	40.1	12.6	22.4	27.0	53.1	43.8	12.3	23.8	19.7	2.5	5.3	4.3
MSU	351	378	363	18.2	12.9	15.8	31.1	0.0	17.2	16.1	32.2	23.3	12.4	0.0	6.9
HSU	653	1088	985	9.2	6.3	6.7	59.7	27.7	32.7	20.2	51.9	46.9	0.0	5.6	4.7
Total	301	678	535	17.5	7.2	9.4	46.9	29.0	32.8	17.7	48.1	41.6	3.1	5.3	4.8
Subsidy Level	Power Consumption (Rs./ha)			Unirrigated District											
				Jowar			Cotton			Orange			Wheat		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
LSU	56	103	80	4.6	1.6	2.6	30.7	27.0	28.2	49.1	62.8	58.1	11.9	4.9	7.3
MSU	427	457	446	0.0	0.0	0.0	0.0	29.5	18.8	87.5	45.8	60.8	12.5	24.8	20.3
HSU	250	1221	550	2.7	0.7	1.4	2.2	5.0	4.1	87.4	87.8	87.7	7.1	1.2	3.1
Total	116	217	167	2.5	0.8	1.4	12.3	21.1	18.1	72.9	64.9	67.6	10.8	10.2	10.4
Subsidy Level	Power Consumption (Rs./ha)			Irrigated + Unirrigated Districts											
				Paddy			Sugarcane			Vegetables			Orange		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
LSU	74	128	102	19.3	5.9	10.6	13.0	24.8	20.7	5.9	11.1	9.3	25.5	33.5	30.7
MSU	385	429	409	9.1	4.0	6.3	15.6	0.0	6.8	8.1	10.1	9.2	43.6	31.4	36.7
HSU	485	1100	900	7.2	5.6	5.9	46.9	24.9	28.8	15.8	46.8	41.3	18.7	8.7	10.5
Total	189	451	335	11.0	5.5	6.9	29.4	22.1	23.9	11.1	36.7	30.4	27.1	15.4	18.3

Source: Estimated using sample survey data.

Table 5.6 : Total Inputs Used by Level of Subsidy.

Subsidy Level	Total Input Used (Rs./ha)			Proportion going to various crops (per cent)														
				Irrigated Districts														
				Paddy			Groundnut			Sugarcane			Vegetables			Bajra		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
LSU	4789	3712	4213	40.4	22.8	32.1	20.8	19.6	20.2	13.7	14.7	14.2	6.8	13.7	10.1	14.9	16.5	15.6
MSU	7495	10714	8871	12.6	1.5	6.8	10.1	34.4	22.6	39.8	0.0	19.2	5.8	31.5	19.1	12.9	10.5	11.7
HSU	7942	10611	9982	15.7	6.1	7.9	8.8	15.9	14.6	33.1	20.7	23.0	25.4	37.7	35.4	7.1	9.0	8.6
Total	6119	7945	7253	25.7	8.6	14.1	14.3	18.6	17.2	26.2	17.4	20.2	13.1	32.7	26.4	11.7	10.5	10.9
Subsidy Level	Total Input Used (Rs./ha)			Unirrigated District														
				Jowar			Tur0			Cotton			Orange			Wheat		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
LSU	3975	3926	3950	29.4	28.8	29.1	10.3	12.0	11.2	39.1	36.6	37.8	9.0	16.3	12.7	1.3	0.7	1.0
MSU	5710	4723	5095	18.3	18.7	18.6	9.1	6.9	7.8	18.5	39.4	30.6	43.7	21.3	30.8	6.9	8.5	7.8
HSU	5132	7974	6011	26.9	8.9	19.6	16.2	4.8	11.5	6.7	16.8	10.8	33.6	66.8	47.2	7.3	2.7	5.4
Total	4284	4264	4274	27.7	25.1	26.4	11.0	10.4	10.7	31.7	35.1	33.4	17.0	22.2	19.6	2.9	2.2	2.6
Subsidy Level	Total Input Used (Rs./ha)			Irrigated + Unirrigated Districts														
				Paddy			Groundnut			Cotton			Sugarcane			Vegetables		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
LSU	4232	3854	4036	14.4	7.4	10.9	7.4	6.3	6.9	25.1	24.8	25.0	4.9	4.7	4.8	2.4	4.4	3.4
MSU	6692	6857	6781	7.8	0.8	4.0	6.2	19.1	13.2	7.1	17.5	12.7	24.5	0.0	11.2	3.6	17.6	11.2
HSU	6774	10375	9207	10.8	5.7	6.9	6.0	14.8	12.7	2.1	1.2	1.4	22.7	19.3	20.1	17.4	35.2	30.9
Total	5006	6132	5637	12.4	5.7	8.3	6.9	12.2	10.1	16.4	12.0	13.7	12.6	11.4	11.9	6.3	21.5	15.6

Source: Estimated using sample survey data.

total input cost incurred by the high subsidy users (HSU) is very high as compared to low subsidy users (LSU) in both irrigated and less-irrigated districts. For instance, in irrigated districts, LSU have incurred Rs. 4213/ha, whereas HSU have incurred Rs. 9982/ha, a difference of Rs. 5769/ha. Similarly, in less-irrigated districts, paid out costs incurred by LSU and HSU is respectively as Rs. 3950/ha and Rs. 6011/ha, a difference of about Rs. 2061/ha between the two groups. Clearly the difference in total cost incurred by LSU and HSU is less in less-irrigated districts as compared to irrigated districts mainly because of difference in quantity of input used.

