Suicide of Farmers in Maharashtra
Background Papers
(Submitted to the Government of Maharashtra)

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Contents

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Farmers' Suicides in Maharashtra: Content Analysis of Media Reports[1]

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(with assistance from Vibha Iyer and Mitali Kamkhalia)

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Abstract

This paper has three parts. The first, an analysis of 192 news reports in a Marathi daily, Deshonnati*, cites 320 cases of farmers' suicides in Maharashtra reported during 2004. A study of circumstances reveals multiple risk factors – economic downfall, agrarian crisis, and social disgrace among others. Indebtedness, a manifestation of economic downfall, becomes acute with reliance on moneylenders. A comparison of news reports with government investigation indicates scope for subjective interpretation in the latter. The second part, on issues highlighted by the media in general, identifies several problems: adverse developments affecting the Monopoly Cotton Procurement Scheme (MCPS) since the mid-1990s, increasing price (and also yield) risk and reducing profitability in Cotton cultivation, withdrawal of the state from the rural agrarian scenario and the questions of market-driven Bt (Bacillus thuringiensis) versus cost-saving organic cotton. The third part is on suicide reportage, suggesting that media follow the World Health Organization (WHO) guidelines of DOs and DONTs.*

Key words: Compensation Criteria, Content Analysis, Cotton, *Deshonnati*, Farmers' Suicide, Multiple Risk factors, Pesticide, Reporting Guidelines.

[1] This has been prepared as a background paper for the study on 'Suicide of Farmers in Maharashtra' being conducted by the Indira Gandhi Institute of Development Research (IGIDR), Mumbai for the Government of Maharashtra. Comments from participants at the interim workshop on 18th August 2005 were helpful. The spontaneity with which Prakash Pohare, Editor, *Deshonnati*, responded to a request for material is commendable. Material given by Mahesh Mahatre, formerly with *Sakal*, Nagpur, was also helpful.

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1. Introduction

Reportage on suicides can have both negative and positive impact on suicide contemplators. Sensational reporting with detailed information on the mode of suicide, graphic illustrations of the suicide, repetitive reporting with constant flashing of images related to the suicide, in both print and electronic media have been found to lead to an increase in suicides due to the imitation effect or the 'Werther Effect' (World Health Organisation, WHO, 2000).[3] Imitation can take the form of contagion, "a process by which exposure to the suicide or suicidal behavior of one or more persons influences others to commit or attempt suicide" (Centers for Disease Control and Prevention, CDC, 1994). A case in point would be suicide by charcoal burning that first occurred in November 1998 in Hong Kong (Lee et al, 2002). This new method was reported in detail in the media and soon became common knowledge. In 2002 it happened to be the second most important method of committing suicide (Au et al, 2004). It is not the information on suicide per se but the manner in which the information has been presented that poses a risk to the vulnerable sections of society (WHO, 2000). Responsible, accurate and appropriate reporting can help deter several potential suicide victims from taking the step. Guidelines for reportage on suicides in media have been prepared by CDC (1994), WHO (2002) and other organizations.

Positive and negative effects notwithstanding, media can be an important source of information on suicides. In a recent study on farmers' suicides in Maharashtra, the researchers relied on a list provided by a Marathi daily, *Deshonnati* (Dandekar et al, 2005). The current exercise is a content analysis of media reports on farmers' suicides in Maharashtra. It has three parts.

In the first part, we undertake an analysis of suicide cases in Maharashtra reported from January 1, 2004 to December 31, 2004 in the Marathi daily *Deshonnati* (2004a).[4] We analyze the available information on division/district wise distribution of suicide deaths,

[3] The term "Werther effect" is used to designate imitation or copycat suicides following Goethe's novel *Die Leiden des jungen Werther* (*The Sorrows of Young Werther*) where the hero shoots himself after an ill-fated love, and shortly after its publication in 1774, there were many reports of young men using the same method to commit suicide.

[4] An independent list provided by *Deshonnati* suggests that there were 394 farmers' suicide deaths during 2004 in Maharashtra. In the current analysis, however, we will restrict ourselves to the 320 suicide deaths, including one case of December 29, 2003, that we culled out from 192 news reports of 2004 (*Deshonnati*, 2004a). From these 320 cases, there are three instances of two suicide deaths in the same household. There were four women from among whom two committed suicide with their husbands; another was a widow and yet another married (case 1 in Table 7). There was also an instance of a shocked son taking his life a day after his father's suicide.

monthly pattern of suicide deaths, age of person committing suicide, method of committing suicide, possible causes or risk factors and some details on sources of loans, as indebtedness is one of the major risk factors. While our primary source of information in terms of data about the suicide victims has been obtained from reports in *Deshonnati* (sections 2-7), we have compared a few news reports with Government investigation (section 8).

Next, we refer to editorials and write-ups from the Marathi dailies *Deshonnati* and *Sakal*, English language daily newspapers, *The Hindu*, *The Hindu Business Line*, *Hindustan Times* and the English fortnightly, *Frontline* to discuss some of the larger issues put forward by the media in the context of farmers' suicides in Maharashtra (section 9).

Finally, we suggest some guidelines for suicide reportage (section 10). Concluding remarks are in section 11.

2. Distribution of Suicides by Districts/Divisions

The highest number of cases, 220, were seen in Amravati division (Western Vidarbha), accounting for 69 per cent of the cases. Yavatmal district with 70 suicides accounts for 32 per cent of the suicides in this division. Outside Amravati division, the high incidence districts are Wardha in Nagpur division (Eastern Vidarbha), Nanded and Jalna in Aurangabad division (Marathwada) and Jalgaon in Nashik division (Khandesh). Excluding Jalgaon, all the other districts are around Yavatmal, suggesting that Yavatmal seems to be the epicenter of the recent spate of farmers' suicides. These districts also happen to be among the cotton growing districts of Maharashtra.

Table 1
District/division wise distribution of farmers' suicides reported in *Deshonnati*, 2004

Division/State	District	Fre-quency	Per cent of division total	Per cent of state total	Farmers as per cent of total farmers in state, 2001
Amravati	Akola	27	12.3	8.4	1.0
	Amravati	66	30.0	20.6	1.7
	Buldhana	37	16.8	11.6	3.0
	Washim	20	9.1	6.3	1.2
	Yavatmal	70	31.8	21.9	2.6
	Total	220	100.0	68.8	9.6
Aurangabad	Aurangabad	5	8.5	1.6	3.7
	Beed	6	10.2	1.9	3.9
	Hingoli	5	8.5	1.6	1.7
	Jalna	13	22.0	4.1	2.7
	Latur	0	0.0	0.0	2.5
	Nanded	26	44.1	8.1	3.2
	Parbhani	4	6.8	1.3	2.0
	Total	59	100.0	18.4	19.9
Nagpur	Chandrapur	1	7.7	0.3	2.0
	Gondhia	1	7.7	0.3	1.5
	Nagpur	1	7.7	0.3	1.9
	Wardha	10	76.9	3.1	1.2
	Total	13	100.0	4.1	6.6
Nashik	Dhule	3	11.1	0.9	1.7
	Jalgoan	22	81.5	6.9	3.2
	Nandurbar	2	7.4	0.6	1.7
	Total	27	100.0	8.4	6.6
Pune	Pune/Total	1	100.0	0.3	7.0
All Total		320	-	100.0	100.0

Note: From 320 cases scanned from news reports information on districts/divisions available for 305 cases only. The gaps were filled by an independent list of farmers' suicides with addresses provided by *Deshonnati*. Distribution of farmers across districts is based on cultivators in Census 2001. Total for division includes only those districts where farmers' suicides have been reported.
Source: Farmers' suicide related information is from *Deshonnati* and population related information is from Census 2001.

3. Monthly Pattern of Suicides

Nearly 58 per cent of reported suicide deaths were during monsoon months July-September with July and August having reported 71 and 70 cases respectively (Table 2). Vidarbha is largely a rain-assured region, but 2004 saw a below normal rainfall. This had an adverse impact on germination of cotton crops. There are 89 cases of failed sowing – 37 for first, 31 for second, 20 for third and one for fifth sowing. Some of the suicides took place much after the failure of sowing. This indicates that the farmers were mulling over their crisis or perhaps it was compounded by something else. It can also be inferred in some cases that the farmer went for a second/third sowing in late August/early September and a failure of fifth sowing in a tract that is totally rain dependent. This not only indicates the farmer's helplessness but also

lack of a proper extension service. In such situations even a third sowing is not advisable. Untimely rainfall both at the time of harvest or after harvest will destroy the exposed crop. Excessive rain can adversely affect the lives and property of farmers (*Sakal*, 2005). This reminds us of a saying rooted in rain-dependent peasant societies: *Abundance of water, destroys life; Paucity of water, destroys life.*

Table 2
Month wise distribution of suicides reported in *Deshonnati*, 2004

Months	Frequency	Per cent of Total
January	13	4.1
February	6	1.9
March	6	1.9
April	13	4.1
May	5	1.6
June	12	3.8
July	71	22.2
August	70	21.9
September	43	13.4
October	32	10.0
November	22	6.9
December	27	8.4
Total	320	100.0
Note: January 2004 includes one case of December 2003, reported in 2004.		

4. Distribution of Suicides by Age

In Table 3, of the 269 cases reporting on age, 84 belonged to the age group 30-40 years and 85 belonged to the 40-50 years age group. Overall, 77 per cent of the suicide deaths were by individuals below 50 years of age. Two of the four women victims were in the age group 40-50 years, while one woman was 21 years old. The age of the widow farmer is not available from the reports.

Table 3
Age-wise distribution of suicides reported in *Deshonnati*, 2004

Age interval	Frequency	Per cent of Total	Cumulative Percentage
19-20	3	1.1	1.1
20-30	34	12.6	13.8
30-40	84	31.2	45.0
40-50	85	31.6	76.6
50-60	39	14.5	91.1
60-70	20	7.4	98.5
70+	4	1.5	100.0
Total	269	100.0	-
Note: From 320 cases, information on age is available for 269 cases only.			

5. Distribution by Method of Suicides

In Table 4, of the 313 reports where mode of suicide was mentioned, 76 per cent consumed pesticide. Ironically, pesticides, which are used to kill pests, are now proving to be deadly to the farmer himself. In the local language it is referred to as *vishari aushad* (poisonous medicine). Poison indeed, but where is the medicinal value.

Caution is suggested while administering pesticides because they not only kill the harmful pests, but also the beneficial ones. Over time, the harmful pests become resistant leading to an increase in the number of sprayings and usage of more powerful varieties of pesticides. We came across some cases where farmers committed suicide in a state of shock and in a moment of impulse, wherein the suicide has been committed on the farm after seeing the failed crop. A 45-year-old farmer from Yavatmal and a 50-year-old farmer from Hingoli consumed pesticide moments after seeing their failed crops; the former after third time sowing and the latter after second time sowing and failure due to inadequate rains.

In contrast to the impulse action by some farmers there are others who perhaps mulled over the issue and the act had been a pre-planned decision. On July 24, a 26-year-old farmer from Nanded, who had suffered losses due to a failed second sowing purchased a pesticide called Kurokron and took it to his fields where he consumed it. In Jalgaon, a 30-year-old farmer had suffered a crop failure for the second time and was under great stress due to mounting debts. On August 14, he waited for his family to go out and consumed pesticide when he was alone at home. It perhaps looks as if the impulse action was more by farmers in their 40s whereas the planned action was by those in their 20s or 30s, but with few cases it is not proper to generalize on this pattern. It is, however, important to note that those who planned could be imitating their action after reading news reports about farmers facing similar crisis.

Table 4
Method wise distribution of suicides reported in *Deshonnati*, 2004

Method	Frequency	Per cent of Total
Consumed pesticide	237	76.2
Hanging	52	16.7
Drowning	11	3.5
Immolation	9	2.9
Lay under moving train	2	0.6
Total	311	100.0

Note: From 320 cases, information on mode of committing suicide is available for 311 cases only. All the female victims consumed pesticide.

6. Distribution by Risk Factors

Suicides are a culmination of multiple risk factors. Inferring risk factors from news reports will be difficult for two reasons. First, the purpose of the news reports was not intended to highlight all possible risk factors. Second, as the concerned individual is no more surviving, news reports or any investigation would be based on information or circumstantial evidence collected from others.

Table 5
Risk Factor wise distribution of suicides reported in *Deshonnati*, 2004*

	Frequency	Per cent of sub-group Total	Per cent of All Total
Single Risk Factor			
Indebtedness	45	66.2	15.7
Crop failure	17	25.0	5.9
Miscellaneous#	6	8.8	2.1
Total (single risk factor)	68	100.0	23.8
Double Risk Factors			
Indebtedness+ Crop failure	168	96.0	58.7
Indebtedness+ Daughter's/Sister's marriage	4	2.3	1.4
Indebtedness+ Miscellaneous#	3	1.7	1.0
Total (double risk factors)	175	100.0	61.2
Triple Risk Factors			
Indebtedness+ Crop failure+Daughter's/Sister's marriage@	31	72.1	10.8
Indebtedness+ Crop failure+Miscellaneous#	11	25.6	3.8
Indebtedness+ Harvest stolen+Daughter's marriage	1	2.3	0.3
Total (triple risk factors)	43	100.0	14.7
All Total	286	-	100.0

Note: * Data are for households. From the 317 households, information on risk factors was available for 286 households. The three households with two suicides, one had a single risk factor of not receiving compensation for land that got submerged under water, another also had a single risk factor of indebtedness and the third one had two risk factors of indebtedness and crop failure. # Miscellaneous reasons are the following: For single risk factor we have cheating in land transaction (2 cases), failure to receive government compensation in return for land that got submerged under water, denial of loan, and shock of a high electricity bill. For double risk factors we have crop destroyed by fire (two cases) and illness. For triple risk factors we have illness (3 cases), family dispute (3 cases), taluka not being included under drought relief zone, denial of loan, wait of four days at cotton market to sell produce, not getting right price and unsuccessful in obtaining water even after digging well twice. @ Includes one case with a fourth risk factor of shock after receiving an electricity bill for Rs.13000/-.

In Table 5, from the 286 households where risk factors have been reported, 24 per cent of the reports mention a single risk factor, 61 per cent mention two risk factors and the rest mention three/four risk factors. Overall, indebtedness had the highest incidence finding mention in 66 per cent of cases reporting a single risk factor and in all the cases of double, triple and four

risk factors. Thus, indicating the economic crisis among the deceased households. Agrarian crisis is somewhat reflected in crop failure finding mention in 79 per cent of the cases and also in some miscellaneous cases like not receiving the right price for crop, long wait at government marketing centre prior to selling of produce, non receipt of compensation in return for land that got submerged under water, non receipt of drought relief compensation, crop loss due to fire, crop being stolen, unsuccessful attempt at digging well for irrigation, being cheated in land transactions and litigation of land among others. An economic crisis that gets manifested in indebtedness and an agrarian crisis of crop failure or other related problems are interconnected. To be specific, crop failure can accentuate indebtedness through non-payment of existing loans or bring about the need for more loans.

In addition to economic and agrarian crisis, if there is a social responsibility like a recent or an impending marriage in the household (71 percent of the cases reporting three risk factors have indicated this), illness and intra family conflict among others. From the 36 cases citing daughter's/sister's marriage, all the cases report indebtedness and 32 of them crop failure/loss. Age is available for 25 of these - four were in their 20s, two were in their 30s, 11 were in their 40s and eight were in their 50s. Thus, as one would expect, those in their 20s were concerned about their sister's marriage and those above the age of 40 were concerned about their daughter's marriage.

On intra family conflict we cite the following case to suggest how economic and agrarian crisis can have a social bearing. The risk factors can feed into each other and have a cascading effect on the perpetrators mind. For instance, a woman committed suicide on August 6, 2004. The family land was only recently partitioned so that two married sons could support their families. The deceased along with her husband and an unmarried son had in their share 20 acres of land. They had an outstanding loan of Rs.70,000 from a bank and moneylenders. When the second sowing failed, the deceased's family found it difficult to repay the debts and make their two ends meet. The grim economic situation led to constant arguments between the deceased and her husband. One such argument triggered the fateful event, but this intra-family conflict has its roots in the larger economic and agrarian crisis.

A farmer committed the fateful act on August 15, 2004, the Independence Day. The farmer felt dejected at not being able to meet his daughter's demand for a new dress that she wanted to wear for the flag hoisting ceremony. Inability to cater to such a simple demand was a loan

of Rs.3000/- for which interest alone amounted to Rs.7000/-. Crop failure made loan repayment impossible and with passing time even meeting daily household expenses was difficult. His daughter's demand exposed his unfreedom. He chose to end his life on the day India attained freedom. The timing is poignant. Such acts reflect anger against society that is directed at self and is also a call for help. Is anybody listening?

After a four-day wait at the government cotton market in Karanja to sell his produce, a farmer committed suicide by consuming Monokron on the night of November 27, 2004. The deceased owned 20 acres of land and had an outstanding loan of Rs.1 lakh from informal sources and another Rs.40,000 from a bank. His suicide note also indicated of a poor agricultural produce. Wait in winter nights at the cotton market might have physically exhausted him, but more importantly it would add to his expenses. Indebtedness, poor agricultural production, long wait to sell crop and physical exhaustion all coupled together.

Indebtedness is also taking the form of *Kheda Kharidi* a form of interlinked transaction amongst the cotton farmers of Vidarbha, 80 per cent of who are indebted. Moneylenders and traders give loan to farmers and in turn buy the produce at a pre-determined price from the farmers and sell it at a higher rate to the Government (*Sakal*, 2004d).

A peasant leader is of the opinion that indebtedness and economic decline is just the beginning of several other complications, such as family disputes, domestic altercations, illness and alcoholism among others (Joshi, 2004). In other words, even when non-economic reasons are cited as the immediate cause or as a trigger factor leading to suicide of a farmer, the economic decline brought about through an agrarian crisis would be the underlying factor. The economic crisis is depicted through indebtedness. Below, we look into the various sources of loans.

7. Distribution by Source of Loans

From the 263 cases on indebtedness, news reports gave information on the sources of loans for 153 cases. In Table 6, one observes that 55 per cent of the loans are from a single source, 42 per cent are from double sources and a few are from triple sources. About 82 per cent have taken some loan from formal sources like the bank and 53 per cent have taken some loan from moneylenders. In fact in 39 per cent of the cases loans were from both the formal sources like bank and the moneylender.

Table 6
Distribution of sources of loans reported in *Deshonnati*, 2004

Sources of loans	Frequency	Per cent of sub-group Total	Per cent of All Total
Single source of loans			
Formal sources like bank (Bank)	60	71.4	39.2
Moneylender	19	22.6	12.4
Friends and Relatives	4	4.8	2.6
Traders	1	1.2	0.7
Total	84	100.0	54.9
Double source of loans			
Bank + moneylender	54	84.4	35.3
Bank + relative	6	9.4	3.9
Bank + trader	1	1.6	0.7
Moneylender + relative	3	4.7	2.0
Total	64	100.0	41.8
Triple source of loans			
Bank + moneylender + relatives	4	80.0	2.6
Bank + moneylender + trader	1	20.0	0.7
Total	5	100.0	3.3
All Total	153		100

Note: From 317 households, information on sources of loans is available for 153 households. This includes one household with two deaths, which incidentally had borrowed from two sources - bank and moneylender.

There is an instance of a 35-year-old farmer in Yavatmal reacting adversely and committing suicide to a simple rejection of a loan application. The dire need of money is borne out from the fact that the farmer had to sell tin sheets from his house roof to buy pesticides, which he used for committing suicide.

In other cases, the farmers resort to informal sources of credit after having defaulted on their bank loan and hence being considered ineligible for subsequent loans. A farmer from Yavatmal was rejected a loan as he had outstanding dues of an earlier loan that he had borrowed for social expenses. Hence, he borrowed from a moneylender to go in for second sowing. One of his daughters also had to give up her schooling. All this disturbed him mentally and he committed suicide on August 13, 2004.

The resort to informal sources does away with paper work and reduces delay in obtaining loans. For instance, a farmer had applied for loan on April 24, 2004 at a bank. However, due to delay in the loan getting sanctioned, he had to borrow from informal sources. Delayed

rainfall led to crop failure and he was worried about paying back the loans. On July 18, 2004 he consumed pesticide in his field.

It has been cited that interest rates as high as 14 percent per annum in the institutional sector make it difficult for the farmers to pay back their debts. Crop loans are insufficient to cover more than 70 percent of the input requirements and farmers complain that bank credit meets only 15 percent of their needs. For the rest they turn to moneylenders and traders doubling up as moneylenders who charge interest rates anywhere between 30 to 120 percent a year (Bunsha, 2004). In one of the articles, a peasant leader also blames the highly 'coercive' measures adopted by the organized sector recovery officers for prompting suicides. Farmers pay an 8 per cent premium on their bank loans towards crop insurance. Only when drought is officially declared, the banks allow them to claim insurance (Joshi, 2004).

The reliance on informal sources of credit is quite apparent. This exposes the farmer to high rates of interest, which become evident if there is a crop failure. It will be improper to state that loans per se act as a risk factor, but when coupled with crop failure or other factors it becomes one of the most important risk factors.

8. Comparing Three Sources of Information

It can be argued that media reports will sensationalize and emphasize some particular aspects that they consider newsworthy. The Government also conducts its independent investigation to identify whether a particular household ought to be considered eligible for receiving compensation or not. We take up a few cases to highlight the differences in reporting. We also provide the information from these households obtained from our field survey in Table 7 (Mishra, 2005, Annexure 3).

The Government report does not consider case 1 for compensation because the deceased happens to be a female member without legal ownership of land. In case 2, the Government report does not consider the farmer to be indebted perhaps because there was no documentary evidence to substantiate loans from informal sources. In case 3, the deceased being a sharecropper is considered landless. In case 4, government's investigation accepts that the deceased farmer was indebted, but also adds that there was no coercion to repay.

Table 7
Comparing *Deshonnati* reports with Government Investigation and Our Field Survey Information.

No	*Deshonnati* report	Government report	Field Survey
1	48-year-old woman. Residing with her were her husband and one unmarried son. Family has 20 acres of land. Her husband had borrowed Rs. 29,000 from a bank and Rs. 40,000 from a moneylender. When the second sowing failed, the deceased became depressed. This led to frequent altercations between the couple.	55-year-old female. There is no land or loan in her name. The case was not considered for compensation. It was observed that the suicide was not linked to crop failure or indebtedness and was due to personal reasons.	48-year-old female. Family has 19 acres of land and an outstanding debt of Rs. 32000 from bank and relatives. Some of the relatives are said to have pressurized the deceased for repayment of loan.
2	Had taken a loan of around Rs. 40,000 from informal sources. His second sowing had produced dissatisfactory results.	33-year-old male who was not found to have committed suicide due to indebtedness.	33-year-old male. Family has 7 acres land. The deceased had borrowed Rs. 7000 from a moneylender against his land as collateral. Since the loan could not be repaid, the moneylender seized the land. This drove the deceased to suicide.
3	The deceased was a sharecropper who had sold off his 1.5 acres land. He had borrowed from a moneylender for a second sowing.	28-year-old male who did not have any land or loans to his name. Hence he did not commit suicide due to indebtedness.	30-year-old male. He had taken some loan from a private moneylender and to repay it he had to sell 2.5 acres of land.
4	The deceased was a marginal farmer who had borrowed from a bank. Successive crop failures led to indebtedness and the deceased could not repay his loans.	65-year-old male who had taken a loan from a bank, but there was no evidence of any pressure on him to repay.	60-year-old male. The deceased had 14 acres of land and an outstanding loan of over Rs. 8000 from a co-operative bank. He committed suicide due to indebtedness and crop failure.
Note: The outstanding loan amount obtained from our field survey could be underestimates because it does not include the interest amount to be paid or because the respondents may not be aware of all the loans taken by the deceased or because the household might have repaid some amount of the loan by the time of our survey.			

Our field survey points out that in all the four cases households are dependent on farming for earning their livelihood and they were indebted. Compared to our survey, there is over reporting of the loan amount by *Deshonnti* (Cases 1 and 2), but it is true that the deceased households did take loans from informal sources. Having said this we need to qualify that our survey has a time lag and it is possible that the outstanding loan of the family could have changed. It is also possible for respondents to be unaware of all the debts taken by the deceased.

The government reporting is to determine ownership of land, indebtedness and pressure for repayment of loan because compensation is decided on all these. If interpretation of ownership is restricted to the individual then a wife (Case 1, Table 7) or son (see Sainath, 2005b) committing suicide will not be considered eligible. However, there are exceptions to

this. There is an instance of a farmer household receiving compensation after their son's suicide. This means that there is scope for subjective interpretation by the investigating officer. It is for the officer to interpret land ownership (deceased individual or family members), indebtedness (formal sources only or to include informal sources also) and pressure for repayment (official coercion or otherwise).

9. Other Related Issues

In Maharashtra the Monopoly Cotton Procurement Scheme (MCPS) was started in 1971 to protect cotton farmers from market uncertainties and ensure to them a fair price for their crop. The scheme run by the Maharashtra Cotton Growers' Federation was successful until mid-1990s. There were two developments, which adversely impacted the scheme. The first was internal to the scheme. The office bearers of the Federation took to rent seeking at various stages. There is manipulation at grading and weighing stages during procurement. To prevent crosschecking of this manipulation, a convenient way out is to set stocks on fire (*Sakal*, 2003a, b; Hardikar, 2005). At times, the wait to complete the procedure of selling to the Federation itself turns out to be traumatic as was in the case of a farmer committing suicide after a four-day long wait at the cotton market (*Deshonnati*, 2004a).