As regards the proportion of total input cost that goes into different crops, our estimates indicate a significant difference in this between HSU and LSU. For instance, paddy and groundnut accounted for over 52 per cent of total input used by LSU in irrigated districts, whereas sugarcane and vegetable crops together cornered over 58 per cent of the total input cost incurred by HSU in irrigated districts. Since both sugarcane and vegetables are high value crops, farmers have spent large proportion of the total input cost on these two crops expecting a higher remuneration from these crops. Similar to irrigated districts, we have also observed a significant difference in the proportion of total input cost going into different crops between LSU and HSU in less-irrigated districts. Crops like jowar and cotton together accounted for nearly 67 per cent of the total input cost incurred by LSU group, whereas orange alone accounted for nearly 50 per cent of the total cost incurred by HSU group in less-irrigated districts. All these clearly suggest that HSU incurred major portion of their total input cost for high value crops as compared to the group of LSU.

5.7 Costs and Returns by Level of Subsidy:

After having analysed the total costs by level of subsidy, we have turned our analysis towards the returns by level of subsidy. Table 5.7 presents the costs (paid out costs), gross returns and net returns by level of subsidy separately for irrigated and less-irrigated districts. As expected, both in irrigated and less-irrigated districts, the net returns realised by the group of HSU is significantly higher than that of LSU. On an average, the net returns

Table 5.7: Costs, Gross Returns and Net Returns by Level of Subsidy.

(Rs./ha)

Subsidy Level	Gross Return			Costs			Net Return		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
Irrigated Districts									
LSU	13603	15638	14691	4789	3712	4213	8814	11925	10478
MSU	17512	19341	18294	7495	10714	8871	10017	8627	9423
HSU	26783	23766	24477	7942	10611	9982	18841	13156	14495
Total	17835	20254	19338	6119	7945	7253	11717	12309	12085
Unirrigated Districts									
LSU	10398	13089	11778	3975	3926	3950	6423	9163	7828
MSU	15256	14151	14568	5710	4723	5095	9546	9429	9473
HSU	15215	18174	16130	5132	7974	6011	10083	10201	10119
Total	11457	13523	12508	4284	4264	4274	7174	9259	8234
Irrigated + Unirrigated Districts									
LSU	11408	13942	12725	4232	3854	4036	7177	10088	8690
MSU	16497	16000	16231	6692	6857	6781	9805	9143	9451
HSU	21975	23267	22848	6774	10375	9207	15200	12892	13641
Total	13970	16940	15633	5006	6132	5637	8964	10807	9996

Source: Estimated using sample survey data.

Table 5.7a: Costs, Gross Returns and Net Returns by Level of Subsidy.

(Rs. per Farm)

Subsidy Level	Gross Return			Costs			Net Return		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
Irrigated Districts									
LSU	14741	30757	20951	5190	7302	6009	9551	23455	14942
MSU	30704	50673	37361	13141	28069	18117	17563	22604	19244
HSU	30150	43425	39000	8940	19387	15905	21209	24038	23095
Total	20971	39046	30008	7194	15316	11255	13777	23730	18753
Unirrigated Districts									
LSU	18358	22614	20563	7018	6783	6896	11340	15831	13667
MSU	65600	66983	66430	24554	22354	23234	41046	44629	43196
HSU	21320	22809	21816	7192	10007	8130	14128	12802	13686
Total	20721	25292	23006	7747	7975	7861	12974	17317	15145
Irrigated + Unirrigated Districts									
LSU	16808	25109	20707	6234	6942	6567	10573	18167	14140
MSU	39428	58828	47743	15994	25212	19945	23434	33617	27798
HSU	26939	40848	35181	8305	18215	14177	18634	22633	21004
Total	20846	32169	26507	7471	11645	9558	13375	20523	16949

Source: Estimated using sample survey data.

Table 5.8: Cropwise Net Returns by Level of Subsidy.

(Rs./ ha)

Subsidy Level	Irrigated Districts											
	Paddy			Groundnut			Sugarcane			Vegetables		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
LSU	8284	7439	7920	6018	8078	7029	24383	29280	27437	29131	40421	36344
MSU	6736	10806	7550	5531	4802	5077	21228	-	21228	18787	13624	15550
HSU	10367	9437	9842	15295	10529	11427	24027	23001	23373	49152	17907	21133
Total	8617	8198	8426	8356	9070	8827	23413	24769	24179	37544	20534	23292
Subsidy Level	Unirrigated Districts											
	Jowar			Tur			Cotton			Orange		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
LSU	5220	6210	5724	7240	7303	7275	6676	6803	6739	19220	34092	30292
MSU	7178	7511	7370	8867	8985	8928	8000	966	2860	15019	14735	14851
HSU	5631	7982	6023	8299	5687	7568	6130	9966	8160	22826	13030	17695
Total	5439	6416	5915	7582	7367	7470	6732	6099	6403	19034	25659	23368
Subsidy Level	Irrigated + Unirrigated Districts											
	Paddy			Cotton			Sugarcane			Vegetables		
	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total	SC/ST	Others	Total
LSU	8284	7439	7920	6676	6803	6739	24383	29280	27437	29131	40421	36344
MSU	6736	10806	7550	8000	966	2860	21228	-	21228	18787	13624	15550
HSU	10367	9437	9842	6130	9966	8160	24027	23001	23373	49152	17907	21133
Total	8617	8198	8426	6732	6099	6403	23413	24769	24179	37544	20534	23292