The second development is the liberalized policies of the government. It reduced import duty on cotton to 5 per cent in 2002. With the lifting of quantitative restrictions under the World Trade Organization (WTO) treaties, cotton imports from the U.S. increased from 21,221 tonnes in 1999 to 48,805 tonnes in 2000. With a glut in the world market, prices fell and MCPS accumulated a loss of Rs.2,795 crore by 2002 (Bunsha, 2002). In 2003, private traders were allowed to participate in the cotton market. As this season witnessed a rise in international prices, private traders offered a higher price than MCPS and procurement under this scheme was low. In 2004 international/local open market prices fell and procurement under MCPS increased. Under MCPS, procurement was 42 lakh bales of cotton in 2004-05 at a total cost of Rs.5600 crore and to disburse this the Maharashtra State Coperative Cotton Growers Marketing Federation (MSCCGMF) has either taken loans or has sought assistance from the Government. Tthe MSCCGMF had paid Rs.2300/- per quintal, which is higher than the minimum support price fixed by the Centre. From the total procurement, the MSCCGMF has been able to sell only 17.5 lakh bales and is faced with a problem of storage due to dearth or godowns (Wadke, 2005a, 2005b). In 2005-6, the Cotton Advisory Board (CAB) has estimated a cotton production of 255-260 lakh bales at the all India level. With a carry over

stock of 72 lakh bales from 2004-5, the open market price in 2005-6 is likely to be lower than the minimum support price declared by the Central Government. Meanwhile, the MSCCGMF has also decided that in the current season (2005-6) it will not pay a price that is higher than that fixed by the Center.

Another issue that has been discussed is the reducing profitability of cotton cultivation as; market prices for produce have not kept pace with that of the input intensive cost of production (Bunsha, 2004). Cotton prices crashed from 75 cents a pound to an all-time low of 35 cents in October 2001. On the other hand farmers are now dependent on an external agency for seeds. The new genetically engineered seeds like Bt (Bacillus thuringiensis, a toxin producing bacterium that will control bollworm and other Lepidopteran insects) have a royalty as high as 70 per cent. Fertiliser costs have increased three fold; pesticide spending has increased per acre cost from Rs. 90 to around Rs. 3000. Annual power bills have increased from Rs. 900 for a 3 Horse Power (HP) set to Rs. 4500. There is also an increase in transportation costs, wage bill and interest payments (Katakam, 2002; Sainath, 2005d).

A parallel development is the withdrawal of the state from the rural agrarian scenario. The rural credit structure has collapsed; rural branches of banks have reduced in absolute numbers and percentage since 1990. This has led to increased borrowing from informal sources, which in turn are exploitative (Sainath, 2004a, 2005a, c). Recent reports from the media have carried statements that organized sector provides only 8-10 percent of credit forwarded to farmers. And there is a close nexus between the police personnel and moneylenders that has resulted in police pressurizing the farmers to repay to the moneylender (Maitra, 2005a, b). This provides a strong case for quick implementation of the recommendations suggested by the 'Task Force on Cooperative Credit System' that calls for reducing intervention from state Governments and giving the authority of regulation to the Reserve Bank of India among other things (Venkitaramanan, 2005). With changing technical know-how, a greater support from agricultural extension services is called for. However, this is not the case. In Yavatmal alone, there are 1200 *krishi kendras* (private input sale points) and just one full time quality control inspector (Sainath, 2005d). In the absence of adequate extension services, farmers have to rely on the input dealers. In an unregulated market, this makes them vulnerable to supplier-induced-demand and spurious inputs.

A three-year intensive field study conducted in Andhra Pradesh showed that MECH-12Bt, MECH-162Bt and MECH 184Bt varieties did not produce satisfactory results compared to non-Bt varieties. In 2005, the Genetic Engineering Approval Committee did not renew the sale of these varieties in Andhra Pradesh, but ironically renewed the permission for sale in Maharashtra. In fact, a newspaper quoted that in Marathwada one-third of the area under cotton production in 2005-6 was under legal Bt cotton and another 45 per cent under illegal Bt cotton. The illegal seed market comprises of companies who have not obtained mandatory permission required for commercial sale of their Bt gene variety from the government (Hindustan Times, 2005).

Another study in Andhra Pradesh and Maharahstra showed that 60 per cent of the farmers in who used Bt cotton failed to break even and input costs for Bt cotton are about Rs.1,000 higher than that for non-Bt cotton. The use of Bt cotton in the Indian context has also been criticized because land size is small and not enough to grow the required 20 per cent 'refugia' crop. It has also been observed that Bt seeds have not made the crop completely resistant to Bollworm and have also resulted in lower yields of poorer quality as compared to other hybrid varieties. Also since these seeds require more water, their use in a rain fed region like Vidarbha is questionable (Krishnakumar, 2003, 2004; *Sakal*, 2003c).

A way suggested to combat reducing profitability is organic farming because it can reduce dependence on market for inputs. The cost of cultivation reduces by less than half the amount if chemicals would have been used. There exists a niche market for organic cotton that provides 10-20 per cent premium over chemically produced cotton. What can come in the way of shifting is that in the initial year of transition the yields may be relatively lower. Nevertheless, it is an alternative that shows promise (*Deshonnati*, 2004b; Menon, 2003).

10. Guidelines for Suicide Reportage

News reports and other articles in the media related with farmers' suicides in Maharashtra highlight a number of important issues. The reports have initiated debate in the policy forum as well as among researchers. At the same time, some reporting may also provide clues for suicide contemplators. We did a survey among few reporters (some of them having covered suicides). All of them pointed out that this is a sensitive issue and that they are careful while reporting such cases. However, none of them were aware of any guidelines. It would be of

help if WHO (2000) guidelines on DOs and DONTs while reporting on suicides, given in Table 8, are disseminated among the media fraternity.

To provide a clear account of suicide reporting in provision with guidelines by WHO we dwell in to the reporting style usually followed.

"Chinkhali Taluk: Shri Shivajirao Maruti Jhagare died by hanging himself on 20th July." Many newspapers follow this reporting style. What is required here is use of anonymity, by avoiding name. Instead of direct mention of the method of suicide, it is better to substitute it with words such as asphyxiation. Thus, the reporting style could have been as follows. *A farmer from Chinkhali taluka died due to asphyxiation caused by self-harm*.

"Ever mounting debts and crop failure drove a young farmer to consume pesticide." This report has two parts. The first part gives simplistic reason in the form of debt and crop failure. This primes the readers to think that suicide can be an escape route. The second part provides the method, which could be avoided by using medical terms. Instead, the reporting could be as follows. *The grim and stressful circumstances such as mounting debts and crop failure broke down the defenses of a young farmer. He was found dead due to organic toxicity caused by consuming chemicals*.

So and so died of … "Next to the body was found a letter stating the trauma, stress and economic incapacity by him for repaying the debts." This is an example of reporting a suicide note. It is usually advisable not to report a suicide note verbatim, but if necessary then only the gist be printed in the report.

Similarly, other precautions for reporting are to avoid giving photos of the deceased or of the incident, avoid carrying news in the front page and avoid using the word 'suicide' or 'self-harm' in the title of the story. This measure should be taken in order to insulate the readers and suicide contemplators from getting primed and ruminative about the event.

Statements that are representative of religious or cultural stereotypes should also be avoided. For instance, statements like "members of so and so community are more prone to suicides than others." This could not only lead to ill feeling among communities and cultures, but also can be erroneously attributed as the cause of suicide. This should be avoided.

It is very important that when one writes about suicide the general representation of the event should have hope as the undertone, and compassion for the deceased, but with a strong appeal that the act could be averted with appropriate seeking of help. It is of equal importance to mention suicide as a symptom of mental trauma, provide inputs by professional such as psychiatrist and psychologist, information on help lines and spiritual gurus. The reporters should take care to highlight that suicide though it seems 'an easy escape route,' has an indelible mark on the people close to the deceased who then have to fight there own mental trauma.

The general newspaper analyses have shown that reporters usually get their information from government officials. The latter too have an important role in shaping the report that media presents to the public. Officials should refrain from a 'no comment' response; should avoid dictating how the suicide should be reported and help by giving accurate and responsible responses to the reporters' queries. There is a strong case for co-operation between the government and the media (CDC, 1994 and CDC et al, undated).

Table 8
DOs and DONTs for Suicide Reportage

Dos	DONTs
Work closely with health authorities in presenting the facts.	Don't publish photographs or suicide notes.
Refer to suicide as a completed suicide, not a successful one.	Don't report specific details of the method used.
Present only relevant data, on the inside pages.	Don't give simplistic reasons.
Highlight alternatives to suicide.	Don't glorify or sensationalize suicide.
Provide information on helplines and community resources.	Don't use religious or cultural stereotypes.
Publicize risk indicators and warning signs	Don't apportion blame.

11. Concluding Remarks

This content analysis has three parts. The first part is an analysis of news reports on farmers' suicides during January 1-December 31, 2004 in a Marathi daily, *Deshonnati* (2004a). It looked into district wise distribution, monthly pattern, age, possible risk factors and loan or debt details. Further, a few cases were taken to compare between the news reports and government investigation done to decide on providing compensation.

From 192 news reports 320 cases of suicides in 317 households were obtained. In two instances both husband and wife committed suicide together and in one instance the son committed suicide a day after his father's death. The highest incidence of suicide was in Amaravati division constituting 69 per cent of the cases and the epicenter seems to be in Yavatmal district and 58 per cent of the suicides took place in the July-September period. Further, 77 per cent (N=269) were below 50 years and 76 per cent (N=313) committed suicide by consuming pesticide.

On risk factors (N=286), we could identify single risk factor in 24 per cent of the cases, double risk factors in 61 per cent of the cases and triple risk factors in the remaining 15 per cent of the cases. Indebtedness is the most common risk factor. It was identified in 66 per cent of the single risk factor and all the double and triple risk factors. Crop failure is identified in 25 per cent of the single risk factor and 96-97 per cent of the double and triple risk factors. Another important risk factor happens to be daughter's or sister's marriage, which was identified in 13 per cent of the total cases. It needs to be reiterated that risk factor are not mutually exclusive. They can co-exist and even feed into each other aggravating the overall stress of an individual.

On sources of loan (N=153), there is a greater reliance on formal sources like bank (82 per cent), but this does not preclude the reliance on moneylenders (53 per cent). In fact, in 39 per cent of the cases loans were taken from both bank and moneylender. The most intriguing part of moneylender's functioning is that they charge interest rates between 30-120 per cent per annum.

Comparing between the media report and the government investigation suggests that the latter is aimed at identifying whether the case is eligible for compensation or not and that there is scope for subjective interpretation, which, more often than not, goes against the deceased individual's household receiving compensation.

In the second part, English and Marathi newspaper were analyzed to obtain further insights into the problem of farmers' suicide. The issues discussed point out the following. The office bearers of the Monopoly Cotton Procurement Scheme (MCPS) indulge in rent seeking. This coupled with liberalized policies has adversely affected the scheme since mid-1990s. Farmer's price risk has increased because its volatility is linked with the global scenario.

Existence of MCPS in an open market has given it a structure where loss is in-built. Cost of cotton cultivation is reducing its profitability. The state seems to be withdrawing and this is evident from the decline of formal credit institutions, poor extension services and decline of asset generating investments. The introduction of Bt (Bacillus thuringiensis) cotton in an unregulated market has raised a number of questions. Organic cotton is suggested as an alternative to counter reducing profitability as well as the questions around Bt.

In the third part, we discuss on suicide reportage. Dissemination of guidelines by World Health Organisation (WHO) on DOs and DONTs are suggested. A case for cooperation between the media and the government is also made.

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Cotton Sector in Maharashtra[1]

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Abstract

Maharashtra accounts for more than one-third of the total area under cotton in India, thereby making it one of the principal cotton growing states in the country. About 24 lakh cultivators (that is, 20 per cent of the total cultivators in the state) and their families are involved in cotton production in the state. For most, cotton is the primary cash crop and therefore the principal source of income. Their major concern is unremunerative returns. This is mainly because of the following factors: yield uncertainty because of fluctuations in productions that is largely rain-dependent, yield being much lower than the national average, cost of cultivation being much higher than the price received, poor dissemination of scientific farm techniques (farmers do not use certified seeds, seed sowing per unit land is not adhered to, fertilizer usage is not as per recommended dose, insecticide usage is excessive causing damage to crop and ecology), and the increasing inability of the Maharashtra State Cooperative Cotton Growers Marketing Federation (MSCCGMF) in providing a cushion against price volatility.

[1] This has been prepared as a background paper for the study on 'Suicide of Farmers in Maharashtra' being conducted by the Indira Gandhi Institute of Development Research (IGIDR), Mumbai for the Government of Maharashtra. An earlier version was peer reviewed by two anonymous referees and also discussed in the interim workshop held on 18 August 2005 at IGIDR.

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1. Backdrop

Maharashtra is one of the principal cotton growing states in the country. The total area under cotton (2001-02) was 31.04 lakh hectares, which is about 37 percent of the total area under cotton in the country. The production however shows wide fluctuations over the years and ranged from 11.55 lakh bales in 1991-92 to 31.4 lakh bales in 1996-97. These wide fluctuations occur mainly due to heavy dependence of cotton crop in the state on monsoons. Only 3 percent of the area under cotton is irrigated, while 97 percent of the cotton area is dependent on rainfall which is erratic.

There are 22,000 villages, from 23 cotton producing districts wherein about 24 lakh cultivators and their families are involved in cotton production in the state. As per the 2001 census, there are 120 lakh cultivators in Maharashtra, which means that 20 percent of them grow cotton. For them, cotton is the primary cash crop and therefore the principal source of income. The value of cotton crop in Maharashtra (inclusive of cottonseeds) varies from 5.4 percent to 10.8 percent of Gross State Domestic Product from agriculture.

2. Cotton Cultivation

2.1 Cotton Production Performance

Cotton is an important commercial crop grown in Maharashtra and constituted 14 percent of the gross cropped area in 20001-02. It has highest area under cotton in the country which is about 30.76 lakh hectares in 2000-01 while Gujarat which ranks second in terms of area had 16.15 lakh hectares during the same period, which is slightly less than half of Maharashtra's area. However, in terms of yield, the state shows a different picture as yield from cotton is lowest in Maharashtra and much below All India average. While All India yield was 191 kg per hectare in 2000-01, the yield in Maharashtra during the same period was 100 kg per hectare. Nearly 97 percent of the cotton cultivated in Maharashtra is unirrigated while in states such as Punjab and Haryana , the entire area under cotton is unirrigated. In Table 1 we have shown District -wise Area, Production and Yield of cotton in Maharashtra for TE 90-91, 96-97 and 2000-01. Further in Appendix II we have shown Area, Production and Yield of cotton in Maharashtra for the period 1990-91 to 2001-02.

From Table 1, it can be observed that area under cotton in Maharashtra which was 26.5 lakh hectares in TE 1990-91 increased to 31.97 lakh hectares in TE 2000-01.Yavatmal didsrict had

highest area under cotton constituting 14.29 percent area of the state in TE 2000-01. The four major cotton growing districts of Akola, Amravati, Buldhana and Yavatmal together constituted 43 percent of the area in the state in TE 2000-01 but contributed to only 38 percent of production mainly due to low yields. During the year 2000-01, the yield in Buldhana was 69 kg per hectare, while in Amravati and Yavatmal it was as low as 82 kg and 91 kg per hectare respectively (see Appendix I). There are also wide fluctuations in yield from year to year and the state average yield which was 100 kg per hectare in 2000-01 increased to 147 kg per hectare in 20001-02. Thus although cotton is an important crop in Maharashtra in terms of area, the low yield is a major cause of concern for the cotton economy of Maharashtra.

Table 1
Districtwise Area, Production, and Yield of Cotton in Maharashtra

Districts	Area			Production			Yield		
	TE 90-91	TE 96-97	TE 2000-01	TE 90-91	TE 96-97	TE 2000-01	TE 90-91	TE 96-97	TE 2000-01
Nashik	16.00	20.00	51.60	17.33	20.67	64.66	199.67	227.00	210.00
Dhule	671.33	815.33	962.00	551.00	708.67	771.00	140.00	157.67	136.00
Jalgaon	1721.33	2770.33	3942.00	1718.67	3390.33	4442.00	168.67	225.67	193.00
A` Nagar	14.67	28.00	143.00	20.67	52.33	227.00	237.67	332.67	271.00
Pune	1.67	1.67	4.70	3.00	1.67	11.70	307.33	430.67	430.60
Solapur	22.67	36.33	57.30	32.33	50.33	94.00	241.00	272.67	276.00
Satara	10.33	42.67	52.30	18.67	50.33	104.00	312.67	316.33	337.00
Sangli	14.33	21.67	33.30	25.33	27.33	71.30	303.33	249.67	330.00
Kolhapur	1.00	2.00	1.00	1.00	2.00	1.00	154.33	210.00	181.30
A`Bad	595.00	993.33	1482.00	671.00	739.67	1056.00	191.67	152.00	152.00
Jalna	1190.33	1442.67	1570.00	780.00	1181.33	1295.00	110.33	143.33	139.00
Beed	283.33	759.67	1015.00	210.67	635.33	825.00	128.00	140.33	138.00
Latur	255.67	339.67	272.00	132.33	260.00	213.00	94.33	134.00	134.00
Nanded	2239.00	2714.00	2741.00	1419.00	1759.33	1563.00	108.33	113.33	97.00
Parbhani	2652.33	3114.67	3231.00	1470.67	2868.00	2196.00	95.00	157.33	114.00
Buldhana	2554.00	2502.33	2449.00	1636.33	2136.00	1850.00	108.33	135.00	124.00
Akola	3583.67	3497.67	3511.00	2251.00	4194.00	2654.00	106.67	181.33	128.00
Amravati	3627.00	3611.33	3187.00	2350.67	3564.33	1807.00	110.33	146.33	96.00
Yavatmal	4326.33	4496.00	4570.00	2179.00	3907.67	3096.00	85.67	128.00	118.00
Wardha	1499.33	1433.67	1355.00	1656.67	1756.67	1449.00	187.33	219.00	181.00
Nagpur	643.00	563.33	637.00	560.33	616.00	789.00	149.33	192.67	213.00
Chandrapur	659.67	576.33	542.00	495.33	624.00	473.00	128.00	169.00	148.00
Gadchiroli	2.33	1.33	NA	2.00	2.00	NA	142.67	132.33	NA
Maharashtra	26584.33	29784.00	31974.00	18203.00	28547.33	24904.00	116.00	158.00	132.00

Note: TE is triennium ending. Area in '00 hectares, Production in '00 bales of 170 Kg each, Yield in Kg per hectare.
Source: Season and Crop Reports, Maharashtra State (Various issues)

The District wise percentage of area and production is shown in Table 2. It can be observed that while Yavatmal had highest area (14.29 percent) under cotton in Triennium 2000-01, in

terms of production, Jalgaon was highest (17.84 percent) as yield in Jalgaon was higher than in Yavatmal. In Yavatmal, entire area under cotton is unirrigated and yield levels have most often been below state average. In Jalgaon however, there has been a gradual increase in area under cotton over the years with yield levels most often above state average. Discussions with state officials reveal that farmers in Jalgaon are practicing drip irrigation which has resulted in higher yields. Amravati, which is also an important cotton growing district is showing fall in area. There was increasing cultivation of oilseeds in this district perhaps due to the impact of Technology Mission on oilseeds.

Table 2
District Wise Percentage of Area and Production

Districts	Area			Production		
	TE 90-91	TE 96-97	TE 2000-01	TE 90-91	TE 96-97	TE 2000-01
Nashik	0.06	0.07	0.16	0.10	0.07	0.26
Dhule	2.53	2.74	3.01	3.03	2.48	3.10
Jalgaon	6.47	9.30	12.33	9.44	11.88	17.84
A` Nagar	0.06	0.09	0.45	0.11	0.18	0.91
Pune	0.01	0.01	0.01	0.02	0.01	0.05
Solapur	0.09	0.12	0.18	0.18	0.18	0.38
Satara	0.04	0.14	0.16	0.10	0.18	0.42
Sangli	0.05	0.07	0.10	0.14	0.10	0.29
Kolhapur	0.00	0.01	0.00	0.01	0.01	0.00
A`Bad	2.24	3.34	4.64	3.69	2.59	4.24
Jalna	4.48	4.84	4.91	4.29	4.14	5.20
Beed	1.07	2.55	3.17	1.16	2.23	3.31
Latur	0.96	1.14	0.85	0.73	0.91	0.86
Nanded	8.42	9.11	8.57	7.80	6.16	6.28
Parbhani	9.98	10.46	10.11	8.08	10.05	8.82
Buldhana	9.61	8.40	7.66	8.99	7.48	7.43
Akola	13.48	11.74	10.98	12.37	14.69	10.66
Amravati	13.64	12.13	9.97	12.91	12.49	7.26
Yavatmal	16.27	15.10	14.29	11.97	13.69	12.43
Wardha	5.64	4.81	4.24	9.10	6.15	5.82
Nagpur	2.42	1.89	1.99	3.08	2.16	3.17
Chandrapur	2.48	1.94	1.70	2.72	2.19	1.90
Gadchiroli	0.01	0.00	0.00	0.01	0.01	0.00
Maharashtra	100.00	100.00	100.00	100.00	100.00	100.00

Note: TE is triennium ending
Source: Computed from Table 1.

2.2 Constraints to Cotton Yields in Maharashtra

It can be observed from Appendix 1 that during the period 1990-91 to 2002-03 yield levels have been constantly fluctuating over the years. For the state as a whole, the highest yield was observed in 1993-94 (180 kg per hectare) and lowest yield in 1991-92 (71 kg per hectare). Fluctuations in yield have also been observed in all districts and concerted efforts have been

made by the government to improve yield. In fact the drive to improve cotton production in all cotton producing states started soon after independence when development schemes such as "Cotton Extension Scheme" and "Grow More Cotton campaign" were launched by the government in the year 1950-51. These schemes however had certain deficiencies and to overcome them, the government launched a new centrally sponsored scheme viz. Intensive Cotton District Programme in 1971-72, which was later renamed as Intensive Cotton Development Programme (ICDP) in 1979-80. The main objectives of the scheme were to increase production of raw cotton by adopting improved farm practices and advanced production technology.

Recently a fresh thrust to cotton research and development has been given by the launching of a Technology Mission on Cotton (TMC) in February 2000. The purpose of this mission is to bring the entire gamut of reaearch, technology transfer, marketing and processing of cotton under one roof.

Studies by Government of India (2000) to evaluate the ICDP and also to evaluate the Insecticide Resistance Management strategies (2002) indicated that the technology disseminated has hardly been effective. These studies explained major constraints that retard yield such as:

i. Cotton crop in Maharashtra is essentially rainfed and major regions are characterized by scanty and uncertain rainfall. Only 3 percent of the cotton area is irrigated while 97 percent depends upon rainfall. Rainfall cotton yields are low owing to erratic and uneven distribution of rainfall. Rainfall cotton suffers from moisture stress during post monsoon season which coincides with flowering and boll development stages. The crop is also grown on varying soil types with varying soil depth and wide range of soil moisture storage. Yield therefore varies from year to year.

ii. The area under certified seeds does not exceed 40 percent. Even in the case of hybrids, a sizeable share of the area is covered only by truthfully labelled seeds and not certified seeds.

iii. Several technologies such as sowing in ridges and furrows and irrigation to alternate furrows, adoption of proper seed rate, use of recommended dose of fertilizer etc. have more or less not been adopted by farmers.

iv. Since cotton crop supports insect pests throughout the season, farmers were accustomed to using insecticides continuously, unmindful of the damage it causes to the crop. Overuse and misuse of insecticides led to problems of harmful residues, pest resurgence, development of insect resistance to insecticides and ecological upheavals. Farmers lack extension services on how to deal with the insect pest outbreak crisis. With Insecticide Resistance Management (IRM) strategies, farmers need to spray 0-1 times as compared to their normal sprays of 7-10 applications.

v. While Integrated Pest Management programmes are becoming popular in the state, timely availability of good quality bio agents at economical rates is a major constraint.

vi. There is indiscriminate release of new varieties, which do not have superiority in yield. Private seed producers release hybrids to farmers in the name of research hybrids without reference to "Variety Release Committee". This acts as a constraint.

vii. Late sowing and low plant population are other major constraints. Sowing is delayed, if onset of monsoon is delayed. This adversely affects the productivity. Because of the practice of wider inter row spacing, plant population per unit area is low.

viii. While marketing cotton, the produce of many varieties get mixed due to poor infrastructure facilities in the market yards which makes the quality of the produce poor. Most of the ginning and pressing units are poor and outdated. Due to this, not only is the quality of cotton deteriorating but their efficiency is also low in terms of ginning percentage.

ix. Most farmers were ignorant of proper and appropriate pest control technologies. Insecticide application was mainly based on a calendar basis or under peer pressure. Although government agencies tried to provide extension services, they never followed up their visits. A large number of insecticide formulations were available in the market and farmers were unable to choose the right formulation. Farmers mostly depended on insecticide dealers for advice and to whom they were indebted. Heavy dose of insecticides increased the cost of cultivation, lowered the yield and made cotton cultivation unremunerative.