Source: Estimated using Sample survey data.

realised by HSU (Rs 14495/ha) is about Rs. 4017/ha higher than the net returns realised by LSU (Rs. 10478/ha) in irrigated districts. Similarly, in less irrigated districts the difference in net returns between HSU (Rs. 10119/ha) and LSU (Rs. 7828/ha) is about Rs. 2291/ha. Almost a similar trend is observed in SC/ST and non-SC/ST group of farmers.

Similar to per hectare returns by level of subsidy, the net returns per farm calculated by level of subsidy is also found to be higher among the group of HSU, especially in irrigated districts (see, Table 5.7a). However, this is not true in the case of less irrigated districts especially among non-SC/ST group of farmers. This is possibly due to difference in cropping pattern.

The estimates on cropwise net returns by level of subsidy also indicate the same trend that is noticed at the aggregate level in most of the crops considered for the analysis (see Table 5.8). Since farmers belonging to the subsidy category of HSU have used higher amount of yield increasing inputs and also have cultivated high value commercial crops by allocating more cropped area, the net returns per hectare realised by HSU is substantial higher than the same realised by LSU group. Higher returns realised by HSU group also suggest the positive role of subsidy in increasing the net returns of crop income.

CHAPTER 6

Summary and Conclusions

6.1 Introduction:

Since independence Indian agriculture grew appreciably. Production of foodgrains has increased from 50.8 million tonnes (mt) in 1950-51 to 209.80 mt in 1999-2000, an increase of nearly three percent per annum (see, GOI, 2002). Similarly, a significant growth has been seen in the production of non-foodgrains commodities as well. Input subsidies and output price support programmes followed by the government are the two important reasons for the significant growth in production of agricultural commodities. Both input subsidies and output price support programmes have been used as complementary instruments for promoting productivity and holding the price line.

Since the modern inputs (HYVs seed, fertilisers, pesticides, etc) are costly, there was a need to supply these inputs to farmers at a lower price in order to increase the production and productivity of foodgrains. As one of the main objectives of the policymakers during 1960s was to increase the production of foodgrains to achieve self-sufficiency, providing inputs subsidies to agriculture was justified by the policymakers and economists.

Subsidies on inputs started flowing into agriculture during the mid-seventies. Subsidies are mainly provided for inputs like fertilisers, canal irrigation, electricity (supplied for irrigation pumpsets) and credit. Though the quantum of subsidies supplied to agriculture has been increasing since late 1970s, the rate of increase of total subsidies has been found to be very high since late 1980s. For instance, the total subsidy on three major inputs (fertiliser, electricity, canal irrigation) was only about Rs.8316 crore in 1988-89, but it increased to Rs.25094 crore in 1995-96, an increase of about 3 times within a span of seven years.

There are no two opinions about the positive impact of inputs subsidies on the production and productivity of crops. However, there has been an argument in recent years that both central and state governments are no longer in a position to provide this huge amount of subsidy to agriculture specifically because

of the following two reasons. First, the inputs subsidies provided to agriculture increase the financial burden of the government which in turn affects the overall growth of the economy. Second, some argue that since subsidy discourages efficient use of costly inputs like water, fertilser and electricity, there is no case for continuing the input subsidies to agriculture. It is true that the input subsidies increase the financial burden of the government, but it is difficult to conclude that the input subsidies reduce the efficiency of scarce inputs, as there are no reliable information to prove this point. Moreover, when subsidy was introduced in agriculture, nobody pointed out that this would ultimately lead to inefficiency in input use.

A number of studies have been carried out focusing on wide range of issues relating to subsidy. While some studies have attempted to estimate the quantum of subsidies which have gone into agricultural sector, other have tried to find out who actually benefited from subsidies. Role of input subsidies on productivity of crops, income and employment level has also been evaluated by some studies. Despite of wide range of studies on subsidies, not many studies seem to have analysed the overall impact of important input subsidies on different categories of farmers. In fact, to our knowledge, there are no studies available focusing on the use of input subsidies by SC/ST and other group of farmers. The farmers belonging to the group of SC/ST are not only small and marginal farmers but also considered to be the weaker sections of the society. Due to this, it is often argued that the subsidies originally allotted for this group of farmers are unutilised or utilised by other categories (non-SC/ST) of farmers. Owing to various reasons, the government is also started reducing the input subsidies provided to agricultural sector. Besides creating negative impact on agricultural growth, the reduction of subsidy may create adverse impact on SC/ST farmers, who are mostly resource poor farmers. What is the amount of subsidy that is reaching to SC/ST farmers? What are the problems faced by SC/ST farmers in getting input subsidies? Does the reduction of subsidy affect SC/ST farmers more than non-SC/ST farmers? are the important questions which require empirical answers. Keeping this in view, an attempt is made in this study to analyse the

quantum of input subsidies utilised by SC/ST farmers using both macro and micro level data collected from Maharashtra state.

6.2 Objectives of the Study:

The broad objectives of the study are:

1. To examine the utilisation pattern of subsidies by different categories of farmers.
2. To assess the share of SC/ST farmers in the total amount of subsidies used.
3. To analyse the overall effect of differences in the levels of input subsidy used by various categories of farmers on crop pattern, cropping intensity, adoption of improved technology, input use, crop productivity and returns.

6.3 Methodology:

This study has been carried out using both macro and micro-level data. While macro-level data have been used to study the distribution of input subsidies on different schemes/programmes across different districts of Maharashtra, micro-level data collected from the sample farmers have been used to study the level of use of subsidies by SC/ST and non-SC/ST farmers. For collecting primary data, four districts from different agro-climatic zones (ACZs) have been selected based on the percentage of SC/ST farmers as well as area under irrigation and area under rainfed cultivation. As per the classification of Agro-Climatic Regional Planning Unit (ARPU) of Planning Commission located at Ahmedabad, the state has been divided into six ACZs, which are known as konkan, western hills and plains, scarcity region, central plateau, central vidharbha and eastern vidharbha. Out of six ACZs, two zones namely konkan regions and scarcity region could not be considered for selecting sample districts, because of less number of SC/ST farmers (in konkan) as well as skewed distribution of SC/ST farmers (in scarcity region). From the remaining four ACZs, one district each has been selected based on the level of irrigation and rainfed cultivation as well as the distribution of SC/ST farmers. The four districts selected as per this methodology are Pune, Bhandara, Amravati and Nanded. While Pune and Bhandara have been treated as

irrigated districts, Amaravati and Nanded have been treated as rainfed (dry or less-irrigated) districts.

One block from each district has been identified based on the method which is followed for selecting the districts. The selected blocks are Khed from Pune district, Tumsar from Bhandara district, Warud from Amravati district and Bhokar from Nanded district. After having selected the districts and blocks, four villages,one each from each block have been selected for detailed sample survey. The four villages selected for detailed sample survey are Shiroli (Pune district), Pathari (Bhandara district), Zatamziri (Amravati district) and Pimpaldhor (Nanded district).

The sample farmers for this study have been selected in the following manner. First, the list of farmers including their landholding has been obtained from the respective village administrative officer (*Talati*). Second, the farmers have been classified based on size of landholdings such as marginal (< 1.00 ha), small (1.00-1.99 ha), semi-medium (2.00-3.99 ha), medium (4.00-9.99 ha) and large (> 10.00 ha). From each district, a sample of 25 farmers from general category (i.e., non-SC/ST) and another 25 farmers belonging to SC/ST group have been selected. Thus, altogether a total of 200 sample farmers (100 from general category and 100 from SC/ST group) have been selected for the detailed survey. Sample farmers from each size category have been selected based on their proportion to the total farmers at the village level. Random sampling method has been followed to select the sample farmers from both general and SC/ST categories. As one of the main objectives of the study is to find out the subsidies utilised by SC/ST farmers in comparison to non-SC/ST farmers, we have compared the input subsidies utilised by these two groups of farmers in both irrigated and less-irrigated (rainfed) districts.

6.4 Major Findings of the Study:

1. Using three years data (1999-2000 to 2001-02), we have studied the current status of direct subsidies provided through various schemes in Maharashtra. The total subsidies provided in Maharashtra have marginally declined between 1999-2000 (Rs. 250.81 crore) and 2001-02 (Rs. 199.93 crore), indicating the general trend that subsidy provided to agricultural sector has been

declining in the recent years. Interestingly, the share of central schemes subsidies has not declined between the two time points, whereas the state's share in the total subsidies provided to agriculture has declined from 66 percent in 1999-2000 to about 57 percent in 2001-02.

2. Among the different schemes through which direct subsidies are provided to farmers, the Employment Guarantee Scheme (EGS) accounted for around 30 percent of the total subsidies in all three years considered for the analysis. The other scheme that accounts for a major share (12-14 percent) in the total direct subsidy is the Special Component Scheme (SCP). Though ST farmers account for nearly 13 percent of cultivators in Maharashtra (in 1990-91), the schemes that provide subsidies to this group accounted for only 7-10 percent in all the three years considered for the analysis.

3. The important on-going crop production programmes are National Oilseed Production Programme, National Pulses Development Programme, Cotton Development Programme, Integrated Cereals Development Programme, Various Fruit Production Programme, etc. Of these, schemes on various fruit production account for major share in the total subsidies, varying from 9 percent to over 19 percent in different years. Since area under oilseeds is relatively higher in Maharashtra (accounts for about 11 percent of India's total area under oilseed crops in 1999-2000), the schemes that promote the production of oilseeds accounted for around 5 percent of the total direct subsidies. Surprisingly, though Maharashtra state accounts for over 37 percent of total cotton area (in 1999-2000) and also the productivity of cotton in the state is one of the lowest in India, the direct subsidies provided for the promotion of cotton production accounted for a very low percentage in the total subsidies. Another interesting feature of crop specific schemes is that the share of subsidy provided by the central sector schemes is relatively higher than the state's share in almost all the schemes.