3. Cost of Inputs in Cotton Cultivation

In this section we have indicated the cost of inputs for important varieties of cotton which are cultivated in Maharashtra. It may be noted that the Reports of The Commission For Agricultural Costs and Prices published by the Department of Agriculture, GOI, regularly

publish different cost estimates for various crops. In case of cotton however, these estimates have not been published for Maharashtra. We therefore obtained these estimates from the Maharashtra State Agricultural Prices Committee Cell.

Table 3
Per hectare item-wise cost of cultivation of Cotton (different varieties) in Maharashtra, 2002-03

No.	Item	Unit of Input	H-6			NHH-44			LRA-5166		
			Inputs per Hectare	Cost per unit of Inputs (Rs)	Total Costs per Hectare (Rs)	Inputs per Hectare	Cost per unit of Inputs (Rs)	Total Costs per Hectare (Rs)	Inputs per Hectare	Cost per unit of Inputs (Rs)	Total Costs per Hectare (Rs)
1	2	3									
1	Hired HumLab, M	Days	12.47	50.00	623.50	10.88	47.00	511.36	12.23	51.20	626.18
	F	Days	69.47	47.00	3265.09	54.17	47.00	2545.99	64.43	47.00	3028.21
2	Bullock Labour, Pair	Days	15.13	118.40	1791.39	15.18	94.13	1428.29	13.93	112.35	1565.04
3	Mach Charges	Rs.			355.14			443.01			393.55
4	Seed	Kg.	3.12	518.30	1617.10	2.44	353.83	863.34	5.90	86.27	508.99
5	Manures	Cart	3.71	131.40	487.49	5.43	116.25	631.24	1.48	129.87	192.21
6	Fertilizers , N	Kg.	43.64	10.00	436.40	50.78	10.00	507.80	41.17	10.00	411.70
7	P	Kg.	22.71	17.28	392.43	26.39	17.28	456.02	25.49	17.28	440.47
8	K	Kg.	5.37	7.09	38.07	10.50	7.09	74.45	9.56	7.09	67.78
9	Irrigation Charges	Rs.			108.65			1.45			25.91
10	Insecticides	Rs.			622.98			749.86			356.80
11	Insurance Charges	Rs.			748.00			748.00			748.00
12	Incidental Charges	Rs.			62.48			49.71			35.80
13	**Work Capital, 1-12**	**Rs.**			**10548.72**			**9011.12**			**8400.64**
14	Int on 13	Rs.			1107.62			946.17			882.07
15	Landrev,Cess&Tax	Rs.			31.32			20.46			22.11
16	Depreciation	Rs.			609.56			218.48			418.25
17	**Cost 'A' (13-16)**	Rs.			**12297.22**			**10196.23**			**9723.07**
18	Rental value, Land	Rs.			2556.25			1798.20			2041.67
19	Int. on FixedCapital	Rs.			1150.96			520.66			1141.70
20	**Cost 'B' (17-19)**	Rs.			**16004.43**			**12515.09**			**12906.44**
21	Family Hum Lab, M	Days	21.96	62.50	1372.50			1046.34	13.15	64.00	841.60
22	F	Days	11.55	58.75	678.56	17.81	58.75	862.45	9.82	58.75	576.93
23	SupervisionCharges	Rs.			1229.72	14.68	58.75	1019.62			972.31
24	**Cost 'C' (20-23)**	Rs.			**19285.21**			**15443.50**			**15297.28**
25	Cost 'C' per hectare	Rs.			19285.21			15443.50			15297.28
26	Yield per hectare	Qtls.			8.18			6.66			7.00
27	Value,main prod/hect	Rs.			15337.50			10789.20			12250.00
28	Value,by-prod/hect	Rs.			-			-			-
29	Cost 'C',main prod/ha	Rs.			19285.21			10443.50			15297.28
30	**Per quintal Cost**	Rs.			**2357.61**			**2318.84**			**2185.33**

Note: Hum Lab indicates Human Labour, Int. indicates interest, Landrev indicates land revenue, depreciation is calculated on implements and farm buildings, prod indicates produce, items 25-29 are per hectare.
Source: Agricultural Price Committee Cell, Maharashtra

The Maharashtra State Agricultural Prices Committee cell collects data on cost of cultivation of various crops and on the basis of these estimates recommends Minimum Support Prices to the centre. In order to obtain data for working out the cost of cultivation of each crop, a

permanent machinery was created in four agricultural universities in the state in 1979. A three stage stratified random sampling technique followed under the Centrally Sponsored Comprehensive scheme has been adopted. While estimating the cost of cultivation, the state APC considers items of direct expenditure and items of indirect expenditure. These estimates are accordingly presented in Tables 3. It shows that for the year 2002-03 the cost of production of H-6 variety was Rs 2357.61/- per quintal whereas the Minimum support price (MSP) announced by CACP was Rs 1875/- per quintal. Again with respect to NHH-44 and LRA-5166 while cost of production was Rs 2318.84/- and Rs 2185.33 per quintal respectively, the MSP was Rs 1620/- and Rs 1750/- per quintal respectively. This indicates that the MSP fixed is about 20 to 30 percent lower than the cost of production. As discussed in the earlier section, attempts have to be made to increase the yield of cotton which would lower the cost of cultivation.

4. Cotton Marketing in Maharashtra

4.1 Background

Maharashtra has highest area under cotton in the country and cotton is the primary cash crop in the state. The marketing of this crop however has a unique feature, i.e. there is complete state intervention. A scheme of Monopoly Procurement of Cotton was framed and given a statutory form under the Maharashtra Raw Cotton (Procurement, Processing and Marketing) Act, 1971. With the enforcement of this Act, all private trading in cotton was prohibited and the cultivator was given only one option in regard to the selling agency, namely, the Maharashtra State Co-operative Cotton Growers Marketing Federation Limited (MSCCGMF). The main objectives of the scheme were (a) to ensure fair and remunerative price of cotton to the growers in the state (b) to effect additional transfer of incomes to the cotton growers by eliminating middlemen and securing in full the advantage of terminal price (c) to bring about stability in the incomes of growers and thereby bring about stability and growth in the overall production of cotton in the state (d) to supply scientifically graded quality cotton to the consumer mills.

The hallmark of the monopoly scheme was the payment of a guaranteed price to the grower. This price remained the same throughout the season and the cultivator was assured that he would receive it even if the Federation could not sell at that price. The Maharashtra Federation is a registered co-operative society.

4.2 Financial Performance of the scheme

It is now little more than three decades since the scheme has been in operation. Its performance during the first two decades i.e. from the period 1972-73 to 1993-94 showed that it made losses in 8 out of 22 years. The major losses were in 1984-85 and 1985-86, when the scheme made losses of Rs.77 crore and Rs.308 crore respectively. There was a bumper crop of cotton in the country and prices in all primary markets began to crash. The Monopoly Scheme was under strain as it had paid high guaranteed prices to the farmers but incurred high marketing costs and realized low sale prices. To make good the losses, a sum of Rs.331 crore had to be transferred from the state exchequer to the federation for its survival. The Price Fluctuation Fund which was devised essentially to ensure payment of guaranteed prices in years of losses was completely wiped out and state had to come to the rescue of the scheme. During the year 1985-86 as mentioned earlier, the scheme made heavy losses as the ruling market prices were more or less on level with the centre's support price but the guaranteed prices announced by Maharashtra were 10 percent higher than the support prices announced by the Commission for Agricultural Costs and Prices. Thus although in the 1985-86 season the farmers received nearly 10 percent higher prices than their counterparts in other states, this price was achieved at the expense of the exchequer. In this event, the problem was further aggravated, as there was an inflow of cotton (of almost 10 lakh bales) from border states which was against the spirit of the Maharashtra Raw Cotton Act, 1971. From the period 1986-87 to 1993-94 however, the scheme made profit continuously, mainly because of its policy of fixing guaranteed price at support level. However, in 1993-94 a reverse situation arose, when competitive prices in the border markets were substantially higher than Maharashtra guaranteed price. In case of H-4 variety, for example the border prices were on an average 40 percent higher than the Maharashtra guaranteed price. In this year while production was estimated at 26 lakh bales, the procurement by the federation was only 13 lakh bales, which means that the Federation procured only 50 percent of the state's production. This adds to the financial loss of the scheme, as the growers could avoid contributing to the Price Fluctuation Fund and Capital Formation Fund, the proceeds of which are used for the functioning of the scheme. Further, due to surreptitious sale of cotton outside the state, the growers could avoid repaying their dues to the co-operative credit societies. All the case s of smuggling of cotton and disproportionate tender of cotton are dealt under section 20 of the Act. In the year 1999-2000, 6794 cases were filed against smuggling of cotton.

However most of the cases filed were dismissed This was brought to light by a report on Monopoly Procurement of cotton under the chairmanship of the Additional Chief Secretary.

Again, from the year 1994-95, the government began fixing guaranteed prices higher than support prices. The growers were paid advance additional prices which resulted in them receiving prices higher than their counterparts in neighbouring markets. The losses incurred under the scheme since 1994-95 are indicated in Table 4.

Table 4
Losses incurred by Maharashtra Federation (Rs. crore)

Year	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	Total
Losses	160.17	522.9	377.95	204.32	451	893	672	703.35	3984.69

Source : MSCCGMF

It can be observed that currently the Maharashtra Federation incurred losses to the tune of Rs. 3985 crore. The scheme provides that whenever the Final prices are lower than guaranteed prices, the deficit is to be made good from the Price Fluctuation Fund. The Price Fluctuation Fund and also another Fund (Capital Formation Fund where growers used to contribute 1 to 3 percent of guaranteed price) were completely wiped out as the scheme incurred losses year after year. These losses are to be made good by the Government. A scheme which is heavily dependent upon government subvention for its very survival can hardly be considered to be efficient. The Monopoly Scheme aimed at ensuring fair price to the growers in the state and securing to them the advantage of terminal price. It has however secured to its growers the guaranteed price at the expense of the state exchequer.

4.3 Factors Responsible for huge and unsustainable losses

A number of factors are responsible for the huge losses incurred by the scheme. Since the 1994-95 season, the growers received guaranteed price on tender of their cotton. Further, if the prices prevailing in the neighbouring markets were higher than guaranteed prices fixed in Maharashtra, the growers also received an advance additional price. In Table 5 we have shown prices paid to growers under Cotton Monopoly Procurement Scheme and those prevailing in border markets.

Table 5
Prices Paid to cotton Growers under Cotton Monopoly Procurement Scheme And Border Prices (Rs)

Year	Support Price	Guaranteed Price	Adv Addl Price	Total Price	Final Price	Border Price
LRA-5166						
1994-95	1140	1150	850	2000	1650	1648
1995-96	1260	1310	700	2010	1687	1800
1996-97	1290	1330	670	2000	1752	1900
1997-98	1430	1430	560	1990	1867	2050
1998-99	1545	1545	445	1990	1668	1300
1999-00	1650	1650	525	2175	1689	1950
2000-01	1700	1700	475	2175	2175	2080
2001-02	1750	1750	425	2175	-	NA
Variety: H-4/H-6						
1994-95	1200	1210	890	2100	1946	NA
1995-96	1350	1400	700	2100	1762	1750
1996-97	1380	1430	670	2100	1940	1850
1997-98	1530	1530	570	2100	1903	2000
1998-99	1650	1650	450	2100	1789	2200
1999-00	1775	1775	525	2300	1866	2025
2000-01	1825	1825	475	2300	NA	2153
2001-02	1875	1875	425	2300	NA	NA
Source: MSCCGMF; Agricultural Price Committee Cell, GOM.						

There were several years when total price paid to farmers in Maharashtra were higher than those prevailing in border markets. Paying unduly high guaranteed prices, which may stop outflow of cotton to border states, led to other problems as these prices could not be recovered at the time of sales. The problems were further accentuated as the federation was slow in marketing its full pressed bales. Prior to the commencement of the 2001-2002 cotton marketing season, the Federation had with it, stocks to the tune of Rs 2,220 crores. In Table 6 the interest cost incurred by the Federation to co-operative banks is indicated.

Table 6
Interest paid to Co-operative Banks (Rs Crore)

Year	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	Total
Interest Paid	84.75	175.4	142.1	112.55	230.08	324.00	1068.88
Source: MSCCGMF							

These mounting deficits mainly because of interest cost (besides storage and insurance) which the government has to make good (sooner or later) would not be paid to cotton growers. The huge budgetary subventions on these interest charges would go to the banks and other financial institutions. The Federation often took as much as 23 months to dispose of its stocks (Table 7).

Table 7 Time taken in Disposing stocks					
Season	1994-95	1995-96	1996-97	1997-98	1998-99
Time in no. of months	23	23	15	23	17
Source: MSCCGMF					

It has to compete with private trade in the market. The speed with which private traders finalize deals, change their prices and service their clients cannot be matched by the Federation because of its bureaucratic setup. The private traders dispose of their stocks withen a period of 3 to 4 months Holding stocks for long, deteriorates the quality of cotton and the Federation had to sometimes offer discounts on its sale operations. Also, improper grading i.e., inferior quality being graded as superior quality is a common malpractice observed. Further, there were 308 cases of fire during the period 1994-95 to 1999-2000 and in 60 percent of the cases the reason for fire was not known. All these factors add to losses.

Besides the interest and other costs, the ginning and pressing rates (Table 8) paid by the Federation are approximately 10 percent higher than that paid by neighbouring states. There are times when the Maharashtra Federation procures as much as 180 lakh quintals of Kapas and therefore ginning & pressing rates must be absolutely competitive to minimize cost. The Federation often paid high guaranteed prices to the growers, which attracted surreptitious movement of cotton into the state. Thus the scheme was not only subsidizing Maharashtra farmers, but also those of neighbouring markets landing the scheme into greater financial difficulty. In case ruling prices outside the state were higher, farmers moved it out in contravention to the provision of the act.

Table 8 Ginning & Pressing charges (Rs per quintal)			
Charges	Maharashtra Federation	Gujarat	Andhra Pradesh
Ginning charges	58	54	50
Pressing charges	36	33	33
Source: MSCCGMF			

The overall marketing operations of the Federation show that it is paying unsustainable guaranteed prices, incurring huge marketing costs, holding large stocks due to slow sales and grading is also not upto the mark. The assured guaranteed price however seems to be an incentive to the grower to cultivate cotton. It is observed in Maharashtra that area has

increased from 26 lakh hectares in TE 1990-93 to 32 lakh hectares in 1997-2000. However, inefficient marketing and dependence on budgetary resources is hardly a way to induce farmers to increase production. Against the background of huge losses, the scheme has given up its monopoly character and in the year 2002-03, against a production of about 24 lakh bales the scheme procured only 4.98 lakh bales i.e barely 21 percent of production.

After observing the method of payment to farmers under the Monopoly Procurement scheme, it would be useful to compare the total price (guaranteed price plus Advance Additional price) paid to farmers in Maharashtra with the cost of cultivation. This is shown in Table 9. Both NHH-44 and LRA-5166 are important varieties grown in Maharashtra and in 1998-99 out of a total procurement of 120.48 lakh quintals by the Maharashtra Federation, the procurement of NHH-44 was 90.56 lakh quintals (75.16 percent) and in 1999-2000, the procurement of NHH-44 was 57.3 percent while the procurement of LRA-5166 was 15.83 percent.

Table 9
Comparison of Cost of Production of Cotton with Total Price Paid to Cotton Growers

Year	Cost of Production (Rs/quintal)	Total price paid to growers (Rs/quintal)
Variety: NHH-44		
1998-99	2152	1970
1999-2000	2216	2050
2000-01	2182	2050
Variety: LRA-5166		1990
1998-99	2795	2175
1999-2000	2033	2175
2000-01	2022	2175
Source: APC cell (GOM); Annual Cotton Statistics, CMI unit, GOM		

It can be observed from Table 9 that incase of NHH-44 variety, the cost of Production was higher than total price paid to farmers in Maharashtra. With respect to LRA-5166, in the year 1998-99, while cost of production was Rs 2795/- per quintal, the total price (guaranteed price plus Advance Additional Price) paid to growers was Rs 1990/- per quintal i.e. 29 percent lower than cost of production. This indicates that cultivation of cotton was at times unremunerative to the growers. Cotton crop consumes 54 percent of total pesticide use in Indian agriculture which greatly adds to cost of production. Due to indiscriminate use of hazardous insecticides for controlling cotton pests, the resistance of insects against

insecticides increases, and in turn compels the use of more number of sprays thus creating a vicious cycle and increasing the cost of production. As regards payment for produce, most farmers faced delayed payments. While guaranteed price was paid at the time of tender, the payment of Advance Additional Price which was declared later in the season was delayed.

5. Other Policies in Cotton Sector

Efforts have been made by the government through various programmes such as Technology Mission on Cotton to improve the yield of cotton. The other factors which influence are:

5.1 Trade Policies

Trade policies of the government also have an impact on the cotton economy. With respect to imports, since 1970 they were canalized through Cotton Corporation of India. However, in April 1994, keeping in tune with globalisation, cotton lint imports were placed under open general license (OGL) ie. they were freely importable. Further, from July, 2001, raw cotton exports were also under OGL.

Table 10
Import and Export of Raw Cotton

Year	Import of Raw Cotton		Export of Raw Cotton	
	Quantity	Value	Quantity	Value
1999-2000	2.37	125392.83	0.16	7706.96
2000-01	2.12	118472.63	0.30	22412.77
2001-02	3.87	205361.52	0.08	4269.40
2002-03	2.33	123760.89	0.12	5049.26

Note: Quantity in lakh tones and Value in Rs. Lakh.
Source: Indian Cotton Annual, 2002-03, published by East India Cotton Association

However, despite free cotton exports, the government agencies are unable to gain from exports due to depressed international prices of cotton. The cotlook index which was 91.77 in 1994-95 came down to 41.81 in 2001-02. As international prices were at the lowest levels in 2001-02, the country imported 3.87 lakh tonnes while our exports were only .08 lakh tones. This is indicated in Table 10. With international prices being depressed there is hardly any scope for the Maharashtra Federation which was holding large stocks of cotton to capitalize on exports. Further, Indian cotton is often not acceptable in export markets on grounds of quality considerations. Under these circumstances, a liberalized export policy may also not help to revive the cotton economy.

5. 2 Risk Management

Cotton is a crop characterized by frequent and sudden volatility in prices. The government designed various price policies to impart stability to the cotton economy. The support price mechanism operates throughout the country if needed. However, this mechanism has no role to play in Maharashtra where farmers through the monopoly scheme are assured fixed guaranteed prices and even a bonus in case of profits. Thus state interventions have been playing a role in the cotton economy, especially in the state of Maharashtra.

Box 1

Establishment of EICA

EICA was established in 1921, to bring about orderliness in cotton trade. Nineteen regional associations and eleven marketing societies are registered with it. EICA has formulated a framework for trading in ready and forward contracts as well as imports and exports. It also prepares and maintains grade and staple standards in respect of all commercially grown cottons and has a well equipped laboratory which can evaluate all cotton samples. EICA has a Daily Rates Committee which ascertains and notifies the prices of various descriptions of specified staples and grades of cotton. These form the benchmark for both buyers and sellers for invoicing back and closing contracts. EICA's services also include collection, compilation and dissemination of comprehensive data on supply, demand and prices of cotton. Futures trading in cotton which was suspended in 1966 and revived in1998 has been universally recognized as an effective modern tool for risk management and price discovery. EICA is the government nominated agency for conducting futures trading.

Source: Office of EICA, Mumbai

State interventions while providing support to farmers suffer from their own limitations as was observed in Maharashtra. It is therefore imperative to manage price volatility in other ways. Price volatility can be managed with the introduction of futures trading in cotton. In India, cotton had a long tradition of futures trading, much before independence, until it was suspended in 1966 to curb the rising trend in prices. Futures trading was resumed in December 1998 and the Government of India has granted permission to the East India Cotton Association (EICA) to regulate and organize trading in cotton futures contract. EICA would function under the guidance and directives of the Forward Markets Commission (FMC).

Futures contracts are a set of standardized exchange - traded risk management tools. Indian Cotton Contract, a domestic futures contract in cotton, is an example of futures contract. The primary economic purposes of the cotton futures market in serving the cotton industry as recognized the world over are to provide a forum for price discovery and a tool for risk

management. The ability to hedge price risk using futures contract in cotton will be an incentive for farmers to take up cotton cultivation more extensively. The transparent price discovery will enable farmers to plan the type of variety they prefer to sow according to the realisation as reflected in the prices of futures market. Cotton futures can help kapas processors, textile manufacturers, exporters of cotton textiles and a number of other market functionaries to manage price risk associated with their purchases and inventories of cotton and cotton based products.

Cotton futures contract can also be used by cotton yarn and cotton textile manufacturers to have an efficient working capital management. The need to maintain a large inventory of cotton to safeguard against price fluctuations can be greatly minimized thereby benefiting them to reduce the cost of production. Thus instruments that minimize price risk such as the futures contract in cotton would become a valuable and effective tool in the hands of the users of cotton.

Futures trading in India, which was revived after 32 years, is still in an infant stage. The trading in cotton futures contract is conducted in the designated trading hall of Cotton Green, Sewri, Mumbai and is through open outcry system. However, futures trading have so far remained on a low key due to certain impediments and hurdles. There is lack of awareness of futures, and the new generation of persons functioning in the physical markets is not conversant with either the utility of futures markets or the trading techniques. Also the Forward Market Commission lacks full-fledged market intelligence and research cells for gathering and disseminating speedily the market intelligence.

In futures markets, trading takes place only in units of 55 bales. This unit is quite high and restricts small players. Further, traders find that the rules and regulations laid down by the FMC regarding margins, netting, deposits, day-to-day clearing, sales tax, excise duty, octroi and other measures are stringent and need to be rationalized

Finally, the operation of Monopoly Procurement Scheme of the Maharashtra Federation has been one further impediment to successful futures. This is because futures trading require large players in the markets. However, in Maharashtra, farmers are compelled to sell their cotton to the Federation and hence cannot participate in futures markets. Also, they are

assured of guaranteed price so they do not feel the need for futures as they do not face price uncertainty. Again, a number of mills also buy directly from the Federation and therefore do not enter futures markets. The Maharashtra Federation has its own bureaucratic set up regarding sales and does not function in futures market.

Thus, due to a number of hurdles, trading in futures has been virtually negligible since inception. Members have to still gain experience on the modus operandi of trading in these contracts. Efforts have thus to be made to make futures trading in cotton more vibrant and participatory. Efforts are being made by EICA to commence on-line futures trading so as to make business more active and broad-based.