4. During the three years considered for the analysis, per hectare total subsidy (all schemes) varied from about Rs. 85 to Rs. 114 and the per cultivator subsidy varied from Rs. 223 to Rs. 293. While the per hectare subsidy is found to be generally low among different crop specific programmes, the same is estimated to be relatively higher with EGS, National Oilseed Production

Programme and Cotton Development Programme. Importantly, per hectare subsidy provided to SC and ST farmers through various schemes is found to be relatively larger.

5. The direct subsidies on pumpsets and new wells together accounted for 50-70 percent of the total subsidies provided for SC/ST farmers under various schemes in both 1998-99 and 1999-2000. Similarly, both per cultivator and per hectare subsidy are also found to be higher among the items related to irrigation development.

6. Inputs like fertilisers, canal irrigation and electricity are considered to study the trends in indirect subsidies in agriculture. For the India as a whole, the subsidy on fertilisers has increased from Rs. 505 crore in 1980-81 to 6235 crore in 1995-96 and further to Rs. 7890 crore in 2000-01.[1] During the same period, the total subsidy on fertilisers in Maharashtra increased from Rs. 38.54 crore to Rs. 617.39 crore and further to Rs. 799.28 crore. Per hectare subsidy of fertilisers, which indicates the real picture of subsidy provided to farmers, also increased from Rs. 19.62 in 1980-81 to Rs. 289.49 in 1995-96 and to Rs. 359.13 in 2000-01. Maharashtra's share of fertilisers subsidy to the country's total subsidy on fertilisers also increased from about 7.63 percent in 1980-81 to nearly 10 percent in 1995-96. This is relatively higher when compared to states like Karnataka, MP, Punjab, Tamil Nadu and West Bengal.

7. The subsidy on canal irrigation is seen to have increased from Rs. 598 crore in 1980-81 to Rs. 5253 crore in 1995-96 and further to Rs. 10163 crore in 2000-01 at all India level, while the same increased from Rs. 16.31 crore to Rs. 164.86 crore and to Rs. 353.18 crore in Maharashtra during the same period. However, per hectare subsidy on canal irrigation is relatively lower in Maharashtra as compared to all-India average. For instance, during 1995-96, per hectare subsidy on canal irrigation at all India level was about 87 percent higher than that of Maharashtra state, i.e., Rs. 3068/ha as against Rs. 1632/ha. As result of lower subsidy given to farmers in the state, the share of the state in the total subsidy on

[1] Data on subsidy provided to fertilisers, canal irrigation and electricity are not available from 1996-97 to 2000-01. The figures reported here are estimated based on the growth rate of subsidy during the period from 1990-91 to 1995-96. These figures may not tally with the actual figures and therefore, readers are advised to look at these figures cautiously.

canal irrigation was only about 3 percent during 1995-96. This is very low as compared to other major states in India.

8. Subsidy on electricity has increased significantly over the years both in Maharashtra and all-India level. While the total subsidy on electricity has increased from Rs. 39.74 crore in 1980-81 to Rs. 2250 crore in 1995-96 and further to Rs. 6801 crore in 2000-01 in Maharashtra, the same has increased from Rs. 334 crore to Rs. 13606 crore and further to Rs. 35819 crore at all India level. Though there is no wide difference in the annual compound growth rate of subsidy between Maharashtra and all-India, per hectare (well irrigated area) subsidy is found to be substantially higher in Maharashtra since 1980-81 as compared to the all-India average. Per hectare subsidy on electricity is estimated to be Rs. 12031 in Maharashtra during 1995-96, whereas the same is only about Rs. 4581 for India as a whole. Unlike the subsidy on canal irrigation, both per hectare subsidy and the state share in the total subsidy on electricity are found to be very high in Maharashtra as compared to many states and all-India average.

9. The total indirect subsidies on three major inputs have increased from Rs. 95 crore in 1980-81 to Rs. 3032 crore in 1995-96 and further to Rs. 7953 crore in 2000-01 in Maharashtra, an increase of about 21 percent per annum. The growth rate of total subsidies in Maharashtra is seen to have increased relatively faster as compared to the national level average, where it increased at a rate of about 18 percent per annum. The same trend is noted in the growth rate of per hectare subsidy as well. However, per hectare total subsidy in Maharashtra is relatively lower as compared to the national average. For instance, per hectare total subsidy was only about Rs. 48 in Maharashtra as against the national average of about Rs. 84 during 1980-81. Similarly, during 1994-95, the per hectare subsidy in Maharashtra was about Rs. 1088, but the same was about Rs. 1100 at all-India level. Though the per hectare of subsidies is lower in Maharashtra, the state accounted for about 12 percent of the India's total subsidies on three major inputs which is the second largest among the major states in India.