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Appendix 1
Districtwise area, production and yield of cotton in Maharashtra

District	A/P/Y	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03
Ahmednagar	Area	19	11	12	12	15	32	37	98	121	150	157	135	108
	Production	28	9	19	19	11	62	84	179	199	226	256	167	83
	Yield	247	139	267	267	283	329	386	311	280	257	277	211	130
Dhule	Area	662	734	594	703	739	850	857	867	946	987	955	668	664
	Production	539	375	658	633	638	607	881	872	1033	777	503	487	358
	Yield	139	87	188	153	177	121	175	171	186	133	89	124	92
Jalgaon	Area	1893	2040	2034	2098	2633	2779	2899	3404	3719	3991	4115	4030	3840
	Production	1909	1116	2340	2542	2553	3143	4475	3706	4895	5620	2811	5049	4682
	Yield	171	93	196	206	223	192	262	185	224	239	116	213	207
Nashik	Area	17	7	11	3	9	23	28	31	42	56	57	62	54
	Production	31	7	18	5	5	19	38	28	44	93	57	39	67
	Yield	306	170	272	283	310	140	231	154	177	284	170	108	211
Kolhapur	Area	1	1	1	1	2	2	2	1	1	1	1	1	1
	Production	1	1	1	1	1	2	3	1	1	1	1	1	1
	Yield	175	70	185	185	211	173	246	183	216	218	110	192	170
Pune	Area	2	1	1	1	3	1	1	2	3	4	7	2	82
	Production	4	2	2	1	0	2	3	6	5	14	16	4	5
	Yield	350	297	291	205	266	343	483	512	303	593	396	333	465
Sangli	Area	19	19	20	17	22	16	27	32	31	33	36	31	30
	Production	33	33	31	26	20	16	46	75	53	76	65	30	33
	Yield	296	297	262	262	286	173	290	399	292	392	307	165	185
Satara	Area	9	10	13	11	47	38	43	45	47	54	56	31	36
	Production	16	23	26	21	10	70	71	108	81	126	106	30	41
	Yield	300	389	340	326	355	313	281	399	292	398	322	149	193
Solapur	Area	24	36	42	37	35	34	40	44	49	58	65	40	44
	Production	25	36	74	50	31	55	65	73	68	102	112	35	75
	Yield	175	170	298	229	267	275	276	282	237	299	292	149	290

Continued

Appendix 1 (continued)
Districtwise area, production and yield of cotton in Maharashtra

District	A/P/Y	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03
Aurangabad	Area	633	644	610	587	861	1019	1100	1397	1526	1595	1324	1413	1355
	Production	701	281	501	577	575	683	961	820	1483	1132	552	915	755
	Yield	188	74	140	167	193	114	149	100	165	221	71	110	95
Beed	Area	236	336	691	405	617	854	808	829	1103	1112	829	1080	788
	Production	173	155	576	388	367	800	739	476	914	872	689	798	557
	Yield	125	78	142	163	106	159	156	98	141	133	141	126	120
Jalna	Area	1284	1303	1077	1150	1237	1550	1541	1520	1626	1703	1382	1572	1449
	Production	913	541	777	900	863	1169	1512	1027	1734	1216	936	1834	2000
	Yield	121	71	123	133	135	128	167	115	181	121	115	198	235
Latur	Area	235	271	241	248	298	356	365	286	316	280	222	171	98
	Production	103	83	136	233	231	253	296	129	254	187	197	144	59
	Yield	75	52	96	160	143	121	138	77	137	114	151	143	102
Nanded	Area	2349	2640	2397	2275	2454	2704	2684	2752	2781	2743	2700	2457	2146
	Production	1239	744	1352	1641	1631	1810	1837	850	2086	1769	834	1651	1261
	Yield	90	48	96	123	110	114	116	53	128	110	53	114	100
Osmanabad	Area	0	0	0	0	0	29	19	15	40	30	26	25	19
	Production	0	0	0	0	0	21	16	7	32	20	11	9	12
	Yield	0	0	0	0	0	126	142	77	137	114	70	64	103
Parbhani	Area	2660	2801	2912	2674	2868	3214	3262	3325	3300	3327	3067	2034	1935
	Production	1307	913	1725	3052	3053	2503	3048	1905	2818	2342	1430	1797	1949
	Yield	84	55	101	194	181	132	159	97	145	119	79	150	171

Continued

Appendix 1 (continued)
Districtwise area, production and yield of cotton in Maharashtra

District	A/P/Y	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03
Akola	Area	3617	3592	3057	2951	3251	3619	3623	3682	3603	3595	3335	2314	2229
	Production	2532	1160	2413	3715	3796	4454	4332	1834	2465	3408	2090	1949	2246
	Yield	119	55	134	214	132	209	203	85	116	161	107	143	171
Amravati	Area	3730	3611	3332	3206	3414	3717	3703	3509	3209	3260	3091	3246	2790
	Production	2539	1724	2534	3734	3764	3484	3445	1202	1429	2496	1497	1978	2437
	Yield	116	81	129	198	122	159	158	58	76	130	82	119	149
Buldhana	Area	2667	2571	2186	2112	2436	2547	2524	2655	2658	2580	2198	2201	1683
	Production	1699	717	1256	2075	2122	1861	2425	1199	2025	2635	892	1978	1947
	Yield	108	47	98	167	118	124	163	77	130	174	69	153	197
Yavatmal	Area	4240	4161	4022	3879	4215	4653	4620	4453	4456	4461	4477	4370	4033
	Production	2130	1686	2811	4153	4141	3683	3899	1843	2425	4481	2382	1949	3136
	Yield	85	69	119	182	105	135	144	70	93	171	91	119	132
Chandrapur	Area	679	639	628	593	544	591	594	520	527	546	554	615	561
	Production	464	362	381	572	554	652	666	318	443	612	364	1362	426
	Yield	116	96	103	164	128	188	191	104	143	191	112	120	129
Nagpur	Area	681	599	534	549	521	577	592	524	565	634	711	801	734
	Production	536	407	345	484	453	720	675	254	699	1037	631	2272	712
	Yield	134	116	110	150	172	212	194	82	210	278	151	163	165
Wardha	Area	1552	1554	1324	1294	1378	1447	1476	1401	1322	1339	1404	1500	1362
	Production	1829	1184	929	1439	1435	1921	1914	621	1003	1751	1594	884	1293
	Yield	200	129	119	189	211	226	220	75	129	222	193	153	151
Maharashtra state	Area	27212	27591	25743	24809	27599	30654	30847	31392	31991	32539	30769	31047	27999
	Production	18753	11561	18907	26264	26254	27992	31433	17531	26189	30993	18026	26896	25961
	Yield	117	71	125	180	145	155	173	95	139	162	100	147	158

Note: Area in ’00 hectares, Production in ’00 bales of 170 kg each, Yield in kg per hectare
Source: Agricultural Statistical Information, Maharashtra State, 2002 (Part II)

Resurrection of Rural Credit Delivery System in Maharashtra[1]

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Abstract

The major problems plaguing the rural credit delivery system of Maharashtra are the mounting overdue and the non-performing assets of rural financial institutions. In 1990s, compared to 1980s, the growth in institutional finance through credit cooperatives and membership of cooperative societies was slower whereas outstanding loans as a proportion of loan advances grew at a much faster pace. In the latter part of 1990s the loan advances for cotton crop per borrowing member seems to have declined. Across regions, Vidarbha showed the lowest amount of credit flow through the primary agricultural cooperative credit societies on per hectare of gross cropped area.

[1] This has been prepared as a background paper for the study on 'Suicide of Farmers in Maharashtra' being conducted by the Indira Gandhi Institute of Development Research (IGIDR), Mumbai for the Government of Maharashtra. Critical comments and suggestions from two anonymous referees on an earlier version were helpful.

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1. Context

Commercialization of agriculture coupled with increasing requirement of credit have put a lot of onus on various agricultural financial institutions to play a pivotal role in meeting the increasing capital needs of the farmers and in ensuring timely supply of various inputs besides providing other service facilities. The diversification of agriculture over the years has further accentuated the need for the rapid development of rural infrastructure and larger flow of credit to farming community (Shivamaggi, 2000). In view of increasing requirement of rural credit and sustainability of rural financial institutions (RFIs) operating in India in the era of financial sector reforms, the entire decade of 1990s was full of discussion on the positive and negative impacts of these reforms and their implications for the agricultural sector. In the era of financial sector reforms, sustainability, viability and operational efficiency of RFIs are the major issues that need to be taken cognizance of in ensuring effective rural credit delivery system. However, the major problems plaguing the efficiency of rural credit delivery system are the mounting overdue[3] and Non Performing Assets (NPAs)[4] of RFIs. The overdue problem of different entities of rural credit delivery structure is reported to be an all-pervasive phenomenon that cuts across these different agencies (Puhazhendi and Jayaraman, 1999). Among various states of India, the RFIs of Maharashtra are reported to show the highest amount of overdues and outstanding loans over the past one decade (Gulati and Bathla, 2002). Even the proportion of overdues to outstanding loan of RFIs is substantially high in this state. According to Gulati and Bathla (2002), the proportion of overdue to outstanding loans of RFIs was more than 30 per cent in Maharashtra during 1997. The other states that fall in the category of above 30 per cent overdue as proportion of loans outstanding of their RFIs are Assam, Bihar, Jammu and Kashmir, Madhya Pradesh, Orissa and Tripura.

Among various states, Cooperative Banks operating in Maharashtra have shown highest amount of NPAs. The share of Maharashtra in total NPAs of State Cooperative Banks (SCBs) at all-India level was estimated at as much as 31.76 per cent in 2002, which increased to 37.81 per cent in 2003 and further to 43.16 per cent in 2004 (Table 1). On the other hand, the

[3] Poor recovery of loans results in overdues. Overdues are defined as loans and interest thereon not repaid on due dates. The financial health of banking business heavily depends on recovery of loans. Of the total amount of loan due at different points of time, some of it is recoverable and some irrecoverable and the latter often turns into bad debt or defaults (Gulati and Bathla, 2002).

[4] As per M. Narasimham (RBI 1991) Committee, the non-performing assets (NPAs) are those loan advances, which are marked with non-payment of interest or repayment of principal or both for a period of two quarters or more during the year ending. An amount is considered as 'post due' if it is unpaid for 30 days beyond due date. The NPAs are broadly classified as sub-standard, doubtful and loss assets.

proportion of NPAs to loans outstanding of SCB in Maharashtra stood at much higher than the national average of the same, whereas recovery with respect to SCB in Maharashtra was perceptibly lower than the national average during the early 2000. These are certainly disquieting features insofar as working of cooperative banks in Maharashtra is concerned.

Table 1
State-wise Performance of SCBs (As on 31 March)

State	Profit/Loss (+)/(-)			Total NPAs			NPAs as % to Loans Outstanding			Recovery (%) As at end June		
	2001-02	2002-03	2003-04	2002	2003	2004	2002	2003	2004	2002	2003	2004
Andman & Nicobar	1.24	1.39	1.74	10.15	11.72	16.32	23.84	22.70	25.96	77.95	66.62	87.87
Andhra Pradesh	2.35	3.00	4.16	1140.71	1668.52	1374.84	24.67	36.81	30.67	65.40	45.96	73.82
Arunachal Pradesh	0.86	-0.51	-3.43	40.84	40.84	73.34	73.73	73.73	71.98	20.17	19.32	29.82
Assam	10.57	-22.87	-13.99	150.17	182.96	199.00	61.35	67.97	67.49	19.88	24.69	31.54
Bihar	1.14	1.26	114.02	221.88	365.37	254.55	41.85	67.65	51.95	12.00	20.20	51.49
Chandigarh	1.49	2.34	1.60	2.85	3.79	3.88	31.91	37.10	37.18	62.32	61.95	58.08
Chattisgarh	-4.95	0.90	4.45	14.03	13.96	25.89	14.51	8.64	27.31	95.98	87.32	78.95
Delhi	14.30	16.16	12.95	29.34	28.44	29.09	25.09	19.14	17.70	35.52	74.70	52.31
Goa	1.04	0.21	5.16	82.99	91.13	79.65	25.22	28.26	24.76	59.58	65.73	65.94
Gujarat	3.76	4.19	4.81	83.91	127.29	125.75	4.59	5.89	6.45	90.52	91.29	85.60
Haryana	36.03	39.67	29.29	13.54	13.54	10.83	0.83	0.74	0.59	99.60	99.50	99.63
H. P.	31.57	17.64	19.89	53.84	66.81	69.86	14.41	15.96	11.22	70.68	68.88	71.93
J & K	1.06	1.22	4.58	14.10	13.68	15.41	25.16	21.76	23.50	33.62	43.04	38.22
Karnataka	20.20	10.55	2.78	99.58	173.15	207.44	6.60	10.37	11.99	90.03	85.60	85.50
Kerala	0.71	6.12	5.05	78.18	92.61	92.61	6.38	7.49	8.29	92.70	94.50	94.50
M.P.	-72.57	1.59	1.84	150.80	150.84	195.66	9.53	9.62	11.56	93.40	93.76	91.62
Maharashtra	10.68	271.91	31.93	1404.28	2371.87	2733.22	16.09	26.63	32.41	69.60	68.66	68.59
Manipur	-3.05	-0.70	NA	14.84	13.62	13.62	94.50	65.66	65.66	4.25	8.91	8.91
Meghalaya	2.95	2.99	0.70	19.63	20.02	22.36	22.01	22.36	24.14	35.90	38.97	31.10
Mizoram	-1.45	0.22	0.69	9.85	10.85	16.91	29.06	22.99	25.55	25.12	54.40	54.13
Nagaland	-2.25	-3.85	-1.77	14.82	21.65	21.40	43.20	57.38	55.42	18.60	27.27	27.27
Orissa	7.50	10.37	13.47	148.15	167.60	155.39	16.20	16.61	14.14	84.41	78.01	82.93
Pondicherry	1.46	1.77	1.96	8.42	8.17	8.17	11.32	8.55	8.55	69.46	78.21	78.21
Punjab	19.24	21.01	31.35	59.79	61.16	60.56	3.41	2.81	2.68	96.22	95.38	96.13
Rajasthan	13.07	15.04	17.55	83.25	37.85	26.98	8.40	3.40	2.20	88.01	95.46	83.37
Sikkim	1.09	0.24	0.70	0.06	0.13	0.54	3.45	1.87	7.23	43.30	76.06	76.06
Tamil Nadu	50.74	15.75	19.41	13.29	14.46	14.46	0.69	0.75	0.75	99.47	97.36	97.36
Tripura	-2.85	-1.84	-1.02	37.85	40.40	52.35	37.14	35.69	43.19	28.95	35.44	44.87
Uttar Pradesh	17.07	27.28	27.36	355.57	393.97	344.27	12.95	14.70	12.29	74.87	70.55	71.81
Uttranchal	-	-	0.04	-	-	-	-	-	-	-	-	-
West Bengal	8.17	26.74	35.50	64.36	71.30	88.60	7.52	5.28	6.52	83.22	84.79	86.85
All –India	171.17	469.79	372.77	4421.07	6277.66	6332.95	13.52	18.13	18.30	82.24	79.55	83.34

Note: Rs. Crore
Source: Compiled from 'NABARD Annual Reports 2003-04 and 2004-05', NABARD, Mumbai.

In fact, one can observe several weaknesses relating to working of RFIs in Maharashtra. One of the earlier studies conducted in cooperative sector of Maharashtra has clearly shown better financial health for the institutions at the district level as compared to the primary or grass root level (Shah, 2001). It is not the cooperatives alone but there are several rural financial institutions that are beset with similar plethora of deficiencies that impede their efficient functioning. This necessitates a relook at the performance of various agricultural financial institutions operating in Maharashtra, particularly over the past two decades, with a view to

recommending, designing and framing appropriate policies to rejuvenate the existing rural credit delivery in this state.

In view of growing NPAs and other deficiencies in the functioning of RFIs operating in the state of Maharashtra, the major focus of this paper is on reviewing the entire rural credit scenario of the state with an emphasis on credit flow through cooperatives, commercial banks, regional rural banks (RRBs) and land development banks (LDBs), and also on linkages of bank credit with various self-help groups (SHGs) operating in the state. Though the focus of the paper is on the working of various RFIs operating in the state, a detailed analysis is performed with respect to cooperatives.

2. Rural Credit Scenario of Maharashtra

The rural credit scenario of Maharashtra encompassed several aspects with major foci of attention on annual credit plans prepared for various sectors by the State Level Bankers' Committee (SLBC), potential linked credit plans for various regions of the state, progress of various rural financial institutions overtime, distributional aspect of credit, micro-finance or linkage of bank credit with various self-help groups, etc. Majority of these aspects are evaluated in this paper with a focus on credit cooperatives, commercial banks, regional rural banks (RRBs), land development banks (LDBs), and micro credit innovations.

3. Annual Credit Plan Under Lead Bank

The State Level Bankers' Committee (SLBC) generally prepares Annual Credit Plan (ACP) for each district with a view to achieve overall development of various sectors and regions of the state.[5] However, before formulating district level credit plans, block level credit plans are prepared taking into account the village surveys conducted by each of the bank branches, especially with respect to cropping pattern of the area, exploitable potential and demand for credit for various activities. The purpose of this exercise is to achieve a balanced growth of

[5] The SLBC is a recognized forum and it not only coordinates the activities of Bankers, NABARD, various departments of the state Government, development agencies, NGOs, etc. but also ensures effective implementation of various schemes relating to flow of credit for poverty alleviation programmes, besides helping to achieve the targets envisaged in the ACP. The members of this forum have a unique system of evaluating their own performance. The activities of the convener of SLBC not only encompass collection of meaningful performance related data but also facilitation of meaningful discussion on important issues and arriving at a consensus for effective implementation of various development programmes, besides ensuring flow of credit, in general, to different sub-sectors of the economy. The forum regularly meets and interacts with a view to ensure effective discharge of their respective role in terms of achieving the objectives envisaged in the State Credit Plan. This also helps in ensuring timely credit flows towards various programme aimed at employment generation.

various sectors/regions with a view to improve the socio-economic conditions of rural poor and artisans and, in general, helping the agricultural sector as a whole. Block Level Bankers' Committee (BLBC), District Level Bankers' Committee (DLBC) and also by the State Level Bankers' Committee (SLBC) periodically monitor and evaluate these plans. However, major guidance with respect to successful implementation of the credit plan is being extended/ensured by the Reserve Bank of India (RBI), NABARD, Government of India and other apex institutions. The Annual Credit Plan (ACP) disbursement estimates for 2003-04 for various activities and regions of Maharashtra are brought out in Table 2.

Table 2
Annual Credit Plan Disbursements for Different Regions of Maharashtra: 2003-04

Particulars	Regions (2003-04)				Maha-rashtra State
	Western Maha-rashtra	Vidarbha	Marath-wada	Konkan	
1. Agriculture & Allied Activities	3254.27 (59.00)	783.05 (45.03)	705.59 (62.08)	192.33 (9.17)	4935.24 (47.06)
Of which - Crop Loans	2455.13	619.47	578.74	73.98	3727.32
2. SSI / NFS	249.68 (4.53)	83.11 (4.78)	49.65 (4.37)	301.88 (14.39)	684.32 (6.52)
3. Other Priority Sector	743.53 (13.48)	389.78 (22.41)	233.60 (20.55)	733.96 (35.00)	2100.87 (20.03)
4. Total Priority Sector	4247.48 (77.01)	1255.94 (72.22)	988.84 (87.00)	1228.17 (58.56)	7720.43 (73.61)
5. Non Priority Sector	1267.85 (22.99)	483.08 (27.78)	147.77 (13.00)	869.07 (41.44)	2767.77 (26.39)
Grand Total (4+5)	5515.33	1739.02	1136.61	2097.24	10488.20
Disbursement (Achievement) as % of Target	85.5	93.5	71.5	129.8	92.6

Notes: (1) Amount in Rs. Crore. (2) Figures in parentheses are percentages to the total plan disbursements for the district/state. (3) (a) Agriculture and Allied Activities include minor irrigation, energisation programme, land development, dry land agriculture, farm mechanization, plantation and horticulture, sericulture, fodder cultivation, animal husbandry, fisheries, forestry and waste land development, storage operations, non-conventional energy, seed project, etc. (b) Non-farm Sector (NFS)/ Small Scale Industries (SSI) include handloom/ Powerloom, tiny sector, rural cottage and village industries, rural Artisans, agro-processing, etc. (c) Other Priority Sectors include transport operations, retail trade small business, professional and self employed, educational loans, housing loans, consumption loans, etc.
Source: Computations are based on figures obtained from '83rd Meeting Agenda and Background Papers, S.L.B.C., Maharashtra' Planning Department, Bank of Maharashtra, Pune.

It could be readily discerned from Table 2 that while priority sectors such as agriculture and allied activities accounted for the major share in total credit plan disbursements for the state of Maharashtra, the allocations in credit plan disbursements were the least for activities relating to small-scale industries and for non-farm sectors of the state. Interestingly, other priority sectors such as transport, retail trade, housing, education, consumption, etc. showed a sharp increase in their allocations in total credit plan disbursements during 2003-04 over that of the target for the reference year 2000-2001 (Appendix I). Crop loans accounted for around

two-thirds share in total credit plan disbursements for agriculture and allied activities during 2003-04.

Among various regions, Western Maharashtra showed the highest share (52.59 per cent) in total credit plan disbursements of the state during 2003-04, followed by Konkan (20.00 per cent), Vidarbha (16.58 per cent), and Marathwada (10.83 per cent) regions. Nonetheless, during this year, the share of priority sector in total credit plan outlay was relatively higher for Marathwada region as compared to other regions.

It is to be further noted that, in the case of Konkan region, while agriculture and allied activities accounted for only 9 per cent share in total credit plan disbursement during 2003-04, the share of non-priority sectors in total credit plan disbursement was as high as 41 per cent during the same year. Nonetheless, in the case of this region too, priority sectors accounted for the highest share (59 per cent) in total credit plan disbursement, which was mainly due to relatively higher share in credit plan disbursement for other priority sectors. In general, except for Konkan region, all other regions of Maharashtra showed higher allocations for agriculture and allied activities. Such increased allocations in plan disbursements is a reflection of the importance of agriculture in Government' overall policy encompassing priority sector. Further, it is to be noted that in Maharashtra the disbursements of credit as against targets have fluctuated considerably over time. For instance, while the disbursement of credit was above the targets during the period between 1999-2000 and 2001-02, this disbursement of credit stood well below 100 per cent between 2002-03 and 2003-04 (Table 3).

Table 3
Performance of ACP in Maharashtra: 1999-2000 to 2003-04

Year	Target	Achievement	% Achievement to Target
1999-2000	6930.92	7058.92	101.85
2000-2001	8008.96	8268.09	103.00
2001-2002	9614.54	11027.18	114.69
2002-2003	10902.04	8827.79	80.97
2003-2004	11308.36	10488.20	92.60

Note: Amount in Rs. Crore.
Source: Figures are obtained from '83rd Meeting Agenda and Background Papers, S.L.B.C., Maharashtra' Planning, Department, Bank of Maharashtra, Pune.

As a matter of fact, based on the human and natural endowments, NABARD has been preparing Potential Linked Credit Plans[6] (PLCP) by estimating resource requirement for exploitation of potential for various agriculture and rural development activities. These estimates are furnished to banks/S.L.B.C. through background paper. On the basis of these estimates, banks have been preparing Service Area Credit Plans (SAP) or ACP for meeting credit needs of agriculture and development of rural sector.

4. PLCP Performance

The estimates relating to potential linked credit plan (PLCP) projections, Service Area Plan (SAP) targets and Ground Level Credit (GLC)/SAP achievements from 2001-02 to 2004-05 encompassing various sectors/activities and regions of Maharashtra are provided in Table 4.

Among Various regions, Western Maharashtra turns out to be the most important region since this region not only attracts the major PLCP projections but also SAP targets/achievements of the state. Further, though, in general, there has been nearly 30 per cent rise in SAP targets of all the regions of Maharashtra during the period between 2001-02 and 2004-05, the rates of increases in these targets are relatively faster for Konkan region (62.80 per cent), followed by Vidarbha (40.64 per cent) and Western Maharashtra (37.93 per cent) regions with Marathwada region recoding a decline (2.70 per cent) in this SAP target during the same period. Interestingly, Vidarbha region in particular has recorded lower proportion of achievements as against SAP targets during the given period. The PLCP projections are available for 21 diversified activities with activities relating crop loans, non-farm sector, other priority sector, minor irrigation and farm mechanization put together

Notably, diversification of agriculture over the years has accentuated the need for rapid development of rural infrastructure and a larger flow of credit. Various credit cooperatives, commercial banks and RRBs are by far the major financial institutions engaged in meeting the capital requirements for diversified activities and developing the rural sector of the state. Besides, LDBs are also playing a crucial role in meeting the increasing capital needs of the

[6] PLCP is a comprehensive document of the potentials of economic activities in the district concerned. The exercise is based on the economic data relating to resource endowments, ongoing government schemes and the involvement of banks in the identified activities. Besides, the infrastructure available and requirement for the exploitation of potential are also assessed to make it a comprehensive document. NABARD had prepared Base PLCPs for five-year period coterminous with Eighth (1990-95), Ninth (1996-2001) and Tenth (2002-07) Five Year Plan periods for all the districts in the country. These used to be updated annually to bring out the required modifications in tune with the changing priorities and infrastructure.

farmers of this state. Although there has been multi-agency set-up for rural banking, the major institutional finance to farming community in Maharashtra comes from commercial banks and credit cooperatives.

Table 4
Potential Linked Credit Plan (PLCP) Estimates of Exploitable Potential for Different Regions of Maharashtra

Year	Regions				Maharashtra State
	Western Maharashtra	Vidarbha	Marathwada	Konkan	
2001-02					
- PLCP Projections	5364.90 (50.16)	1987.65 (18.58)	2332.37 (21.81)	1010.51 (9.45)	10695.44
- SAP Target	4124.29 (53.69)	1253.53 (16.32)	1635.88 (21.30)	667.49 (8.69)	7681.19
- SAP Achievement	4018.91 (60.54)	911.84 (13.74)	1175.86 (17.72)	531.30 (8.00)	6637.91
- % Achievement	97.44	72.74	71.88	79.60	86.42
2002-03					
- PLCP Projections	7884.18 (51.06)	2471.49 (16.01)	2809.60 (18.20)	2274.53 (14.73)	15439.80
- SAP Target	4679.43 (53.85)	1429.24 (16.45)	1805.18 (20.77)	775.75 (8.93)	8689.60
- SAP Achievement	4677.81 (54.63)	1320.25 (15.42)	1674.36 (19.55)	890.25 (10.40)	8562.67
- % Achievement	99.97	92.37	92.75	114.76	98.54
2003-04					
- PLCP Projections	15919.47 (71.84)	2457.10 (11.09)	2656.93 (11.99)	1126.54 (5.08)	22160.04
- SAP Target	5027.97 (52.69)	1991.07 (20.87)	1588.65 (16.65)	934.51 (9.79)	9542.20
- SAP Achievement	4578.82 (54.54)	1774.66 (21.14)	1115.54 (13.29)	925.62 (11.03)	8394.64
- % Achievement	91.07	89.13	70.22	99.05	87.97
2004-05					
- PLCP Projections	7121.36 (51.42)	2580.28 (18.63)	2837.52 (20.49)	1309.34 (9.46)	13848.50
- SAP Target	5688.44 (56.16)	1762.94 (17.40)	1591.66 (15.71)	1086.68 (10.73)	10129.72
- SAP Achievement	-	-	-	-	

Notes: (1) Amount in Rs. Crore. (2) Figures in parentheses are percentages to the total potential linked credit plan for the state. (3) The activities for which the PLCP estimates are available include: Minor Irrgation and Energisation (MI), Land Development (LD), Dry Land Farming (DLF), Farm Mechanization (FM), Plantation & Horticulture (P&H), Sericulture (SERI), Animal Husbandry-Dairy (AH-D), Animal Husbandry-Poultry (AH-P), Animal Husbandry-Sheep, Goat and Poultry (AH-SGP), Inland Fishery (FISH-INL), Brakish Water Prawn (BRAKISH), Marine Fishery (FISH-MAR), Forestry/Waste Land Development (FORWL), Storage Godowns-Market Yard (SGMY), Non-Conventional Energy (NCES), Non-Farm Sector (NFS), Other Priority Sectors (OPRSEC), Crop: Crop Loan, Working Capital (WC), Self Help Groups (SHGs).
Source: Compiled from 'State Focus Paper Maharashtra, 2005-06', NABARD, Pune.

5. Credit Delivery through Cooperatives

Short and medium term set-ups constitute the credit cooperative structure in Maharashtra. A 3-tier system is central to the structure of both the short term and the medium term credit cooperatives. This 3-tire system consists of a Co-operative apex bank at the state level, Central Co-operative banks at the district level and of Primary Agricultural Co-operative

Credit Societies (PACS) at the village level. The three-tier set-up is not only meeting the credit requirements of the farmers for seasonal agricultural operations (crop loans) but also investing on farm assets that do not entail huge capital outlay. Although there has been substantial increase in the membership of credit cooperatives in the state of Maharashtra, the trend over the last two decades in terms of cooperative finances is not very encouraging in this state, especially in more recent times.

The trend over the past two decades show a slower growth in institutional finance through credit cooperatives during the decade of economic reforms (1991-2000) as against the decade preceding it (1980-1990). Not only this, the reform period is also marked with a slower growth in membership of credit cooperatives in Maharashtra (Table 5). On the other hand, the outstanding loans of these cooperatives have grown at much faster rate as compared to their loan advances during both pre-and post economic reform periods, though post economic reform period showing slowing down in this outstanding loans.

Table 5
Cooperative Bank Finances in Maharashtra; 1980-2000

Period	Cooperative Banks											
	No. of Coop. Inst./Soc.			No. of Members ('000')			Loan Advances			Outstanding Loans		
	Apex	PACS	Total	Apex	PACS	Total	Apex	PACS	Total	Apex	PACS	Total
TE 1982/83	31	18565	18596	1109	5595	6704	3318	288	3606	1507	431	1938
TE 1990/91	34	19694	19728	1523	7910	9433	9298	929	10227	4811	1521	6332
TE 1999/00	34	20378	20412	1340	10432	11772	22195	2280	24475	15274	3456	18730
CGR (%)												
- 1980-90	1.33	-0.03^{NS}	-0.03^{NS}	1.01^{NS}	4.90	4.33	14.47^{NS}	13.64	14.08^{NS}	23.97^{NS}	12.59	18.50
- 1991-00	-	0.48	0.48	-1.91	3.48	2.72	7.12	9.36	9.74	13.52	9.07	12.98
- 1980-00	0.37	0.65	0.65	1.65	3.35	3.15	8.64	12.93	10.76	14.57	12.92	14.64

Notes: (1) Amount in Crores Rupees. (2) CGR = Compound Growth Rates. (3) All growth rates significant at 1 per cent level of probability. (4) NS: Growth rates not significant at 1 per cent level of probability. (5) Apex institutions include SCBs and DCCBs
Source: Computations are based on figures obtained from various issues of 'Economic Survey of Maharashtra'

One of the reasons for such a slow down could be the prudential discipline extended to cooperatives and a large number of banks' inability to meet section 11 of Banking Regulation Act, 1949. This had restricted the loaning business of co-operatives to a large extent as their capital base had eroded. It is to be noted that though growth in cooperative lending during 1980-90 was quantitatively higher, the quality of lending of cooperatives improved substantially only during the second period. As a result of this cautious step taken by banks, the growth in cooperative lending was slower during the period between 1991 and 2000.

Another interesting feature of credit cooperatives, particularly of PACS in Maharashtra, is the increasing trend in their share of medium and long term (MT &LT) advances and decline in their share of short term (ST) advances (Table 6).

Table 6
Progress of PACS According to Type of Loan Advances, Recover and Outstanding Loans in Maharashtra

Period	Loan Advances				Recovery				Outstanding Loan			
	ST	MT	LT	Total	ST	MT	LT	Total	ST	MT	LT	Total
TE 1985	280 (81.79)	59 (17.35)	3 (0.86)	342	255 (87.75)	34 (11.85)	1 (0.40)	290	381 (72.23)	140 (26.53)	7 (1.24)	528
TE 1990	594 (72.67)	185 (22.63)	38 (4.71)	817	485 (77.85)	114 (18.32)	24 (3.83)	623	739 (61.97)	388 (32.58)	65 (5.45)	1192
TE 1995	790 (80.51)	162 (16.55)	29 (2.94)	981	656 (82.51)	124 (15.64)	15 (1.85)	795	1074 (59.18)	631 (34.76)	110 (6.06)	1815
TE 2000	1902 (76.05)	543 (21.69)	57 (2.26)	2502	1567 (81.37)	325 (16.90)	33 (1.73)	1925	2122 (60.09)	1219 (34.52)	190 (5.39)	3531

Notes: (1) Amount in Crores Rupees, (2) Figures in parentheses are percentages to the total, (3) TE: Triennium Ending; ST: Short Term; MT: Medium Term; LT: Long Term

Source: Computations are based on figures obtained from various issues of 'Co-operative Movement at a Glance in Maharashtra, Office of the Commissioner for Co-operation & Registrar of Co-operative Societies, Maharashtra State, Pune

The trends in recovery and outstanding loans of PACS in Maharashtra are also similar to their loan advances, i.e., a declining share in short term recovery and outstanding loans in the face of an increasing trend in their share of MT and LT recovery and outstanding loans during the period between TE 1985 and TE 2000. This is a pointer to the fact that in more recent times MT and LT loans have become the major foci of farm finance. Notably, while the main business of PACS in Maharashtra is crop loans, very few among them also extend MT and LT credit. The increase in MT and LT credit during the period between TE 1985 and TE 2000 could be due to conversion of ST loans or rescheduling, particularly during years of climatic adversities. The increase in MT and LT loans through cooperatives is, therefore, an indication of diversification of cooperative business, which may be an effort made by them to reduce duplication of co-operative finances and to reduce the transaction cost. Nonetheless, the PACS in Maharashtra are beset with several deficiencies in their functioning. The deficiencies are noticed in respect of their law operational efficiency, high incidence of overdue, low level of recovery, distributional aspect of ST and MT loans, coverage of SC/ST members, etc. (Shah, 2000).

Among various deficiencies, the most important drawback of PACS in Maharashtra is the coverage of their SC/ST members. The trend over the last two decades show a decline in the proportion of SC/ST members to the total membership of PACS in Maharashtra after the

early nineties period (Table 7). Similarly, the percentage of SC/ST in total borrowing members of PACS also declined steadily over time. Not only this, the loan share of SC/ST in total loan advancement also showed a continuously declining trend. The scenario obtaining in respect of share of SC/ST in total loan recovery, outstanding loan and in loans overdue also witnessed a declining trend. The message is loud and clear: The PACS generally did not pay enough attention to their SC/ST members, as evident from the coverage of SC/ST members and the recovery pattern of loans advanced to them, particularly during the period between the early- and the late nineties. The imperative need of the hour is, therefore, to initiate measures to increase the ST/ST membership of various PACS in the state of Maharashtra with reasonably higher loan advances to them unlike other categories of farmers.

Table 7
Structural Changes in Coverage of Scheduled Casts/Scheduled Tribes by PACS in Maharashtra: (1981 – 2000)

Particulars	Triennium Average Period			% Change		
	1	2	3	2 Over 1	3 Over 2	3 Over 1
1. Total Number of Societies	18383	19626	20349	6.77	3.68	10.70
2. Total Members	5570	7782	9594	39.71	23.29	72.25
- of which SC/ST	1148	1379	1495	20.09	8.41	30.19
- Percentage of SC/ST in total members	20.61	17.72	15.58			
3. Total Borrowing Members	1520	1885	2561	23.99	35.89	68.49
- of which SC/ST	239	289	323	21.09	11.65	35.20
- Percentage of SC/ST in total borrowing members	15.72	15.33	12.61			
4. Total members with outstanding loan	2764	3471	4089	25.58	17.79	47.92
- of which SC/ST	535	277	598	-48.22	116.00	11.84
- Percentage of SC/ST in total members with outstanding loan	19.36	7.98	14.62			
5. Total Loans Advanced	28832	72375	250126	151.02	245.60	767.53
- of which SC/ST	1710	3335	11336	95.02	239.89	562.81
- Percentage of SC/ST in total loans advanced	5.93	4.61	4.53			
6. Total Loans Recovered	24419	66135	192549	170.84	191.15	688.53
- of which SC/ST	1419	3586	7549	9152.63	110.53	431.87
- Percentage of SC/ST in total loans recovered	5.81	5.42	3.92			
7. Total Loans Outstanding	43062	116202	353151	169.85	203.91	720.10
- of which SC/ST	3157	7012	15610	122.13	122.62	394.52
- Percentage of SC/ST in total loans outstanding	7.33	6.03	4.42			
8. Total Loans Overdue	17490	57432	131255	228.37	128.54	650.44
- of which SC/ST	1683	3350	8922	99.01	166.32	430.00
- Percentage of SC/ST in total loans overdue	9.62	5.83	6.80			

Note: (1) Amount in lakh rupees; Members in '000'. (2) Period 1=1981-1983; Period 2=1991-1993; Period 3=1998-2000.

Further, among various types of loans extended by PACS, short crop loan is by far the most important one as farmers' crop activity largely depends on it.[7] Structural changes in crop loan

[7] Short-term crop loans are provided to the farmers for the purchase of various inputs like seeds, fertilizers, pesticides, etc., and also for meeting expenses of labour, irrigation, etc. These loans are extended on the basis of acreage and cost of cultivation of the crops grown, subject to the repayment capacity of the farmers.

issued by PACS at the aggregate level and also on per borrowing member basis over the period between early eighties and the late nineties are brought out in Table 8.

It could be noticed from Table 8 that commercial crops, viz., sugarcane and cotton and the important staple food crops like paddy and millets accounted for about 80 per cent share in total crop loan advances of PACS all through the period between early eighties and the late nineties with other field crops like wheat, pulses, oilseeds, etc. accounting for the remaining 20 per cent share in crop loan advances of PACS during this period. Further, although crops like pulses, cotton, oilseed, and other field crops showed 6-10 folds rise in their loan advances during the period between early eighties and the late nineties, this increase was not very significant when measured on per borrowing member basis. For instance, while per member borrowing for sugarcane, oilseed, pulses and other field crops rose by more than five folds during the period between early eighties and the late nineties, this increase was hardly two folds for wheat, paddy and millets during this period.

Table 8
Structural Changes in Crop Loan (ST) Advances of PACS in Maharashtra: (1981 – 2000)

Crop	Triennium Average			% Change			Share (%)		
	Period			2 Over 1	3 Over 2	3 Over 1	Period		
	1	2	3				1	2	3
1. Paddy	1629 (107)	3282 (174)	7571 (296)	101.49	130.67	364.78	6.12	4.79	3.99
2. Wheat	620 (41)	1258 (67)	2433 (95)	102.96	93.48	292.68	2.33	1.84	1.28
3. Millets	4548 (299)	12278 (651)	22100 (863)	169.99	79.99	385.96	17.11	17.91	11.66
4. Pulses	246 (16)	1016 (54)	2956 (115)	312.45	190.91	1099.87	0.93	1.48	1.56
5. Cotton	4861 (320)	11051 (586)	32679 (767)	127.35	195.72	572.32	18.28	16.12	17.24
6. Sugarcane	10582 (696)	27027 (1434)	83259 (3251)	155.41	208.06	686.80	39.80	39.43	43.92
7. Oilseeds	1557 (102)	4426 (235)	11995 (468)	184.35	170.99	670.56	5.86	6.46	6.33
8. All others	2546 (168)	8199 (435)	26598 (1039)	221.99	224.41	944.57	9.57	11.96	14.03
Total	26588 (1749)	68537 (3636)	189591(7403)	157.77	176.62	613.06			

Note: (1) Amount in lakh rupees, (2) Figures in parentheses are the amount of loan issued per borrowing members in rupees, (3) Period 1 = 1981 – 1983; Period 2 = 1991 – 1993; Period 3 = 1998 – 2000

One of the obvious reasons for higher per member borrowing for sugarcane, oilseeds, pulses and other crops as against wheat, paddy and millets can be traced in cropping pattern and changes in crop composition over time and the scale of finance for a particular crop. The crops like sugarcane absorb larger proportion of the purchased inputs like seeds, fertilizers, irrigation, etc. whose prices have increased over time, whereas millets account for relatively lower cost of cultivation and hence show lower scale of finance.

Several crops like wheat, millets, pulses and oilseeds, however, showed slowing down in absolute loan advances during the second half as against the former half of the overall period. On the other hand, paddy, cotton, sugarcane, and other field crops showed major increase in their loan advances during the latter half as against the former half of the overall period. Further, although cotton crop showed significant increase in loan advances, this increase was hardly two folds on per member basis.

The slowing down in per borrowing member loan advances for cotton crop was more significantly pronounced after the early nineties period. This is certainly a disturbing feature in the light of the fact that Maharashtra accounts for the bulk of the nation's total production and acreage under cotton crop. A slowing down or decline in share of this crop in total crop loan advances of PACS might certainly affect the cultivation of this crop in the state of Maharashtra.

Although PACS extend loan for varied purposes, short-term crop loans account for the major share in total loan advanced by them. These loans have direct bearing on crop production and they are extended on the basis of acreage and cost of cultivation of the crops grown, subject to the repayment capacity of the farmers. It is, therefore, essential to evaluate the distribution pattern not only of crop loans but also total loan advanced by PACS across various districts and regions of Maharashtra. Since distribution of loan is generally correlated with gross cropped area (GCA), it has been evaluated on the basis of per hectare GCA. Estimates relating to distribution of total as well as crop loan on the basis of per hectare GCA encompassing the period between 1980-81 and 2002-03 for different districts and regions of Maharashtra are provided in Table 9.

The estimates presented in Table 9 showed wide variation in the pattern of loan advances by PACS across districts and regions of Maharashtra. While Western Maharashtra and Marathwada regions of Maharashtra showed significantly high amount of total as well as crop loans extended by PACS, the other regions like Vidarbha and Konkan were marked with lower amount of loans in this respect. The Western Maharashtra and Marathwada regions also showed higher growth in terms of loan advances by PACS on per hectare GCA basis during the entire period between 1980-81 and 2002-03. Further, though Vidarbha and Konkan regions also showed higher growth in loan advances through PACS during the

reform period, this substantial increase could not offset the trend obtainable during the entire period, as the growth in the same was very low during the pre-reform period.

Table 9
Flow of Credit Through PACS in Maharashtra: 1980/81-2002/03

Region/ District	Total Loan Per Hectare Gross Cropped Area						Crop Loan Per Hectare Gross Cropped Area					
				CGR (%)						CGR (%)		
	TE 1982-83	TE 1992-93	TE 2002-03	1980/81-1990/91	1991/92 - 2002/03	1980/81-2002/03	TE 1982-83	TE 1992-93	TE 2002-03	1980/81-1990/91	1991/92 - 2002/03	1980/81-2002/03
Western Region												
Kolhapur	766.37	1508.68	3278.83	8.60*	7.77*	8.52*	716.45	1185.27	2210.43	7.07*	5.37	6.93*
Solapur	97.16	354.65	3086.30	20.87*	26.57*	18.69*	87.97	295.06	2506.17	18.41*	26.18*	18.12*
Sangli	246.32	592.69	5393.26	9.71*	23.18*	16.28*	218.21	415.20	2968.57	7.66*	20.08*	13.99*
Satara	159.14	536.90	1386.59	15.17*	8.87*	12.43*	132.13	459.61	1342.59	15.52*	10.01*	13.46*
Pune	126.70	419.33	1925.09	14.21*	16.31*	14.96*	108.95	282.09	1050.68	10.68*	13.10*	12.67*
Ahmednagar	235.49	531.76	725.63	12.84*	1.86	6.12*	189.41	336.37	452.30	9.65*	2.30	5.51*
Nasik	251.61	684.76	410.25	14.42*	-3.25	1.61	223.67	504.23	299.60	11.25*	-3.17	0.88
Dhule	148.92	242.93	362.30	12.91*	3.53	4.07*	133.84	204.72	233.81	10.74*	1.70	2.39*
Jalgaon	252.26	502.96	1926.13	14.29*	16.34*	9.98*	230.14	407.95	1771.76	12.62*	17.31*	10.48*
Total	218.64	539.93	1903.78	13.30*	13.58*	11.26*	192.81	403.91	1350.95	11.00*	12.85*	10.47*
Vidharba Region												
Yavatmal	159.61	125.13	231.71	1.72	6.00*	2.35	101.20	98.01	231.27	1.38	8.47*	4.75*
Chandrapur	63.48	95.69	611.49	5.86	19.94*	11.64*	50.45	73.83	501.52	6.34*	20.05*	11.59*
Bhandara	66.20	176.79	535.79	12.09*	12.79*	10.71*	52.75	90.99	273.52	5.64*	13.18*	10.04*
Nagpur	66.04	298.61	938.43	14.04*	14.87*	13.62*	59.11	188.00	794.55	12.60*	18.03*	13.64*
Wardha	122.58	194.59	664.57	5.12	13.49*	9.80*	106.79	141.23	561.01	1.98	14.22*	9.80*
Amravati	131.56	129.10	400.53	3.26	12.94*	8.16*	78.68	89.21	286.32	4.34*	11.03*	8.16*
Akola	117.62	197.06	325.82	5.87	6.06*	5.74*	96.56	125.55	280.92	2.22	7.56*	5.45*
Buldhana	147.64	166.19	981.00	1.11	20.43*	10.27*	113.45	109.04	758.78	0.83	22.54*	10.60*
Gadchiroli	17.01	64.18	114.16	11.91*	7.05*	10.72*	8.93	31.99	82.05	10.81*	10.51*	11.86*
Total	111.82	165.57	529.09	5.11*	13.10*	8.66*	82.51	109.89	421.31	3.77*	14.28*	9.03*
Marathwada Region												
Aurangabad	127.36	551.44	1608.29	17.41*	10.77*	13.26*	114.06	411.22	1395.31	14.65*	14.39*	13.08*
Jalna	137.32	292.13	489.54	12.14*	3.89	6.65*	105.40	295.55	453.00	11.52*	2.53*	7.91*
Parbhani	266.57	483.54	1241.16	12.98*	13.26	9.76*	189.88	329.95	1187.58	13.63*	15.15*	11.43*
Beed	149.59	336.23	863.66	14.49*	13.54*	9.81*	66.40	243.86	718.93	17.66*	14.16*	11.50*
Osmanabad	101.29	538.78	4304.31	21.40*	25.80*	20.40*	110.24	355.02	3536.16	16.21*	27.58*	19.61*
Nanded	119.80	304.31	1232.92	14.05*	14.20*	10.82*	102.82	202.28	1133.88	11.85*	16.80*	11.94*
Latur	42.62	260.89	1343.44	27.72*	20.32*	18.51*	37.58	197.08	962.24	27.54*	21.17*	17.84*
Total	126.29	383.21	1445.76	15.90*	14.70*	12.98*	97.15	282.55	1216.90	15.48*	15.99*	13.58*
Konkan Region												
Thane	37.04	50.49	416.42	3.78	26.24*	11.63*	32.46	38.25	338.55	1.51	25.85*	11.23*
Raigad	54.89	207.68	564.08	19.38*	15.34*	10.58*	34.78	94.33	441.15	17.43*	17.77*	12.40*
Ratnagiri	53.94	72.26	222.05	6.48	15.04*	7.17*	32.97	52.82	182.93	7.50*	16.35*	8.55*
Sindhudurg	115.05	245.57	1565.73	13.56*	26.84*	10.57*	78.77	185.48	1040.05	14.51*	24.49*	10.60*
Total	57.51	119.69	601.53	12.02*	22.45*	10.50*	39.79	75.79	443.94	10.90*	22.27*	11.09*
Maharashtra State	128.57	327.84	1120.03	12.40*	13.78*	11.22*	103.06	244.94	858.30	11.02*	14.26*	11.23*

Note: (1) Amount in Rupees, (2) * - Represent significance of growth rates at 1 per cent level of probability.
Source: Computations are based on figures obtained from 'Socio-Economic Abstracts of different districts of Maharashtra (various years), Directorate of Economics and Statistics, Government of Maharashtra, Mumbai' and 'Agricultural Statistical Information, Maharashtra State, Part-II, Pune'.

In general, the total loan advances through PACS on the basis of per hectare GCA increased from Rs.219 in TE 1982-83 to Rs.1904 in TE 2002-03 for Western region, Rs.112 in TE 1982-83 to Rs.529 in TE 2002-03 for Vidarbha region, Rs.126 in TE 1982-83 to Rs.1446 in TE 2002-03 for Marathwada region and Rs.58 in TE 1982-83 to Rs.602 in TE 2002-03 for

Konkan region with an overall increase in the same from Rs.129 in TE 1982-83 to Rs.1120 in TE 2002-03 for the state as a whole. Interestingly, crop loans accounted for 70-80 per cent share in total loan advances of PACS across different districts and regions during the entire period between 1980-81 and 2002-03. Such a wide variation in total and crop loan advances through PACS could be a matter of concern, particularly in view of the existing cropping pattern and share of various crops in total loan advances of these primary level credit institutions operating in various districts and regions of Maharashtra (Appendix II).

In order to estimate the effect of factors on total loan advances through PACS in Maharashtra, regressions were estimated. Time series data on related parameters encompassing the period between 1980-81 and 2002-03 was used in the estimation with further division of the entire period into two sub-periods, viz., period between 1980-81 and 1990-91 and 1991-92 and 2002-03. Three alternative specifications (Linear, Semi-log and Cobb-Douglus) were estimated. However, the results of only linear specification of the equations are reported considering R^2 and statistical significance of variable, which, in this specification, turned out to be better.[8] The results of this exercise are shown in Table 10.

The independent variables included in the model explained 60-80 per cent variations in total loan advances through PACS across various regions of Maharashtra during the period between 1980-81 and 2002-03. The variables showed mixed trend insofar as their influence on loan advances through PACS was concerned. While the state of Maharashtra showed significant increase in loan advances with the increase in GCA between 1991-92 and 2002-03, the period prior to this was marked with slower but significant growth in the same with the increase in GCA resulting in overall rise in loan advances with rise in GCA between 1980-81 and 2002-03.

Interestingly, membership showed negative influence on loan advances through PACS between 1980-81 and 1990-91, though not significant, and positive influence between 1991-92 and 2002-03, resulting in increase in loan advances through PACS with the rise in their membership during the period between 1980-81 and 2002-03.

[8] The following model was considered for this purpose:
LOAN=f (MEMB, GCA)
where, LOAN=total loan advances (ST+MT+LT) through PACS in '000' rupees
MEMB =total membership of PACS in absolute numbers
GCA= total gross cropped area in '00' hectares for the concerned district

Table 10
Factors Influencing Total Loan Advances (ST+MT+LT) Through PACS in Maharashtra

Regions/State	Regression Estimates
1980-81 to 1990-91	
Western Maharashtra Region	LOAN = -18429386.5 + 2.6516 * MEMB + 180.2815 GCA (0.8086) (122.0476) Adjusted R^2 = 0.8672 F-Statistics = 33.6471 Observations = 11
Vidarbha Region	LOAN = -4015568.6 – 0.4228 MEMB + 95.6357 * GCA (0.4302) (25.0014) Adjusted R^2 = 0.5758 F-Statistics = 7.7880 Observations = 11
Marathwada Region	LOAN = -10911828.6 + 1.1793 MEMB + 223.1239 *** GCA (1.0009) (112.9571) Adjusted R^2 = 0.8163 F-Statistics = 23.2247 Observations = 11
Konkan Region	LOAN = -438114.3 + 1.1289 * MEMB – 1.4878 GCA (0.1928) (14.1340) Adjusted R^2 = 0.9012 F-Statistics = 46.6108 Observations = 11
Maharashtra State	LOAN = -67858844.2 – 0.6744 MEMB + 396.3346 ** GCA (1.8585) (183.4516) Adjusted R^2 = 0.8600 F-Statistics = 31.7053 Observations = 11
1991-92 to 2002-03	
Western Maharashtra Region	LOAN = -69451217.5 + 15.3698 * MEMB + 265.2638 GCA (5.1051) (353.0479) Adjusted R^2 = 0.8716 F-Statistics = 38.3227 Observations = 12
Vidarbha Region	LOAN = -22033420.8 – 0.9208 MEMB + 429.7242 ** GCA (3.2181) (184.9523) Adjusted R^2 = 0.2568 F-Statistics = 2.9002 Observations = 12
Marathwada Region	LOAN = -37516384.7 + 6.4491 MEMB + 567.0245 GCA (6.0670) (823.0293) Adjusted R^2 = 0.3137 F-Statistics = 3.5140 Observations = 12
Konkan Region	LOAN = 836789.2 + 1.8598 MEMB – 177.3890 *** GCA (1.3630) (97.5247) Adjusted R^2 = 0.6103 F-Statistics = 9.6125 Observations = 12
Maharashtra State	LOAN = -234776692.0 + 4.1448 MEMB + 1059.8159 GCA (10.9437) (908.9431) Adjusted R^2 = 0.6806 F-Statistics = 12.7182 Observations = 12
1980-81 to 2002-03	
Western Maharashtra Region	LOAN = -69725192.8 + 3.2512 * MEMB + 787.4909 * GCA (1.1540) (205.7397) Adjusted R^2 = 0.8495 F-Statistics = 63.0721 Observations = 23
Vidarbha Region	LOAN = -13453113.6 + 1.0070 MEMB + 227.8714 * GCA (1.1452) (83.9556) Adjusted R^2 = 0.5608 F-Statistics = 15.0439 Observations = 23
Marathwada Region	LOAN = -12633761.3 + 3.6269 *** MEMB + 186.3942 GCA (1.7579) (328.3011) Adjusted R^2 = 0.6359 F-Statistics = 20.2121 Observations = 23
Konkan Region	LOAN = 158438.5 + 2.2211 * MEMB – 127.5344 * GCA (0.2830) (34.8745) Adjusted R^2 = 0.7340 F-Statistics = 31.3458 Observations = 23
Maharashtra State	LOAN = -119509416.0 + 2.1729 MEMB + 577.3805 *** GCA (2.0399) (318.7163) Adjusted R^2 = 0.7282 F-Statistics = 30.4735 Observations = 23
Note: (1) Figures in parentheses show the standard errors of regression coefficients, (2) *, ** and *** indicate significance of regression coefficients at one, five and ten per cent level of probability, respectively.	