10. Using the sample survey data, we have estimated the direct and indirect subsidies utilised by the sample farmers in irrigated and less-irrigated

districts. Our estimates indicate that use of direct subsidies is relatively higher in irrigated districts as compared to less-irrigated districts among both SC/ST and non-SC/ST group of farmers. In irrigated districts, the average subsidy used by SC/ST farmers is estimated to be Rs. 1383/ha and the same is Rs. 48/ha for non-SC/ST farmers. But, the situation is different in less-irrigated districts where the average subsidy used by SC/ST farmers is Rs. 654/ha and the same is completely absent among non-SC/ST farmers. In both irrigated and less irrigated districts, subsidies used by the marginal and small farmers are substantially higher than the large size farmers. Altogether our survey results indicate that the direct subsidies used by the farmers belonging to irrigated districts are very high as compared to less-irrigated districts.

11. The average per hectare subsidy on fertilisers utilised by the farmers belonging to irrigated districts (Rs. 166/ha) is marginally higher than the farmers belonging to less-irrigated districts (Rs. 152/ha). But, this is not true with the farmers belonging to the group of SC/ST. The average per hectare subsidy on fertilisers utilised by SC/ST farmers belonging to less-irrigated districts is marginally higher than the subsidy utilised by the same group of farmers belonging to irrigated districts. Varying cropping pattern followed by the farmers of irrigated and less-irrigated districts has been seen as the main reason for this unexpected result.

12. A clear cut difference is observed in the use of electricity subsidy between the sample farmers belonging to irrigated and less-irrigated districts. While the average subsidy on electricity utilised comes to Rs. 424/ha for the farmers of irrigated districts, the same comes to only Rs. 136/ha for the farmers belonging to less-irrigated districts. The same kind of trend is seen in both SC/ST and non-SC/ST groups. Though we could not find any clear trend in the use of subsidy across different categories (land size) of farmers, the total indirect subsidies used by the farmers belonging to SC/ST and non-SC/ST groups are substantially higher in irrigated districts (average subsidy is Rs 590/ha) as compared to less-irrigated districts (average subsidy is only Rs. 288/ha).

13. The total subsidies (direct plus indirect) utilised by the farmers of irrigated districts (Rs.1143) is about 87 per cent higher than the subsidies utilised

by the farmers of less irrigated districts, which is only about Rs. 610/ha. This is also true with SC/ST and non-SC/ST group of farmers. While the total subsidy utilised by SC/ST farmers belonging to irrigated districts is about 99 per cent higher than same group of farmers belonging to less-irrigated districts, the same difference comes to about 122 per cent for the non-SC/ST group of farmers.

14. The analysis on the share of direct and indirect subsidies in the total subsidies shows that the direct subsidies account for 73 to 78 per cent of the total subsidies utilised by SC/ST farmers in both irrigated and less-irrigated districts. On the other hand, the indirect subsidies account for 93-100 per cent of the total subsidies utilised by non-SC/ST farmers in both districts. Since most of the direct subsidies are specifically earmarked for the weaker sections (SC/ST, marginal and small farmer) of the farming community, the direct subsidies account for major share in the total subsidies utilised by SC/ST farmers.

15. The sample farmers have faced six major problems in accessing input subsidies. They are (a) lack of information about direct subsidies; (b) *Gram Sevaks*/Village Development Officers (VDOs) seldom inform the availability of subsidies to the weaker sections; (c) a very limited availability of direct subsidies; (d) pesticides and fertilisers are not available in time; (e) farmers required to visit number of times to get subsidy from the concerned authority and (f) less accessibility to institutional credit. All these problems were mainly reported by the marginal and small farmers belonging to SC/ST and non-SC/ST group.

16. The problems associated with food subsidies are totally different from what is observed in input subsidies. The sample farmers have reported three major problems in accessing food subsidies. They are (a) quality of wheat and rice supplied through PDS is substandard; (b) allotted quantity (quota) is not available in time and (c) kerosene is not available most of the time. These problems are commonly reported by the small and marginal farmers belonging to SC/ST and non-SC/ST groups.

17. The effects of input subsidies on crop pattern, fertiliser consumption, power consumption, total input use, cost of cultivation as well as returns have also been studied using the data collected from the sample farmers. To study this, the sample farmers have been grouped into three categories based on per

hectare use of subsidies. Farmers using input subsidies upto Rs. 500/ha are classified as Less Subsidy Users (LSU), those farmers using input subsidies Rs. 500-750/ha are classified as Medium Subsidy Users (MSU) and the farmers who have used input subsidies above Rs. 750/ha are classified as High Subsidy Users (HSU).The farmers utilising less subsidy (i.e., LSU) are substantially higher in less-irrigated districts as compared to irrigated districts. Over 49 per cent farmers belonging to irrigated districts are coming under the category of LSU, but the same is about 83 per cent in less-irrigated districts. Though the same trend exists among SC/ST farmers in both irrigated and less-irrigated districts, it is not the same among non-SC/ST farmers. While majority (56 per cent) of non-SC/ST farmers belonging to irrigated districts are coming under group of HSU, only about 8 per cent of the non-SC/ST farmers belonging to less-irrigated districts are coming under the group of HSU.