Although positive association between loan advances and membership of PACS was expected, the negative influence of GCA on loan advances through PACS in Konkan region could again be considered as a matter of concern owing to the fact that 70-80 per cent of total

loan advances of PACS were meant for various crops grown in this region of the state. However, the reform period in general showed sharp increase in loan advances through PACS in Maharashtra with the rise in GCA. For every annual hundred hectares addition to GCA, the loan advances through PACS in Maharashtra increased by nearly Rs.1060 annually between 1991-92 and 2002-03. This could be considered as a welcome scenario insofar as loan advances through PACS vis-à-vis GCA across various regions of Maharashtra is concerned.

6. Credit Flow through Commercial Banks

Despite several targets prescribed by the RBI for Public Sector Banks (PSBs)[9], these banks are reported to have defaulted merrily on majority of these targets (Mujumdar, 2001). This is evident from the fact that, during the period between 1992 and 1996, the net bank credit of PSBs to priority sectors at all-India level was well below 40 per cent. Not only this, at all-India level, the net bank credit of PSBs to agriculture and to weaker sections remained well below 18 per cent and 10 per cent, respectively, of their total advances all through the period between 1991 and 2000. This is a reflection of the fact that the two sub-targets of credit to agriculture and to weaker sections continue to remain unattained even in more recent times. Thus, agriculture in general and weaker sections in particular are grossly neglected by PSBs. However, in view of the recommendations of the Union Budget of 1996-97, which laid emphasis on the need to double the size of rural credit in the subsequent five years, the RBI had restored the priority sector credit of PSBs to the level of 41 per cent of their total advances in March 1997, and it remained well above 40 per cent thereafter (Mujumdar, 2001).

As for institutional finance to farming community, the commercial banks in Maharashtra have also not shown encouraging trends. The trend over the past two decades shows a slower growth in rural institutional finance through commercial banks during the decade of economic reforms as against the pre-economic reform period (Table 11). The commercial banks in Maharashtra have not only shown slower growth in their loan advances and deposits but also decline in their credit-deposit (C-D) ratio during the period of reforms as against the

[9] In terms of directed credit, the Reserve Bank of India (RBI) has stipulated several targets for Public Sector Banks (PSBs). These encompass a minimum of: (a) 40 per cent of net bank credit to priority sectors, (b) 18 per cent of total advances to agriculture, (c) 10 per cent of total advances to weaker sections, (d) one per cent of net bank credit under differential rate of interest (DRI) scheme, and (e) maintenance of a 60 per cent of a credit-deposit ratio. Among these targets, (b) and (c) are the two sub targets of (a), i.e., 18 per cent of net bank credit to agriculture and 10 per cent to weaker sections with an overall 40 per cent of net bank credit to priority sectors.

pre-economic reform period. However, mention may be made here that though the rural C-D ratio of commercial banks in Maharashtra has come down from 72 per cent during TE 1982/83 to 65 per cent by the TE 1999/00, it is still well above the minimum prescribed limit of 60 per cent as stipulated by the RBI.

Table 11
Rural Deposits and Credits of Commercial Banks in Maharashtra

Indicators	Triennium Ending			CGR (%)		
	1982/83	1992/93	1999/00	1980-90	1991-2000	1980-2000
Rural Deposits	381	1964	5145	19.05	14.40^{NS}	16.28
Rural Credits	274	1457	3346	17.08	12.28^{NS}	14.91
CD Ratio (%)	71.91	74.18	65.03	-	-	-

Note: Amount in Crore Rupees
Source: Computations are based on figures obtained from various issues of 'Economic Survey of Maharashtra'

An attempt has also been made in this paper to gauge into the changes in CD ratios across different districts of Maharashtra encompassing various scheduled commercial banks operating in the state and these estimates as on March 2005 are brought out in Table 12.

Although Table 11 has revealed a higher CD ratio of commercial banks in Maharashtra than the minimum prescribed limit of 60 per cent during TE 1999-2000, a further analysis presented in Table 12 shows wide variations in CD ratios of commercial banks across various districts of the state. Not only this, the CD ratio of commercial banks differed considerably with and without inclusion of Greater Mumbai. While CD ratio of all scheduled commercial banks of Maharashtra put together was estimated at as high as 95 per cent as on March 2005, this ratio declined sharply to 59 per cent when Greater Mumbai was excluded from the list of districts in the state. A further marginal decline in this CD ratio is likely to occur if foreign banks are excluded from the list of scheduled commercial banks operating in the state.

It could be further noted that CD ratios of commercial banks were significantly high for the majority of districts covered under the umbrella of Western Maharashtra, which hovered at around 70-85 per cent (Appendix III). Marathwada was noticed to be the other region of Maharashtra, which showed significantly high CD ratios of commercial banks across various districts of the region, ranging from 70-80 per cent. In this sequel, the least CD ratios of commercial banks were noticed for the districts covered under Konkan region, which stood at as low as 30-40 per cent as on March 2005. Even majority of the districts of Vidarbha region

showed less than 60 per cent CD ratios of their commercial banks with the only exception of Buldhana and Akola districts (Appendix III).

The foregoing estimates clearly underscore the fact that the districts belonging to Konkan region in particular and Vidarbha region in general were marked with poor performance of commercial banks as their loan advances fell much below 60 per cent of deposits as on March 2005. The falling CD ratio of commercial banks may have several adverse affects on the livelihood of rural population in these districts/regions of Maharashtra.

Table 12
District and Bank Group-wise Distribution of the Number of Reporting Offices, Aggregate Deposits and Gross Bank Credit of All Scheduled Commercial Banks in Maharashtra March 2005

Districts	SBI & Its Associated		Nationalised Banks		Foreign Banks		RRBs		Other Com. Banks		All Scheduled Commercial Banks			
	Deposits	Credit	Deposits	Credit	Deposits	Credit	Deposits	Credit	Deposits	Credit	Offices	Deposits	Credit	CD Ratio (%)
1.Ahmednagar	447	282	952	803	-	-	-	-	121	38	208	1520	1123	73.88
2. Akola	243	163	311	237	-	-	51	38	48	21	102	653	459	70.29
3. Amravati	418	220	759	331	-	-	-	-	59	21	145	1236	573	46.36
4. Aurangabad	788	558	935	821	4	1	147	101	405	384	166	2280	1865	81.80
5. Bhandara	145	55	226	98	-	-	66	44	9	4	64	446	202	45.29
6. Beed	408	289	97	53	-	-	127	43	17	37	98	650	422	64.92
7. Buldhana	254	212	150	120	-	-	68	56	13	18	101	486	406	83.54
8. Chandrapur	410	157	830	266	-	-	117	57	58	18	150	1415	498	35.19
9. Dhule	217	190	314	210	-	-	-	-	29	18	77	560	418	74.64
10. Gadchiroli	100	54	121	36	-	-	66	28	8	4	41	295	122	41.36
11. Gondia	97	66	242	125	-	-	68	36	30	15	61	437	242	55.38
12.Gtr. Mumb	43278	41415	124466	128513	38144	33548	-	-	97867	114836	1533	303755	318313	104.79
13. Hingoli	144	82	28	17	-	-	57	22	10	8	38	239	129	53.97
14. Jalgaon	479	421	704	531	-	-	-	-	309	191	175	1492	1144	76.68
15. Jalna	213	116	172	173	-	-	84	92	22	12	77	492	393	79.88
16. Kolhapur	292	232	1105	1076	-	-	-	-	894	702	230	2291	2009	87.69
17. Latur	388	251	222	206	-	-	95	40	58	38	99	764	535	70.03
18. Nagpur	1896	1192	4690	2365	5	1	-	-	844	767	283	7435	4325	58.17
19. Nanded	560	323	234	169	-	-	159	69	62	30	130	1015	590	58.13
20. Nandurbar	119	63	162	100	-	-	-	-	19	7	45	299	171	57.19
21. Nasik	1901	380	2190	1445	-	-	-	-	534	284	235	4625	2109	45.60
22.Osmanabad	219	137	116	57	-	-	95	25	-	-	71	430	219	50.93
23. Parbhani	301	245	82	49	-	-	71	44	15	10	72	469	347	73.99
24. Pune	3030	1894	13234	8064	957	1272	-	-	5848	4939	597	23069	16169	70.09
25. Raigad	900	278	1282	461	-	-	-	-	393	69	152	2574	808	31.39
26. Ratnagiri	372	93	874	339	-	-	64	51	98	44	133	1407	527	37.46
27. Sangli	237	199	796	700	-	-	-	-	533	239	183	1566	1139	72.73
28. Satara	289	153	791	473	-	-	-	-	469	214	152	1549	839	54.16
29.Sindhudurg	215	84	503	173	-	-	50	31	-	-	81	769	288	37.45
30. Solapur	366	242	1065	872	-	-	66	57	217	103	221	1715	1274	74.29
31. Thane	2288	647	10853	5735	17	16	86	17	3557	861	475	16802	7277	43.31
32. Wardha	206	149	382	201	-	-	-	-	26	14	73	615	364	59.19
33. Washim	87	61	56	44	-	-	55	38	-	-	54	199	143	71.86
34. Yavatmal	337	184	344	217	-	-	104	53	54	30	117	839	484	57.69
Maharashtra	61645	51090	169291	155079	39128	34838	1699	942	112626	123976	6439	384389	365925	95.20
Maharashtra (Excl. Mumbai)	18367	9675	44825	26566	984	1290	-	-	14759	9140	4906	80634	47612	59.05

Note: Amount in Rs. Crore
Source: http://rbidocs.rbi.org.in/rdocs/Publications/PDFs/65232.pdf

Notably, in due course of time, the outstanding loans of indirect finances of commercial banks have grown at much faster pace as compared to their outstanding loans of direct finances to farmers in Maharashtra (Table 13). Table 13 also shows an increasing trend in share of Maharashtra in total outstanding loans of all scheduled commercial banks of India, which has grown from 10 per cent during TE 1985 to as high as above 14 per cent by the TE 2000. These trends are certainly not very encouraging insofar as the commercial bank finances to farming community in Maharashtra are concerned. Despite the recommendations of the R.V. Gupta Committee, appointed in 1997, which encompass several changes in commercial bank's documentation, loan appraisal parameters, operational procedures and loan product with built-in liquid saving product, the rural credit delivery through commercial banks in Maharashtra has grown at lower pace, especially during the 1990s.

Table 13
Progress of Distribution of Outstanding Advances of Scheduled Commercial Banks to Agriculture in Maharashtra Vis-à-vis India

Period	FDFI		LEEBEW		OTIF[@]		DFF		Total	
	No. of Ac.	AO	No. of Ac.	AO	No. of Ac.	AO	No. of Ac.	AO	No. of Ac.	AO
Maharashtra										
1980	2649	18	1105	33	83396	90	485350	254	574500	395 (11.05)
TE 1985	4416	11	5012	69	51141	113	906131	572	966700	765 (10.02)
TE 1990	2458	16	176	44	20940	105	1548068	1388	1571642	1553 (10.06)
TE 1995	4557	24	2454	212	13541	175	1577661	1819	1598212	2230 (10.10)
TE 2000	2859	115	9256	386	21879	2241	1217692	3182	1251686	5924 (14.06)
India										
1980	36700	206	12010	145	1085002	433	8501469	2789	9635181	3573
TE 1985	50135	325	38119	392	639520	695	13582102	6220	14955262	7632
TE 1990	44514	363	54823	484	606412	645	20665098	13950	21370846	15442
TE 1995	45271	389	69127	923	314821	860	20486449	19916	20915667	22088
TE 2000	58477	1455	71915	1589	178850	6095	16810610	33001	17119839	42140

Note: Amount in Rs. Crore, Figures in Parentheses are shares of Maharashtra in India's total Outstanding Loans, @-includes loans to farmers through Primary Credit Societies, FDFI: Finance for Distribution of Fertilizer and other Inputs; LSEBEW: Loans to State Electricity, Board for Energization of Well, etc.; OTIF: Other Types of Indirect Finance; DFF: Direct Finance to Farmers; AO: Amount Outstanding
Source: Computations are based on figures obtained from various issues of 'Statistical Tables Relating to Banks in India, Department of Banking Operations and Development for the RBI, Bombay'

In order to realize high and sustained growth of GDP, Mujumdar (1998) has categorically emphasized upon the need for the PSBs to support priority sectors irrespective of whether there exist credit target or not. As regards rural credit delivery, the Ninth Plan Approach Paper is categorical on priority sector advances. As per Ninth Plan Approach Paper, "Greater credit flow will be ensured to meet the investment requirements of the farming community for stepping up the growth of production. Efforts will be made to ensure timely and adequate availability of credit, particularly to small and marginal farmers and tribal farmers at

reasonable rates so as to enable them to make investments necessary for higher production"[*Approach Paper to the Ninth Five-Year Plan (1997-2002), p.56, 1996*]. The Ninth Plan, therefore, not only recognizes the role of priority sectors in the future growth of the economy, but it also categorically emphasizes upon the imperative of enlarging the flow of credit to these sectors. Hence, one of the suggestions of Mujumdar (1998) is in favour of following such future credit policies which fall in line with the Ninth Plan priorities, and which need to be implemented without any further delay.

7. Credit Flow through RRBs

At all-India level, a review of performance of RRBs over the past one decade or so shows an estimated aggregated amount of loss to the tune of Rs.15.86 crores incurred by 130 RRBs in 1984-85, which is seen to have grown to Rs.621.00 crores incurred by 162 RRBs in 1991-92 and further to as high as Rs.3047.87 crores incurred by 152 RRBs in 1996-97. Due to huge accumulated losses and operational deficiencies, the very survival of RRBs is now at stake and it has become a matter of concern. In order to strengthen the organizational structure of RRBs, several committees were constituted from time to time.[10] Among various committees, the recommendations of Bhandari Committee are noteworthy. This Committee had evolved a forward looking policy framework, which mainly revolved around: (a) comprehensive restructuring of select 49 RRBs including financial assistance to them, (b) Memorandum of Understanding between RRBs and their Sponsor Banks, (c) freedom to select 70 RRBs from Service Area Obligations in view of their inadequate business so as to provide them broader business base, (d) relocation of loss making branches and opening extension counters, (e) expansion and diversification of loan portfolio by allowing Non Target Group and Non Priority Sector and rural housing finance, (f) widening of avenues of profitable investment and surplus non-SLR funds, and (g) strengthening Board of Directors of RRBs by induction of professionals as GOI nominees (Deshpande et. al., 1998). Majority of these policies were seen to have emanated from the financial sector reforms initiated during 1994-95.

It is to be noted that considering the dismal performance of RRBs and their weak structure, Government of India (GOI) unleashed in the first phase its financial sector reforms in 1994-95 and embarked upon an ambitious plan of revamping initially 49 out of a total of 196 RRBs

[10] The most important among these committees were Kelkar Committee, Agricultural Credit Review Committee (ACRC) under the Chairmanship of Prof. A.M. Khusro (1989), Committee on Financial System (1992) under the Chairmanship of Shri M. Narasimham, and Committee on Restructuring of RRBs (1994) under the Chairmanship of Dr. C. Bhandari.

with the aim of improving their profitability besides launching several other policy reforms aimed at improving their functional efficiency. In the second phase, based on the recommendations of Basu Committee, another batch of 68 RRBs were brought under restructuring during 1995-96. As a result of these revamping efforts, 40 RRBs were reported to have shown profits (Capoor, 1998). Although various policies relating to restructuring and revamping of RRBs were introduced in the first and second phase of financial sector reforms, the policy relating to granting of permission by the RBI to RRBs to invest in non-target avenues like shares and debentures of corporates, units of mutual funds, bonds of public sector undertakings, etc. was severely criticized by Mujumdar (2001) as this had paved the way for a reverse flow of funds from the rural to the urban sector.

Table 14
Progress of Deposit and Credit of Regional Rural Banks (RRBs) in Maharashtra Vis-à-vis India

Period	Maharashtra			All-India		
	Deposit	Credit	CD Ratio (%)	Deposit	Credit	CD Ratio (%)
1981	557	824	147.94	33147	40682	122.73
TE 1985	1724	2034	117.40	97075	107492	110.73
TE 1990	8851	10709	120.99	353554	321839	91.03
TE 1995	22757	17373	76.34	861931	528835	61.35
TE 2000	75492	41562	55.05	2685412	1152160	42.90

Note: Amount in Lakh Rupees
Source: Computations are based on figures obtained from various issues of 'Statistical Tables Relating to Banks in India, Department of Banking Operations and Development for the RBI, Bombay'.

Although RRBs generate major part of resources through deposits, too much dependence on deposits and lack of attention paid to loan advances is certainly a disturbing feature. In course of time, the RRBs in India have shown a drastic fall in their credit-deposit ratio. The C-D ratio of RRBs at all-India level has come dawn from 123 per cent during 1981 to 43 per cent by the TE 2000 (Table 14). The fall in this ratio is more sharp in the state of Maharashtra, which has come dawn from 148 per cent during 1981 to 55 per cent by the TE 2000. It is to be noted that in Maharashtra, as on March 2000, there were 582 branches of RRBs with Marathwada region accounting for around 50 per cent share in total numerical strength of these bank branches of RRBs (Shah, 2004). The decline in C-D ratio of RRBs is mainly due to diversion of substantial portion of their resources to investments instead of lending in rural areas. It should be recollected here that the chief objective of setting up of RRBs was the effective coverage of small and marginal farmers, landless labourers, rural artisans, etc. with a view to enhance their productive capabilities. The decline in their lending business is a clear-cut reflection of deviation of RRBs from the objectives they were initially formed.

It is not that during the period between 1981 and TE 2000 RRBs operating in Maharashtra have shown poor performance. Even in more recent times, they have shown inconsistency in terms deposits, credit and other operational indicators (Table 15).

Table 15
Operational Indicators of RRBs in Maharashtra: 2001/02 – 2003/04

Indicators	2001-02	2002-03	2003-04
No. of RRBs	10	10	10
No. of Branches	511	511	511
- of which Rural Branches	395	395	395
Deposits (Rs. lakh)	125083.38	144448.65	166186.00
Loans & Advances OS (Rs. lakh)	64528.73	68521.00	74999.00
% of Overdues	30	31	31
% of NPAs	-	19.7	21.0
No. of Banks in Profit	9	9	9
No. of Banks in Loss	1	1	1
Source: Compiled from 'State Focus Paper Maharashtra, 2005-06', NABARD, Pune.			

Though the credit business of RRBs has declined and their investment banking has gone up, it may be necessary to look into the reasons for such changes. Some of the reasons for slower growth in loan advances as against deposits of RRBs could be traced in: (a) inability of RRBs to compete with commercial banks due to their limited area of operation, (b) ban on requirement of staff of RRBs, (c) unfavourable age profile of the staff of RRBs, (d) high deposit cost structure, (e) lower level of application of information technology (IT), etc. All these factors might have contributed to poor performance of RRBs operating in the state of Maharashtra.

It has been asserted by Shivamaggi (2000) that the major problem faced by RRBs in India is the lack of staff motivation and specialization despite local recruitment of staff. The poor performance of RRBs greatly owed it to their hurriedly recruited and trained staff that not only lack exposure in dealing with a large number of small-term/composite loans but also in terms their weak knowledge to deal with bank accounts, seek guidance at each stage of loan application to its recovery.

8. Credit Flow through LDBs

Long-term cooperative finance is provided through Land Development Banks (LDBs). These banks have passed through three distinct stages of development.[11] The loans of LDBs are extended not only for land-based productive activities, viz., minor irrigation, farm mechanization, plantation and land development but also for several other activities, which are, in general, subsidiary to agriculture like poultry, dairy, piggery, sheep rearing, fishery, sericulture, etc. (Kumar and Dixit, 1998). The non-farm sector encompasses loans to agricultural labourers, rural artisans and small rural enterprises. The coverage of non-farm sectors and finances for non-land based purposes has certainly broad-based the activities of LDBs in more recent times.

In general, the flow of finances through LDBs encompass activities relating to agricultural production sub-system (APS), agricultural input distribution sub-system (AIS), agricultural produce marketing and processing sub-system (AMPS), and also long-term finance to members of LDBs for the purpose of purchase of tractor and its accessories, minor irrigation, milch and draught animal purchase, etc. The loans to members of LDBs for long-term purposes are provided against the mortgage of their lands. Although the overall performance of LDBs in India is satisfactory, they still have to do a lot of catching up to improve the condition of rural India. The major problem crippling the functioning of LDBs is the mounting amount of overdues and their outstanding loans, which have grown dramatically in more recent times.[12]

[11] The period between 1929 and 1954 represented the first stage when LDBs were termed as land mortgage banks (LMBs). The major objective of LMBs during this stage was to rescue the farmers out of the clutches of private money lenders. The second stage began when in view of the recommendations of the All India Rural Survey Committee (1951-54) these banks started concentrating on extending long term finances for productive purposes in the farm sector with the aim of meeting the objective of planned development envisaged under the first Five Year Plan initiated in 1951 (Kumar and Dixit, 1998). The beginning of third stage was marked when in the light of the recommendations of Committee to Review Arrangements for Institutional Credit for Agriculture and Rural Development (CRAFICARD) in 1980 the LDBs expanded their lending operations by extending credit for non-land based and for non agricultural activities; and at the latter stage their activities also encompassed finances for non farm sectors. During this stage, these LDBs were termed as Cooperative Agriculture and Rural Development Banks (CARDBs).

[12] The overdues of Primary Cooperative Agriculture Rural Development Banks (PCARDBs) at all-India level is reported to have grown from Rs.196.43 crores in 1987 to Rs.435.20 crores in 1995 (Kumar and Dixit, 1998). Earlier, while reviewing the report of Agricultural Credit Review Committee, Shivamaggi (1996) had also cited overdue as the major problem facing the LDBs. This is despite the fact that the loans extended by LDBs not only help in creating productive assets but also in terms of generating adequate incremental income to the farmers.

In the state of Maharashtra, the loan advances of LDBs have not only declined sharply during the period of reform but also working capital of these banks fell marginally during this period (Table 16). The membership of LDBs of Maharashtra has also grown at slower rate during the period between 1991 and 2000 as against the period between 1981 and 2000. Even the recovery of loans and share capital base of LDBs has weakened during the reform period. Nonetheless, it is to be noted that the outstanding loans of LDBs in Maharashtra have grown at slower pace during the period between 1991 and 2000 as against the period between 1981 and 2000 (Table 16).

Table 16
Progress of Maharashtra State Cooperative Land Development Banks (LDBs)

Period	Membership	Share Capital	Owned Funds	Borrow-ings	Working Capital	Loan Advances	Loans Recovered	Loans Outstanding
TE 1985	827	3743	7173	31182	44405	5651	2710	30627
TE 1990	926	4531	11922	48045	66685	8932	3846	49245
TE 1995	1111	7184	14766	68076	107311	13668	6089	82328
TE 2000	1189	9752	54633	109438	144262	4875	8641	99690
CGR (%)								
- 1981-00	2.79*	9.34*	13.18*	9.38*	6.07*	0.54	7.75*	9.21*
- 1991-00	1.65*	7.07*	38.61*	8.79*	-0.27	-18.53	6.83*	5.64*

Note: Amount in lakh Rupees; Membership in thousands
Source: Computations are based on figures obtained from various issues of 'Co-operative Movement at a Glance in Maharashtra, Office of the Commissioner for Co-operation & Registrar of Co-operative Societies, Maharashtra State, Pune

It is to be noted here that among the agencies delivering agricultural credit, the weakest institutions are LDBs mainly due to their structural and financial problems, and, at present, the LDBs in Maharashtra stand liquidated. The unitary structure of LDB has been converted into federal. At present, LDBs in Maharashtra are operating only in about 10 districts. Further, it is to be noted that quite a few years ago the LDBs were termed as state cooperative agricultural and rural development banks (SCARDBs) and primary cooperative agricultural and rural development banks (PCARDBs). The progress of SCARDBs and PCARDBs in Maharashtra encompassing the period between 2001-02 and 2003-04 is shown in Table 17.

The estimates shown in Table 17 clearly reveal poor performance of SCARDB and PCARDBs in the state of Maharashtra as during the period between 2001-02 and 20303-04 not only their deposits and loan advances declined but proportions of overdue and NPAs have grown during this period. Out of 29 branches of PCARDBs operating in the state, 27 are running into losses.

Table 17
Progress of SCARDB and PCARDB in Maharashtra: 2001/02 – 2003/04

Indicators	2001-02	2002-03	2003-04
No. of SCARDB	1	1	1
No. of Branches of SCARDB	1	1	1
Deposits of SCADB (Rs. lakh)	525	119	119
Loans & Advances OS of SCARD (Rs. lakh)	105944	101940	104599
% of Overdues of SCARDB	87	75	75
% of NPAs of SCARDB	NA	45	64
No. of SCARDB in Profit	-	-	-
No. of SCARDB in Loss	1	1	1
No. of PCARDB	29	29	29
No. of Branches of PCARDB	291	291	291
Deposits of PCADB (Rs. lakh)	3473	2128	1802
Loans & Advances OS of PCARD (Rs. lakh)	75053	68563	63874
% of Overdues of PCARDB	70	78	84
% of NPAs of PCARDB	65	NA	79
No. of PCARDB in Profit	2	2	2
No. of PCARDB in Loss	27	27	27

Source: Compiled from 'State Focus Paper Maharashtra, 2005-06', NABARD, Pune.

Earlier, in order to tackle the problem of overdue of LDBs, certain suggestions were extended by Kumar and Dixit (1998), which revolved around creation of greater coordination among ST, MT and LT loans and streamlining operations of LDBs, checking diversion and misuse of LDB's credit, effective supervision of loan product, strengthening share capital base, and mobilizing deposits and debentures through innovative deposits and debenture schemes. Another important suggestion in this context is in favour of launching intensive membership drive with a view to increase coverage of these long-term financial institutions. Some of the agricultural and rural development banks, popularly known as LDBs, have already taken initiatives in these directions.

9. Micro Finance

In the midst of apparent inadequacies of formal financial institutions and their failure to serve and protect the interest of rural poor despite their phenomenal outreach, an informal segment comprising of small groups of rural poor began to mobilize capital and savings of their members and used these resources among their members on a micro scale. These groups were termed as Self Help Groups (SHGs). The lending procedures of these groups were not only simple but also effective due to small amount of loans involved in the process. Since the concept of SHGs was relatively new, NABARD undertook the task of studying the functioning of SHGs in India as well as in other countries. In this sequel, in 1988-89, NABARD had made an attempt to conduct a survey of 43 non-government organizations (NGOs) spread over 11 states in India. Findings of this investigation encouraged NABARD

to launch a pilot project in 1991-92 which involved linkages between banks and SHGs.[13] The SHG-bank linkage programme got a real boost when, in April 1996, RBI had recommended the banks that lending to the SHGs should be considered as an additional segment under priority sector lending. Thus, in view of this recommendation, lending to SHGs was integrated with the mainstream credit operations of the banks.

The SHG linkage programme received wider acceptability during 1997-98 when 30 commercial banks, 101 Regional Rural Banks, 17 co-operative banks and 265 NGOs spread over 19 states and two Union Territories had participated in such a linkage programme. The progress of SHG-Bank Linkage programme has been quite impressive over the past few years. The information on progress under SHG-Bank Linkage Programme encompassing the period between 1992 and 2005 is provided in Table 18.

Table 18
Progress of SHG-Bank Linkage Programme in India

Year	No. of SHGs Linked	Cumulative	% age of Women Groups	No. of Participating Banks	No. of States/Uts	No. of Districts Covered	Cumulative Bank Loan	Cumulative Refinance
1992-93	255	255	NA	NA	NA	NA	0.29	0.27
1993-94	356	620	NA	NA	NA	NA	0.65	0.46
1994-95	1,502	2,122	NA	NA	NA	NA	2.45	2.29
1995-96	2,635	4,757	NA	NA	NA	NA	6.06	5.66
1996-97	3,841	8,598	76	120	20	NA	11.84	10.65
1997-98	5,719	14,317	78	150	21	221	23.76	21.38
1998-99	18,678	32,995	84	202	24	280	57.07	52.06
1999-2000	81,780	1,14,775	85	266	24	362	192.98	150.13
2001*	-	2,63,825	-	-	-	-	480.87	394.98
2002*	-	4,61,478	-	-	-	-	1026.34	790.24
2003*	-	7,17,360	-	-	-	-	2048.67	1412.71
2004*	-	10,79,091	-	-	-	-	3904.20	2118.15
2005*	-	16,18,476	-	-	-	-	6898.46	3085.91

Note: Amount in Crore Rs.
Source: Official records of NABARD, Pune. * - Annual Report (2004-05) of NABARD, Mumbai.

[13] The linkage between banks and SHGs is a mechanism for channeling credit to the poor on a sustained basis. There are numerous potential advantages involved in the linkages between banks and SHGs with NGOs acting as facilitators or financial intermediaries. From the banks point of view, the advantages of linkage approach between banks and SHGs include reduction in transaction cost, mobilization of small savings, assured and timely repayment of loan leading to faster recycling of funds, opportunity for expansion of business and coverage of poor clientele, and prospects of future quality clients. In this process, NGOs not only act as bridge between banks and the poor and perform their role as financial intermediaries in unbanked and backward areas but they are also propagators of innovative credit delivery approaches. The efforts of NGOs develop thrift habit among the poor and provide them access to large quantity of finance. The efforts of NGOs in linking banks with SHGs also provide freedom, equality, self-reliance and empowerment among the members, besides making them available consumption/ production credit at their door-steps. This in turn helps the members of SHGs to have a window for access to better technology and upgradation of their skills. The NGOs also help SHGs to have access to various promotional assistance, besides scaling up of their operations.

In the state of Maharashtra, the number of SHGs linked with bank credit has grown significantly over the past five years. This could be witnessed from Table 19 which clearly shows the strength of SHGs linked with bank credit to grow from as low as 1,930 as on March 1999 to as high as 47,014 as on November 2004. Initially, only 11 districts of Maharashtra were covered under the SHG-Bank linkage programme. However, in due course of time, more and more districts were covered under the folds of this programme. At present, all the 33 districts of Maharashtra are covered under the SHG-Bank linkage programme.

Table 19
Status of SHG-Bank Linkage in Maharashtra

Particulars/Cumulative Position	March 1999	March 2000	March 2001	March 2002	March 2003	March 2004	November 2004
No. of SHGs Linked	1930	4959	10468	19619	28065	38535	47014
Bank Loan (Rs. lakh)	378.98	929.89	1797.08	4230.14	6970.19	11361.01	15226.60
Refinance (Rs. lakh)	360.14	904.44	1768.22	3167.47	4022.33	4135.15	6074.56
No. of Districts Covered	20	29	29	33	33	33	33

Source: Compiled from 'State Focus Paper Maharashtra, 2005-06', NABARD, Pune.

Among various regions, the share of Vidarbha in total number of SHGs liked with bank credit is noticed to be highest (55.72 per cent) in the state, followed by Western Maharashtra (22.68 per cent), Marathwada (15.63 per cent), and Konkan (5.98 per cent) region (Table 20).

A massive programme of promotion of SHGs has been launched by the NGOs and the State Government agencies. As a result, 32,147 saving bank accounts of new SHGs were opened during 2003-04. The NGOs engaged in promoting SHGs are mainly concentrated in the districts of Vidarbha and Marathwada regions with their presence being relatively less in Konkan and Western Maharashtra. Further, realizing the importance of NGO sector, NABARD has been providing support to them for capacity building of their field staff as well as promotional grants to them for formation of SHG as an 'add-on' activity. Upto September 2004, 87 NGOs were sanctioned grant assistance for promoting 11554 SHGs in the state of Maharashtra. However, they could promote 9106 SHGs with credit linking to 2876 SHGs upto September 2004. The banks have to credit link the remaining SHGs promoted by these NGOs. It is to be noted apart from the role of banks as credit providers, they have been associated in promotion of new SHGs by supporting them through grant assistance to work as Self Help Promoting Institutions (SHPIs). For this purpose, the RRBs and DCCBs in the state of Maharashtra have been sanctioned grant assistance under NABARD's Low Cost Module. Due to initiation of SHG-Bank linkage programme, there have been perceptible and wholesome changes in the living standards of the members of SHGs in terms of their

ownership of assets, savings and borrowing capacity, income generation activities and levels of income.

Table 20
District-wise Cumulative No. of SHGs Credit Linked in Maharashtra upto Nov. 2004

Region	District	No. of SHGs	Percentage to Total
Western Maharashtra	Ahmednagar	617	1.31
	Dhule	748	1.59
	Jalgaon	1170	2.49
	Kolhapur	1366	2.91
	Nandurbar	368	0.78
	Nasik	827	1.76
	Pune	3378	7.19
	Sangli	613	1.30
	Satara	570	1.21
	Solapur	1004	2.14
	Sub-Total	10661	22.68
Vidarbha Region	Akola	2958	6.29
	Amravati	1517	3.23
	Bhandara	2347	4.99
	Buldhana	267	0.57
	Chandrapur	11094	23.60
	Gadchiroli	2308	4.91
	Gondia	398	0.85
	Nagpur	576	1.23
	Wardha	618	1.31
	Washim	904	1.92
	Yavatmal	3207	6.82
	Sub-Total	26194	55.72
Marathwada	Aurangabad	1840	3.91
	Beed	525	1.12
	Jalna	643	1.37
	Latur	690	1.47
	Nanded	2619	5.57
	Parbhani	354	0.75
	Osmanabad	598	1.27
	Hingoli	79	0.17
	Sub-Total	7348	15.63
Konkan	Raigad	898	1.91
	Ratnagiri	771	1.64
	Sindhudurg	276	0.59
	Thane	866	1.84
	Sub-Total	2811	5.98
	Grand Total	47014	100.00

Source: Compiled from 'State Focus Paper Maharashtra, 2005-06', NABARD, Pune.

In consonance of Government of India's policy, NABARD has visualized a corporate mission for reaching micro finance services to the rural poor of the country by credit linking additional 5.85 lakh SHGs in three years upto 2006-07. In order to achieve the mission, the strategy encompasses: (a) thrust on promotion of quality SHGs on a large scale with special focus on comparatively backward states and regions, (b) designing and funding suitable training and exposure programmes for all stakeholders, (c) providing assistance to partners for promotion and nurturing of SHGs generally on add-on basis, (d) encouraging banks to

analyse proper rating of SHGs before financing, (e) positioning financing SHGs as a business proposition for the banks, (f) encouraging cooperatives to take-up SHG financing, (g) widening the range of SHG promoting agencies by integrating SHG approach in social sector development programmes of the development agencies and Panchayat Raj Institutions (PRIs), (h) encouraging commercial borrowings by informal financial intermediaries like NGOs, micro finance institutions, Federations of SHGs, etc. by providing start up lendable resources to them, (i) large scale dissemination of the concept of SHGs among rural masses, (j) shifting from financial services access to livelihood and income generation, and (k) pilot project in Chandrapur - Need for cooperation and convergence of efforts from government and banks.

In view of the above policy initiatives and the need to upscale the SHG linkage process, a mission of credit linking 30,000 SHGs and promoting 37,500 new SHGs during 2004-05 has been set for the state of Maharashtra. In order to cover half of the rural poor by 2006-07, it is envisaged to credit link additional 90,000 SHGs in the coming years. Further, in order to accelerate the pace of SHG-Bank linkage programme, the NABARD has also devised district-specific and location-specific strategies in view of available potential, resources and prevailing constraints. It is expected that with the increasing involvement of banking system as well as NGOs the micro-credit movement will get further fillip in the years to come.

10. RIDF Status in Maharashtra

Under Rural Infrastructure Development Fund (RIDF), NABARD has financed a number of projects for roads and bridges, irrigation projects, micro irrigation, etc. Creation of these infrastructure leads to emergence of new economic opportunities before the farmers. From the point of view of credit institutions, investment in rural infrastructure is crucial since it directly influences investment decisions of farmers, builds up credit absorption capacity of the area and increases effectiveness and impact of credit. In the state of Maharashtra, the status of RIDF as on 31st October 2004 is shown in Table 21.

Maharashtra stands as one of the leading states in the country insofar as implementation of RIDF is concerned. Out of total sanctioned amount of Rs.1285.0 crores under RIDF I to X, Rs.642.09 crores has been disbursed as on October 31, 2004 for the development of irrigation infrastructure in the state. The state-wise analysis of ratio of disbursements to sanctions under RIDF reveals that Mizoram tops with 89 per cent, followed by Sikkim (81 per cent),

Himachal Pradesh (72 per cent), Maharashtra (70 per cent), Meghalaya and Rajasthan (69 per cent), Uttar Pradesh (68 per cent), Goa (67 per cent), Punjab (66 per cent) and Karnataka (65 per cent). Utilization of loans under RIDF was slow in relation to the sanctions due to various reasons, viz., land acquisition problems, delays in tendering and drawl of funds, inadequate budgetary support at state level, lack of coordination among implementing departments, etc. (NABARD, 2005).

Table 21
RIDF Projects Sanctioned and Amount Disbursed Under Various Tranches in Maharashtra
(Data as on 31st October 2004)

Tranche	Irrigation Projects			Road & Bridge Project			Micro Irrigation Project			Others (RWSS)			Total		
	Nos.	Amt. Sanctioned	Amt. Disbursed	Nos.	Amt. Sanctioned	Amt. Disbursed	Nos.	Amt. Sanctioned	Amt. Disbursed	Nos.	Amt. Sanctioned	Amt. Disbursed	Nos.	Amt. Sanctioned	Amt. Disbursed
RIDF-I	105	186.8	169.9	-	-	-	-	-	-	-	-	-	105	186.8	169.9
RIDF-II	108	231.7	204.5	-	-	-	-	-	-	-	-	-	108	231.7	204.5
RIDF-III	-	-	-	721	254.3	246.0	-	-	-	-	-	-	721	254.3	246.0
RIDF-IV	13	100.5	84.1	899	201.5	185.5	-	-	-	-	-	-	912	302.0	269.5
RIDF-V	-	-	-	1549	350.3	323.5	-	-	-	-	-	-	1549	350.3	323.5
RIDF-VI	38	175.4	73.0	1121	263.8	229.5	-	-	-	-	-	-	1159	439.2	302.5
RIDF-VII	81	173.8	59.1	963	234.5	161.4	-	-	-	228	121	39	1272	529.7	260.0
RIDF-VIII	63	216.9	51.6	900	226.2	82.9	-	-	-	-	-	-	963	443.1	134.4
RIDF-IX	-	-	-	269	67.0	23.4	-	-	-	-	-	-	269	67.0	23.4
RIDF-X	-	-	-	-	-	-	1	163	-	-	-	-	1	163.1	-
Total		1085.0	642.1	6422	1598	1252	1	163	-	228	121	39	7059	2967.1	1933.7

Note: Rs. Crore
Source: Compiled from 'State Focus Paper Maharashtra, 2005-06', NABARD, Pune.

11. Indebtedness and Suicides of Farmers

The declining share of loan for cotton crop vis-à-vis other field crops or very slow growth in loan advances for this crop on per borrowing member basis has several adverse effects as well as implications. One of the adverse effects of slowing down in loan advances for cotton as well as other field crops is seen on the farming community of Vidarbha region of Maharashtra where a significant number of cotton and other crop growers have committed suicide either due to lack of loan advances to them or because of pressure created by various financial institutions in terms of recovery of loan. Though there are several factors behind suicide of farmers in this region, indebtedness of farmers cannot be ruled out as one of the factors behind this drastic step taken by them.

Among various regions of Maharashtra, Vidarbha has shown the lowest amount of credit flow through PACS, which, during TE 2002-03, stood at only Rs.529 per hectare of GCA as against Rs.1904 per hectare of GCA for Western Maharashtra, Rs.1446 per hectare of GCA for Marathwada and Rs.602 per hectare of GCA for Konkan region (Table 9). Due to very low amount of loan extended by PACS, Vidarbha region though shows positive association between loan advances through PACS and GCA, the increase in loan advances through PACS for every annual hundred hectares addition to GCA is noticed to be only Rs. 96 between 1980-81 and 1990-91 and as much as Rs. 430 between 1991-92 and 2002-03. Contrary to this, for Marathwada region these estimates work out to be Rs.223 between 1980-81 and 1990-91 and Rs. 567 between 1991-92 and 2002-03. (Table 10). These estimates are concomitant of the fact that Vidarbha region still lags considerably behind other regions of Maharashtra insofar as flow of credit through PACS is concerned, which form the major rural lending agency in all the regions of the state.

Notably, so far more than 300 farmers are reported to have committed suicide in the state of Maharashtra with Vidarbha region of the state alone showing 243 such cases[14] (Sharma, 2004). Interestingly, 65 of these 243 cases had debts as little as Rs.8,000. The sad part of the story is that a majority of those who committed suicide were relatively young, below the age of 45 years. Interestingly, despite the fact that during the period April-July, 2004, at least 22 farmers had committed suicide in Vidarbha region of Maharashtra and that the deputy secretary of relief and rehabilitation in Revenue Department of the state admitted to such a number of suicides, Mr. Karani (Deputy Secretary of Relief and Rehabilitation in Revenue Department of Maharashtra) stated that the government gives a financial assistance of Rs.1 lakh to the family of the farmer who committed suicide. However, the criteria for becoming eligible for the assistance were such that families of almost two-thirds farmers who

[14] Arjun Dharma Rathod and Praveen Krishnaji Wadekar from Yavatmal district of Maharashtra were facing pressure from bank officials for loan recoveries and were frustrated by monsoon failure. In July 2004, both of them added their names to the burgeoning number of suicides in the state. Three other farmers – one from Yavatmal and one each from Amravati and Wardha district – failed in their attempts but died in hospitals due to injuries. During the period April-July, 2004, at least 22 farmers had committed suicide in Vidarbha region with Yavatmal district alone accounting for 13 suicides. During this period, Buldana, Akola, Vashim and Wardha were the other districts of Vidarbha region from where suicides of farmers were reported. According to Suresh Kakani, deputy secretary of relief and rehabilitation in Revenue Department, there had been 190 cases of confirmed suicides by farmers in Maharashtra between 2001 to March 31, 2004 (Rabade, 2004). He was not certain about the number of suicides after April 2004.

committed suicide did not get any government assistance[15] (Rabade, 2004). It is interesting to note that after a suicide is committed, the Divisional Commissioner conducts a probe into the causes of the suicide. If the suicide case fits the criteria mentioned by the revenue department then the case is forwarded to the Relief and Rehabilitation section in the secretariat. After whetting the case, it is then forwarded to the Chief Minister who grants the aid from the Chief Minister's Relief Fund. This is certainly ridiculous in the sense that the families requiring relief are not belonging to the categories affected by draught or any other adverse conditions created by natural calamities or whether conditions. At this juncture, it is well-nigh imperative to find out as to whether the farmers belonging to Vidarbha region committed suicide due to lack of availability of finances to them or due to pressure created by the financial institutions in terms of recovery of loan granted to them. An in-depth analysis encompassing both economic and social factors is the need of the hour to gauge into the reasons for such suicides of these socially and economically weaker sections of the rural society.

As a matter of fact, the reason for suicide of farmers in Vidarbha region cannot be solely attributed to indebtedness of farmers belonging to this region. There could be several other factors, which might be playing some role in inducing the farmers to commit suicide. For instance, a study conducted by Mohanty and Shroff (2003) revealed 14 cases of suicides each in Yavatmal and Wardha districts during 2002 with Amravati recording 10 and Nagpur 4 such incidents. According to this study, while large and medium categories of farmers belonging to higher caste committed suicide due to a variety of socio-economic reasons independent of agriculture, the suicide committed by lower caste farmers was mainly due to crop loss and indebtedness. The findings of this study need second look, as it does not incorporate any strong statistical or econometric analysis encompassing social and economic factors inducing farmers to commit suicide in the state of Maharashtra.

12. Concluding Remarks

The slower growth in institutional finances through commercial banks, credit cooperatives, RRBs and LDBs, particularly during the decade of 1991-2000, and poor performance thereafter is mainly due to adverse environment created by the financial sector reforms. As

[15] The three criteria are that: (a) the person who committed suicide must be a farmer, (b) he should have taken a loan from the district cooperative bank or nationalized bank, and (c) there should be pressure for recovery of unpaid loan.

pointed out by Mujumdar (1999), the new policy regime of financial sector reforms has grossly neglected the rural credit delivery system. Due to unfavourable policy framework, the entire rural credit delivery system encompassing rural branches of commercial banks, cooperative credit institutions and RRBs is reduced to a moribund state (Mujumdar, 2001). Mujumdar (1996), while lauding the financial sector reforms also felt that the exaggerated importance given to developing institutions has resulted in "putting the core issues of the financial system, like improving the rural credit delivery system, on the back- burner". He criticized the blind dependency on market forces, irrespective of their macro-economic implications. He has also shown concern for the shrinking flow of financial resources to agriculture, both in terms of investment and working capital. In fact, the public investment in agriculture is reported to be declining (Thamarajakshi, 1999). Between 1992 and 1997, only 8 per cent of the total public investment went to agriculture, and the actual investment in this sector fell about 40 per cent short of the planned level.

The RFIs operating in Maharashtra have not only shown slower growth in their loan advances and other operational indicators during the period between 1991 and 2000 but also poor performance thereafter. The credit cooperatives in particular have shown significantly high NPAs in Maharashtra. The share of Maharashtra in total NPAs of SCBs at all-India level has grown from 31.76 per cent in 2002 to as much as 43.16 per cent in 2004. Not only this, majority of the districts of Vidarbha and Konkan regions of Maharashtra have shown less than 60 per cent CD ratios of their commercial banks. The falling CD ratio of commercial banks may have several adverse effects on the livelihood of rural population in these districts of Maharashtra. Vidarbha region also shows not only very low magnitudes of credit flow through cooperatives but also decline in share of loan for cotton crop vis-à-vis other field crops. One of the adverse effects of slowing down in loan advances for cotton crop as well as other field crops is seen on the farming community of this region where a significant number of cotton growers have committed suicide either due to lack of loan advances to them or because of pressure created by various financial institutions in terms of recovery of loan despite crop failure. It has already been established by some recent studies that while large and medium categories of farmers belonging to higher caste committed suicide due to a variety of socio-economic reasons independent of agriculture, the suicide committed by lower caste farmers is mainly due to crop loss and indebtedness.

With a view to revive the agricultural credit delivery system, there is need to tackle twin problems facing the system, viz., growing NPAs with falling CD ratios and poor recovery performance of RFIs, aside from adopting innovative approaches like linking of Self-Help Groups (SHGs) and Non-Government Organizations (NGOs) with mainstream financial institutions. Such linkages are reported to have not only reduced transaction costs but also ensured better repayment performance. One of the recent studies conducted in Maharashtra has shown cent per cent recovery of loans through SHGs despite having excessively high rates of interest (24-36 per cent per annum) on their loan advances (Kshirsagar and Shah, 2002). One of the reasons as to why Vidarbha region shows the highest number of SHGs linked with bank credit (56 per cent of the state) can be traced in shrinking flow of credit in this region through formal credit institutions.

Since the new generation lending institutions like SHGs have shown lower transaction cost and higher rate of recovery despite excessively high rates of interest on their loan advances, it is imperative for credit cooperatives and commercial banks to study the mechanism of new generation lending institutions in terms of their pattern of loan recovery and interest rate structure. These groups are also reported to have favourably impacted the social and economic status of their members (Gulati and Bathla, 2002).

As for the rural credit scenario, one of the recent welcome developments has been the establishment of the Rural Infrastructure Development Fund (RIDF) instituted by NABARD with the objective of advancing loans to state governments and state-owned corporations for hastening ongoing projects, mainly those related to medium and minor irrigation, soil conservation, watershed management, etc (Mujumdar, 1998). However, it is also being conceded by Mujumdar (2001) that the utilization of this fund is dismal at only 30 per cent. One of the further disquieting features of RFIs in Maharashtra has been the high proportion of NPAs to total assets, particularly of RRBs and SCARDBs, which are estimated to hover around 36-48 per cent during the mid-to late nineties. One of the reasons for such high incidence of NPAs of RFIs has been the familiar practice of debt forgiveness, which eroded repayment and allowed defaulters to scot free with no deterrent reprimand. Political interference in issues of prudent fiscal management has got a lot to do with this unfortunate scenario (Shah, 2003).