18. The analysis on cropping pattern by level of use of subsidy shows a substantial variation in the cropping pattern of LSU and HSU in both irrigated and less-irrigated districts. In irrigated districts, foodgrain crops such as paddy and bajra have accounted for over 62 per cent of GCA among SC/ST group of farmers and over 58 per cent among non-SC/ST group of farmers. This pattern is not true with HSU where high value crops like vegetables and sugarcane have accounted for over 32 per cent of GCA among SC/ST farmers and about 41 per cent of GCA among non-SC/ST farmers. Clearly cultivation of high value crops is more among the high users' of subsidy (HSU) irrespective of the community they belong to.

19. Similar to irrigated districts we could observe variation in the cropping pattern of low (LSU) and high (HSU) subsidy users belonging to less-irrigated districts as well. Among both SC/ST and non-SC/ST farmers, crops like jowar, tur and cotton have together accounted for over 82 per cent of GCA of the low subsidy users (LSU). However, these same crops have accounted for only about 66 per cent and 52 per cent of GCA respectively among SC/ST and non-SC/ST farmers who have used higher amount of subsidy (HSU). Orange crop accounts for over 17 and 43 per cent of GCA respectively among SC/ST and non-SC/ST farmers who have used higher amount of subsidy. This clearly suggest that

farmers using higher amount of subsidy cultivate mostly high value of commercial crops.

20. The use of fertiliser (in Rs. terms) is substantially higher among the farmers who come under the category of HSU in both irrigated and less-irrigated districts. As regards the proportion of fertilisers going in to various crops in irrigated districts, our estimates indicate a substantial difference between LSU and HSU in both SC/ST and non-SC/ST group of farmers. In irrigated districts, nearly 42 per cent of fertiliser used by SC/ST farmers belonging to LSU has gone into paddy crop alone, whereas only 16 per cent fertiliser used by the same group of farmers belonging to HSU has gone into paddy crop. Commercial crops like sugarcane and vegetables have consumed only about 37 per cent of fertiliser utilised by SC/ST farmers belonging to LSU group, whereas the same crops accounted for over 51 per cent of fertilisers utilised by HSU. The same trend is seen among non-SC/ST group of farmers as well.

21. The trend in proportion of fertiliser going into various crops by level of use of subsidy is very clear in less-irrigated districts. Among the low subsidy users, jowar and cotton together consumed 66 to 69 per cent of fertiliser in both SC/ST and non-SC/ST groups. But, in the case of HSU, orange crop alone consumed nearly 30 per cent of fertiliser utilised by SC/ST group and nearly 70 per cent of fertiliser utilised by non-SC/ST group.

22. Though the proportion of electricity consumed by water-intensive crops is generally larger in both irrigated and less-irrigated districts, we could notice a substantial difference in the consumption of electricity by low (LSU) and high (HSU) users of subsidy. In irrigated districts, paddy and sugarcane consumed about 67 per cent of electricity used by LSU of SC/ST group, but sugarcane alone consumed nearly 60 per cent of electricity used by the same community belonging to HSU group. Similarly, vegetable crops alone consumed nearly 52 per cent of electricity used by non-SC/ST farmers belonging to HSU, whereas the same crop consumed only about 23 per cent of electricity utilised by the low subsidy users of the same community.

23. Electricity is mainly used for two crops namely orange and cotton in less- irrigated districts. These two crops consumed 79–89 per cent of total

electricity used by SC/ST and non-SC/ST farmers who are coming under the category of LSU. However, this trend is not the same with high subsidy users (HSU), where orange alone consumed over 87 per cent of electricity used by both SC/ST and non-SC/ST group of farmers.

24. The analysis on total input used per hectare (in rupees) and the proportion of total input used going into major crops by level of subsidy shows that the total input cost incurred by the high subsidy users (HSU) is very high as compared to low subsidy users (LSU) in both irrigated and less-irrigated districts. In irrigated districts, LSU have incurred Rs. 4213/ha, whereas HSU have incurred Rs. 9982/ha, a difference of Rs. 5769/ha. Similarly, in less-irrigated districts paid out costs incurred by LSU and HSU is respectively as Rs. 3950/ha and Rs. 6011/ha, a difference of about Rs. 2061/ha between the two groups. Clearly the difference in total cost incurred by LSU and HSU is less in less-irrigated districts as compared to irrigated districts mainly because of difference in quantity of input used.

25. Our estimates on the proportion of total input cost that goes into different crops indicate a significant difference in this between HSU and LSU. Paddy and groundnut accounted for over 52 per cent of total input used by LSU in irrigated districts, whereas sugarcane and vegetable crops together cornered over 58 per cent of the total input cost incurred by HSU in irrigated districts. Similar to irrigated districts, we have also observed a significant difference in the proportion of total input cost going into different crops between LSU and HSU in less-irrigated districts. Crops like jowar and cotton together accounted for nearly 67 per cent of the total input cost incurred by LSU group, whereas orange alone accounted for nearly 50 per cent of the total cost incurred by HSU group in less-irrigated districts. On the whole, HSU incurred major portion of their total input cost for high value crops as compared to the group of LSU.

26. The analysis on costs (paid out costs), gross returns and net returns by level of subsidy shows that the net returns realised by the group of HSU is significantly higher than that of LSU both in irrigated and less-irrigated districts. On an average, the net returns realised by HSU (Rs 14495/ha) is about Rs. 4017/ha higher than the net returns realised by LSU (Rs. 10478/ha) in irrigated

districts. Similarly, in less irrigated districts the difference in net returns between HSU (Rs. 10119/ha) and LSU (Rs. 7828/ha) is about Rs. 2291/ha. Almost a similar trend is observed in SC/ST and non-SC/ST group of farmers. The estimates of cropwise net returns by level of subsidy also indicate the same trend that is noticed at the aggregate level in most of the crops considered for the analysis. Since farmers belonging to the subsidy category of HSU have used higher amount of yield increasing inputs and also have cultivated high value commercial crops by allocating more cropped area, the net returns per hectare realised by HSU is substantially higher than the same realised by LSU group.

6.5 Policy Recommendations:

1. Though various subsidy schemes have been introduced time to time to help the weaker sections of the farming community, farmers belonging to this group are not aware of this because of poor extension services. The concerned officials (*Gram Sevaks*/VDOs) seldom inform the availability of various subsidy schemes to the weaker sections of the farming community. Therefore, arrangements should be made to disseminate the information about the availability of subsidy including the percentage of subsidy provided various categories of farmers.

2. The indirect subsidies utilised by SC/ST farmers account for only one-fourth of the total subsidies mainly because of less use of yield increasing inputs. Resource constraints have been identified as the main reason for this. In order to increase the use of indirect subsidies, institutional credit facilities (crop loan, etc) should be provided in time to utilise the available subsidies.

3. Owing to non-availability of inputs in time, farmers belonging to the group of marginal, small and SC/ST are not able to fully utilise the available subsidy. Therefore, proper arrangements need to be made to supply various inputs in time.

4. The total subsidies utilised by the farmers having higher irrigation facilities, irrespective of the community, are very high as compared to the farmers having only rainfed cultivated areas. Therefore, steps need to be taken to increase the irrigation facility in order to bring equity in the use of subsidy across

irrigated and un-irrigated regions in the state. More subsidy schemes focusing specifically on rainfed regions (example, watershed development programme, etc) need to be introduced.

5. Crops such as pulses, oilseeds and cotton suffer with low productivity mainly because of low use of inputs in Maharashtra. Despite this, these crops have not received adequate attention through crop production programme. Therefore, direct subsidy schemes with higher allotment of money focusing on these crops need to be introduced.

6. Our study reveals that the low subsidy (less than Rs. 500/ha) users (LSU) are mainly cultivating foodgrain crops to satisfy their own requirements. Our study also indicates that most of the farmers belonging to the group of LSU are small and marginal in irrigated as well as less-irrigated districts. Therefore, any reduction in subsidy will have adverse impact on the food security of the weaker sections of the farming community.

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Annexure I

Comments received from the Agricultural Economics Research Centre, University of Delhi, Delhi – 110 007.

1.Title of the draft report examined: "Agricultural Subsidies in India: Quantum of Subsidies to SC/ST Farmers in Maharashtra"

2.Date of Receipt of the draft report: 13.10.2003

3. Date of dispatch of the comments: 17.11.2003

4. Comments on the objectives of the study: The study has covered all the objectives. However, a few points may be added in the analysis.

Chapter I: Satisfactory coverage

Chapter II: You have estimated indirect subsidies upto mid nineties in India and Maharashtra. Estimate for the recent years. Shares of direct and indirect (fertilizer, irrigation and power) subsidies in total subsidies may be presented for the reference year along with information on per hectare and per cultivator utilization.

Chapter III: Adequate coverage.

Chapter IV: The results on per hectare utilisation of agricultural subsidies have been presented. But the analysis should include (i) Per farm utilisation of direct, indirect (separately for each item) and total (direct + indirect) subsidies (ii) Share of SC/ST farmers in utilisation of direct, indirect and total (direct + indirect) subsidies (iii) Gap between actual and estimated use (iv) Per farm and per hectare gross returns, cost and net returns with and without subsidies with percentage change in cost and returns. All this should be done in given framework.

Chapter V: Coverage is satisfactory. However, attention may be paid to the following aspects (i) value of power at the price paid by the farmers (ii) per farm gross returns, cost and net returns across the different subsidy levels.

5. Comments on the methodology: The authors have followed the methodology given in coordinated study design. However, above suggestions may be added in the analysis.

6. Comments on the presentation and get up: Satisfactory

7. Overall views on the acceptability of the report: The report is recommended to be accepted after incorporating the above points.

Annexure II

Action taken by the authors based on the comments received from the Coordinator of the study

Chapter II: The indirect subsidies have been estimated upto the year 2000-01 and the same has been presented at the appropriate places in the chapter. The share of direct and indirect subsidies in the total subsidies in Maharashtra has been presented alongwith per hectare and per cultivator utilisation of subsidy in Table 2.13.

Chapter IV: As per the comments, we have incorporated all the required details at the appropriate places in the chapter. The results are also presented in Tables 4.1a, 4.2a, 4.3a, 4.4a and 4.5a.

Chapter V: The value of power (electricity) at the price paid by the farmers and per farm costs and returns by different subsidy level have been incorporated in the chapter. Details on these can be seen from footnote 1 and Table 5.7a.

A. Narayanamoorthy
S. S. Kalamkar
December 1, 2003