The RFIs of Maharashtra are also seen to be beset with high levels of NPAs or overdues, both in forward and backward regions (Shah, 2004). There is, therefore, a need to take more stringent and cohesive measures for recovery of loans from chronic and heavy defaulters. In brief, in order to rejuvenate rural credit delivery system, the problems facing the system, viz., growing NPAs with falling CD ratios, high transaction costs and poor repayment performance, need to be tackled with more fiscal jurisprudence reserving exemplary punishment for willful defaults, especially by large farmers. In fact, the focus of rural credit delivery system should be on strategies that are required for tackling issues such as sustainability and viability, operational efficiency, recovery performance, small farmer coverage and balanced sectoral development (Puhazhendhi and Jayaraman, 1999).

In order improve agricultural lending in Maharashtra NABARD (2004) came out with several strategies, which revolved around: (a) provision of effective extension support by the State Government to the units financed by banks with a view to identify good borrowers, (b) formation of SHGs of tenant farmers as joint liability groups with the help of a voluntary organization, (c) making available insurance cover for all crops subject to the criteria that the unit for measurement of crop loan norms will be based on village-wise instead of *mandal* or block-wise data, (d) provision of CD containing model schemes by NABARD to all the banks and Government Departments in respect of new schemes in the state, and (e) revision of scale of finance for crop loans. NABARD has already taken several initiatives in this respect and revised unit cost for various farm sector investments on 10th September 2004 through unit cost committee, aside from providing a complete list of completed watersheds through RIDF to banks on farm development works with credit.

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Appendix 1
Annual Credit Plan Targets for Different Regions of Maharashtra: 2000-01

Particulars	Regions (2000-01)				Maharashtra State
	Western Maharashtra	Vidarbha	Marathwada	Konkan	
1. Agriculture & Allied Activities	2478.75 (59.34)	716.89 (53.09)	1073.39 (68.36)	178.31 (19.56)	4447.34 (55.53)
Of which - Crop Loans	1562.12	452.28	852.00	46.92	2913.32
2. SSI / NFS	337.40 (8.08)	70.71 (5.24)	103.00 (6.56)	158.37 (17.38)	669.48 (8.36)
3. Other Priority Sector	437.09 (10.46)	256.94 (19.03)	175.82 (11.20)	245.62 (26.95)	1115.47 (13.93)
4. Total Priority Sector	3253.45 (77.89)	1044.52 (77.35)	1352.21 (86.12)	582.30 (63.89)	6232.48 (77.82)
Of which - Employment Guarantee and Poverty Alleviation Programme	317.47	227.17	133.02	106.28	783.94
5. Non Priority Sector	923.60 (22.11)	305.91 (22.65)	217.95 (13.88)	329.19 (36.11)	1776.65 (22.18)
Grand Total (4+5)	4176.94	1350.43	1570.13	911.46	8008.96

Notes: (1) Amount in Crore Rs., (2) Figures in parentheses are percentages to the total plan targets for the state.
Source: Computations are based on figures obtained from 'Maharashtra State Annual Credit Plan', Bank of Maharashtra,Pune, 2000-2001

Appendix II
Share of Crops in Total Loans Advances of PACS in Maharashtra: (2002-03)

stricts/ Region	Share in Total Crop Loan Advances												Amount of Loan Advances
	Wheat	Rice	Jowar	Pulses	Other Food-grains	Total Food-grains	Cotton	Oilseed	Sugar-cane	Jute & Mesta	Other Non-Foodgrain	Total Non-Foodgrain	
Western Region													
Kolhapur	-	7.78	0.17	0.06	0.91	8.92	0.09	0.85	89.27	-	0.88	91.08	1639694
Solapur	0.90	0.11	2.13	0.14	4.90	8.26	1.77	5.71	71.24	-	13.01	91.72	3126131
Sangli	0.76	0.30	12.48	-	2.27	15.80	1.48	4.64	49.63	-	28.45	84.20	2340053
Satara	0.97	4.18	4.75	0.16	0.71	10.76	1.14	5.00	77.86	-	5.23	89.24	2298572
Pune	-	8.77	2.44	-	3.07	14.27	-	2.33	62.20	-	21.20	85.73	2788081
Ahmednagar	1.49	0.04	25.36	0.22	1.09	28.22	0.10	0.64	69.77	-	1.27	71.78	683134
Nasik	7.91	0.81	9.88	0.17	4.43	23.20	0.01	9.59	29.44	0.89	36.87	76.80	287316
Dhule	-	-	34.14	4.85	0.76	39.75	22.04	23.78	14.28	-	0.15	60.25	210311
Jalgaon	-	-	3.58	-	0.72	4.30	66.56	2.13	21.30	-	5.72	95.70	2486036
Total	0.64	3.03	5.68	0.13	2.31	11.79	11.47	3.88	59.88	0.02	12.96	88.21	15859328
Vidharba Region													
Yavatmal	1.97	-	17.38	-	1.47	20.82	43.15	20.26	11.50	-	4.27	79.18	249009
Chandrapur	-	65.62	-	2.81	1.58	70.01	25.52	4.32	-	-	0.15	29.99	333478
Bhandara	4.97	90.78	-	-	-	95.75	-	-	4.25	-	-	4.25	142786
Nagpur	4.03	14.19	3.34	3.16	10.62	35.35	34.48	10.76	1.37	-	18.05	64.65	489706
Wardha	1.97	-	17.38	-	1.47	20.82	43.15	20.26	11.50	-	4.27	79.18	249006
Amravati	0.01	0.01	7.60	3.51	-	11.13	53.17	18.51	1.37	-	15.82	88.87	294592
Akola	-	-	29.58	2.55	0.20	32.32	57.47	7.14	1.72	-	1.35	67.68	305002
Buldhana	-	-	21.85	6.86	2.35	31.06	65.12	0.56	2.64	-	0.64	68.94	634799
Gadchiroli	-	80.16	-	-	-	80.16	-	-	-	-	19.84	19.84	21324
Total	1.35	16.00	13.02	3.18	2.95	36.50	44.64	9.11	3.53	-	6.22	63.50	2719702
Marathwada Region													
Aurangabad	-	-	0.73	0.25	0.20	1.18	0.73	0.62	95.43	-	2.04	96.82	231572
Jalna	3.09	-	4.94	1.39	3.35	12.77	50.85	2.47	33.90	-	-	87.23	219809
Parbhani	2.32	0.70	19.05	5.13	2.50	29.70	39.97	1.75	28.43	-	0.15	70.30	886002
Beed	5.97	-	24.09	2.44	4.77	37.27	19.09	9.25	20.69	-	13.70	62.73	453560
Osmanabad	-	-	7.38	7.50	-	14.87	-	12.87	71.52	-	0.74	85.13	875989
Nanded	1.67	1.72	16.21	5.11	1.17	25.89	40.84	2.76	21.73	-	8.79	74.11	1036101
Latur	1.89	2.24	5.40	6.96	1.24	17.73	0.81	18.77	33.49	0.35	28.85	82.27	1106108
Total	1.93	1.02	12.12	5.32	1.61	21.99	20.51	8.59	38.75	0.08	10.08	78.01	4809141
Konkan Region													
Thane	-	100.0	-	-	-	100.0	-	-	-	-	-	-	98802
Raigad	-	100.0	-	-	-	100.0	-	-	-	-	-	-	46756
Ratnagiri	-	100.0	-	-	-	100.0	-	-	-	-	-	-	215342
Sindhudurg	-	82.99	-	-	11.74	94.73	-	-	0.82	-	4.45	5.27	101177
Total	-	96.28	-	-	2.57	98.85	-	-	0.18	-	0.97	1.15	462077
Maharashtra State	0.97	5.91	7.71	1.52	2.24	18.35	16.85	5.35	48.04	0.03	11.38	81.65	23850248

Note: Amount in '000' Rupees; Share in Per cent

Appendix III
CD Ratios of All-Scheduled Commercial Banks in Maharashtra – March 2005

Regions/Districts	Name of the District
Western Region	Kolhapur (87.69); Solapur (74.29); Sangli (72.73); Satara (54.16); Pune (70.09); Ahmednagar (73.88); Nasik (45.60); Dhule (74.64); Jalgaon (76.68)
Vidarbha Region	Yavatmal (57.69); Chandrapur (35.19); Bhandara (45.29); Nagpur (58.17); Wardha (59.19); Amravati (46.36); Akola (70.29); Buldhana (83.54); Gadchiroli (41.36)
Marathwada Region	Aurangabad (81.80); Jalna (79.88); Parbhani (73.99); Beed (64.92); Osmanabad (50.93); Nanded (58.13); Latur (70.03)
Konkan Region	Thane (43.31); Raigad (31.39); Ratnagiri (37.46); Sindhudurg (37.45)
Note: Figures in parentheses are CD ratios per cent	

Farmers' Suicides: A Media Perspective[1]

A VIEW OF MAIN FACTORS LEADING TO VIDARBHA'S AGRARIAN CRISIS

Vivek Deshpande[2]

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Abstract

This paper identifies from a media perspective some of the main factors leading to the agrarian crisis. Poor productivity due to factors like lack of irrigation, depletion in soil fertility and vagaries of nature, lack of adequate market support, failure of supportive government schemes due to their inherent flaws and political ad-hocism, ineffective farm credit and insurance schemes, lack of timely government succour, absence of a strong political lobby backing the farming community, a weak farmers' movement, lack of agro-processing units, absence of technological upgradation and lack of enterprise have been the reasons for this crisis.

[1] This has been prepared as a background paper for the study on 'Suicide of Farmers in Maharashtra' being conducted by the Indira Gandhi Institute of Development Research (IGIDR), Mumbai for the Government of Maharashtra. An earlier version was peer reviewed by two anonymous referees and also discussed in the interim workshop held on 18 August 2005 at IGIDR.

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1. Introduction

We have been hearing for long how farmers have been caught in the vicious cycle of crop failure and indebtedness. In Maharashtra, the problem appears to have aggravated severely over the past about five years, with the result that many farmers chose the path of suicide to escape it. The graph of deaths has been rising alarmingly since then. Obviously, Maharashtra's agrarian crisis has started boiling over. And mostly, farmers from Vidarbha, particularly the cotton-growers, have been at the centre of this crisis.

The State government's own data reveals over 800 farmers have ended lives over the past five years. With nearly half of it happening over the past about two years, it's quite evident that the crisis is deteriorating faster of late. Interestingly, till date, only about one-fifth of suicide cases have been found eligible for government aid. There are many doubting Thomases, particularly in the government, who feel the media has been overplaying the crisis. Many say the farmers are putting up a façade by citing agricultural reasons for their taking the extreme step when the actual reasons are mostly personal. They are obviously not looking at the issue with the kind of seriousness the situation demands. They need to ponder why should farmers mostly from Vidarbha, that too from the cotton belt, have been committing suicide, why have they been committing suicide in the last few years only, why should there be spurt in suicide cases only during a particular time of the year, that is, between the sowing and the harvest seasons (at sowing time, they are hard-pressed for money and at the harvesting time, they go broke because of poor yield), and why are farmers shifting from cotton to crops like soyabean.

While the government responds to problems like malnutrition deaths or natural disasters with a bagful of schemes, the grave issue of farmers' problems hasn't yet evoked any fire-fighting measures. The powers-that-be have, unfortunately, showed no sense of urgency to address the issue.

In his press conference at Nagpur in September, 2005, Maharashtra's Chief Minister Vilasrao Deshmukh said the government needs to first find out the reasons behind the phenomenon and a study has been instituted. It's a bit too late in the day, but it has come all the same.

Sharad Pawar, who remains at the beck and call of the western Maharashtra farmers, visited Vidarbha first time about an year-and-a-half (October, 2005) after becoming the Union

Agriculture Minister. When reporters asked him for this delayed visit, he replied by saying: "agriculture is a state subject." So much for governance! The government, however, did show the first signs of real seriousness when a young and suave Minister of State for Agriculture Rana Jagjitsinh Padmasinh Patil travelled for three days along with the National Commission on Farmers (NCF) led by its Chairman M S Swaminathan in Vidarbha's countryside immediately after Pawar's visit, visiting families of the farmers committing suicide and studying the problems faced by the farming community. And finally, the government appears to have conceded, as the minister told the mediapersons at the end of his tour, that the spate of farmers' suicide indeed connects to the agricultural crisis faced by the farmers and that the government's latest decision to pay only the minimum support price (MSP), and not the advance bonus, to cotton-growers needs an urgent revision.

The detailed analysis that follows in this paper is based on the news and views gleaned from the reports appearing in the Nagpur media over the past about four years, apart from the writer's own understanding from his own sustained, regular coverage of the issue. It is worth mentioning here that Dr Swaminathan's views, too, coincided with almost all the points raised by the media on this issue from time to time, thus lending them a great deal of credency. The author has avoided mentioning basic statistical data like the number of farmers and areas under cultivation etc, as these have been provided amply by other paper-writers. The attempt here is to only grasp the ground realities influencing the farmers' lives.

2. Reasons For The Crisis

The single most striking fact in the whole issue is that the overwhelming majority of those committing suicide are of cotton farmers. Last year (2004), some orange and paddy cultivators' cases, too, were reported. Obviously, the crisis has been spreading. The reasons are many and have piled up to critical levels over the past many years. Poor productivity due to factors like lack of irrigation, depletion in soil fertility and vagaries of nature, lack of adequate market support, failure of supportive government schemes due to their inherent flaws and political ad-hocism, ineffective farm credit and insurance schemes, lack of timely government succour, absence of a strong political lobby backing the farming community, a weak farmers' movement, lack of agro-processing units, absence of technological upgradation and lack of enterprise have been the reasons for this crisis. Here, the region's contrast with western Maharashtra is, too, sharp to be missed. Despite being a deficient rainfall area, agriculture in western Maharashtra has, by and large, been a success story. Good

irrigation and a strong co-operative network especially in sugarcane, horticulture and animal husbandry, coupled with strong political support, have ensured well-being of the western Maharashtra farmer.

3. Irrigation Backlog

While each of the factors resulting in Vidarbha's farming crisis has contributed in its own way, there are some that stand out prominently. Poor irrigation, for instance, has been a major cause for concern. Of the 59 lakh hectare cultivable land in the region, only 11,33,000 hectare have been irrigated, when the achievable irrigation potential is to the tune of nearly 36,73,000 hectare (source: Vidarbha Statutory Development Board Member and former state minister Madhukar Kimmatkar). Persistent and politically convenient clamour against the Forest Conservation Act notwithstanding, many of the proposed projects have been stuck in the mire of bureaucratic delays due to lack of much-needed political push. The biggest of them on Vainganga river, called Gosikhurd, with a potential to irrigate 3 lakh hectares, is a very strong case in point. Forget big dams, little effort is being made by the government or groups of farmers and even the NGOs, to develop small watersheds. Examples like Haatgaon in Yavatmal district, where farmers formed a water co-operative and built a medium-sized dam with German Bank's aid, are a few and far between. The result has been a poor yield of 2-3 quintals of cotton per acre, the lowest in the country. Moreover, the cotton grown is generally a short-stapled one, considered by the cotton mills - the main buyers - as inferior.

4. MCPS: The Nemesis

The Monopoly Cotton Procurement Scheme (MCPS), designed in 1972 with a fixed-price guarantee to the farmers to save them from the vagaries of market fluctuations and unscrupulous traders by creating a network of co-operatives that would take care of the scheme's motto "cotton to cloth", has been the single most important factor to influence the lives of the farmers here - for the good in the initial two decades and for the worst in the past more than a decade. With virtually the entire cotton industry coming up in Mumbai and western Maharashtra, the "cotton-to-cloth" dream never realised. MCPS failed to achieve the desired objective to create a symbiotic relationship between cotton industry and farmers, like they have for sugarcane in western Maharashtra. As a result, there is no lobby of cotton farmers.

Today, with accumulated losses nearing Rs 5,000 crore, no ruling party dares to say that it wants to continue the scheme. The Opposition clamour is for opposition's sake. Privately they, too, say the scheme isn't "practical". Barring the four paddy-producing districts in east Vidarbha – Chandrapur, Gadchiroli, Bhandara and Gondia – cotton is the main cash crop for farmers across the region. Slowly, however, as it has happened in most government schemes, corruption started making inroads. Newspapers have been reporting about how graders made money for certifying the cotton grade. Huge piles of cotton would be set on fire to tamper with the evidence. In the last procurement season (2004-05), many farmers complained that even the Bramha and Bunny varieties, which normally get the highest grade, couldn't make it this year as "the graders had specific orders from the government to avoid giving higher gradation so that it doesn't have to pay the Rs 2,500 per quintal to anyone and thus curtail the bills to the extent possible." The Maharashtra State Co-operative Cotton-growers' Marketing Federation, the official preocurement body, refuted the charge by saying that even those varieties had poor staple length that year due to drought. The scheme degenerated into a populist political tool in 1994 when then Sharad Pawar government started paying Rs 500 as advance bonus over and above the minimum support price (MSP). The subsequent Shiv Sena-BJP government had to continue it for obvious political reasons, without ensuring if and how it was going to ensure the funds for it. Ideally, according to the Monopoly Act, it to be paid from the profit earned by the scheme, if any. The hike, quite predictably, proved a bad economics with the scheme running into losses that kept piling up each passing year due to its incompatibility with the general order in prices. All this ultimately led to the farmer getting their payments in instalments, and with crippling delays. This is where he got sucked into the vicious cycle of borrowings - private and government - and repayments. With the banks refusing to lend credit due to defaults, the farmer turned to private money-lenders, who often doubled up as farm shop-keepers.

An ideal case that can be cited in this regard is that of Bhaurao Dandekar of Karanji in Yavatmal district who took poison in the sowing season of 2004 as he was left with no one to borrow from for the third sowing. And there were many like him who passed through a similar situation and couldn't cope with it. Presiding over this crisis, successive governments were not able to muster enough courage to shake it off, with the result that, the MCPS losses are currently pegged at a huge more than Rs 5,000 crore (Source: Cotton Federation Chairman N P Hirani's press conference at Nagpur in October, 2005). In 2003-04, the then Vilasrao Deshmukh government did make a bold move by diluting the scheme and letting the

private buyers in. Due to good price offered by them, and since the payments were made in one go, the farmers sold almost the entire produce in the private market, saving the government of a huge burden. But the very next year, political expediency staged a comeback due to intervening elections and the government relapsed into the populist mode by promising a ridiculously high price of Rs 2,700. Despite all its discrepancies, by and large, the Vidarbha farmer still wants the MCPS to continue as "he is assured of a fixed price and guaranteed one-time payment". All he complains about is delayed and staggered payments. Less wonder then if they once again clogged the market yards in the previous procurement season. The scheme, implemented in its original form with the highest-ever price of Rs 2,500 per quintal, recorded the highest ever procurement figure of over 211 lakh quintals as against the expected 150 lakh quintals.

The cash-strapped state government knew it had no funds to pay the farmer, but political expediency had forced it to go ahead with the adventurous move. Nevertheless, as the government price was much higher than the open market price, there was mad rush at the agriculture producing marketing committees (APMC) yards. Meanwhile, conniving with the yard staff, the traders made merry by procuring the farmers' produce at low prices and then selling it off to the Cotton Federation at government rate, thus pocketing the surplus. Many farmers preferred to go to the traders as it fetched them one-time payment and saved them of the cut from the payment on account of their past loan liabilities. Also, a record influx came illegally from the neighbouring states. All this defeated the very purpose of the scheme to give a bonus to the state farmers over and above MSP declared by the Centre. The farmers, who went to the Federation yards, faced tremendous hardships. At many places, they had to wait in queues for as long as seven days. Tired of the endless wait, Namdeorao Bonde (52) committed suicide in Pandharkawada tahsil of Yavatmal district, the first reported case of its kind.

The agonising wait was the proverbial last straw in indebted Bonde's case. For this year (2005), the government decided not to pay the advance bonus. Chief Minister Deshmukh declared this quite resolutely at a press conference in Nagpur in September. Quite obviously, the cash-strapped government, with a debt burden of over Rs 1.15 crore on its head, is not feeling shy of saving its own skin and dumping the debt-wrecked farmer. Things have, clearly, spun out of its control. Farmer leader Vijay Jawandhia points out that, had the

government made provision for the amount of advance bonus in every year's budget, what now appear as "huge piled-up losses" wouldn't have been there. Dipping cost-benefit ratio.

Another very important reason for Vidarbha's farm crisis has been the growing costs of inputs leading to escalation in the overall cost of production. As against this, the market prices for the farm produces haven't much gone up. This has badly affected the cost-benefit ratio of not only cotton production, but many other crops. Prof Vinayak Deshpande of Nagpur's Post-Graduate Department of Teaching in Economics has demonstrated this aspect in his paper.

The cost-benefit gap would be most severely evident in the current year as the government has decided not to pay the advance bonus to the farmers. Clearly, the cotton farmer will be getting only the MSP, which comes to Rs 1,980 per quintal for the highest grade cotton. Since this grade of cotton is produced minimally in Vidarbha, the average price fetched by most of the inferior grades of cotton taken together doesn't go beyond Rs 1,600- 1,700. As against it, the farmer is spending to the tune of Rs 2,200 on every quintal he is producing (Source: Rajya Sabha questions). Thus, he is incurring a loss of at least Rs 500 per quintal in the absence of the extra amount of advance bonus. The fact was prominently highlighted by Dr Swaminathan during his Nagpur press conference. Even the Minister more than agreed with this observation, saying a strong case exists for a rethink on the decision to pay only the MSP. It remains to be seen though if the government changes its decision favourably in the farmer's interest in his hour of grave crisis.

5. Vicious Cycle Of Farm Credit

It has already been mentioned in the discussion on MCPS how farmers are forced to go to private money-lenders due to their failure to pay off nationalised bank loans. But when so many factors simultaneously compound the problem, even an innovative credit scheme can't work. An example of how such a scheme could be rendered ineffective under the kind of circumstances that prevail in Vidarbha today was seen at Vijaygopal village of Wardha. Many farmers there took the benefit of the Allahabad Bank's credit scheme, which offered them loans not only for farming but also for personal expenses like clearing previous loan dues. But such was the severity of the drought this year in their area that they couldn't reap even 25 percent of the expected harvest. Naturally, they were left with nothing to pay back to the bank this year. Having become defaulters, they were not eligible for a fresh loan from the

bank this year and the vicious cycle of loan repayments would continue. The MCPS provides for cutting the loan instalment amount from the payment to be made to the farmer against procurement of his produce. The provision proved almost draconian, when in the worst-ever drought of 2004-05, too, the government steadfastly refused to relax the norm for the year. As mentioned earlier during the MCPS discussion, that prompted many farmers to sell off their produce to private buyers.

6. Horticulture: How A Scheme Goes Awry

Another scheme that has wreaked havoc in the past few years is the state government's Horticulture Scheme launched in 1991 in the orange belt of the region. A classic example of the fragmented approach of government planning, it offered huge subsidies, leading to manifold increase in area under orange cultivation in a short time. The water-intensive crop, however, soon gulped in huge quantities of groundwater through irrigation wells, with the result that over the past five years, it has sunk to unfathomable depths. A round of the orange region would reveal how desperate farmers have been openly flouting rules to sink borewells to as deep as 1,300 feet below the ground, and with little success. Clearly, the scheme was planned in an ad-hoc manner with no thought being spared for a parallel watershed management. It took just over a decade for the scheme to spell doom for the farmers in the orange belts of Nagpur and Amravati districts. To add to their woes were the Phytophthora and other diseases that destroyed orange orchards across the region, forcing the orange cultivators cut down lakhs of orange trees. It couldn't have been more symbolic as the trees found their way to Nagpur's funeral ghats as firewood. The famous Nagpur mandarin is, sadly, on its way out.

7. Lack Of Government Support, Insurance Against Vagaries Of Nature

The year 2004-05, according to Vidarbha farmers, was the worst they had seen from as far back as they can recall. Farmers had to do two sowings in most of the areas and as many as four Kharif sowings in certain pockets. And yet, they could harvest not even half of the average yield (it was as low as 25 percent in many areas), soyebean being no exception.

What made the situation worse is lack of immediate government succour. Undoubtedly, the state government hasn't been fare to the Vidarbha farmer by not giving him timely support. In 2004-05, the government inordinately delayed the assured Rs 1,000 per acre to marginal farmers in the villages where the anewari (an index of the drop in production) is below 50

percent. The Rs 20 crore assured to paddy cultivators in 2003-04, too, were given this year only after there was a hue and cry in the State Legislature. The casualness was starkly evident in the "phychological counselling" ritual it went through last year on a High Court directive. A poorly informed team of government-counsellers, with virtually no understanding of the farmers' problems, went to select villages in the cotton district of Yavatmal to tell sparse farmers'gatherings not to commit suicide as "hardships are inherent to lives and suicides don't lead us anywhere".

8. Free Power Flew To The Rich In Western Maharashtra

Last year, the state government gloated "free power" scheme for farmers to fulfill the ruling Democratic Front alliance's "election promise". The government's own figures show how most of the benefits went to rich farmers in western Maharashtra while the target beneficiaries got virtually nothing. Of the total Rs 1,500 crore concession, Rs 900 crore went to Pune and Nashik Divisions alone, which have the best irrigation network and highest agricultural pumps per thousand hectare average (160 as against Vidarbha's 92). Marathwada got Rs 390 crore while the two Vidarbha divisions of Amravati and Nagpur received the lowest share of only Rs 270 crore, MSEB figures reveal. There were no conditions of land-holding. Naturally, the rich pocketed the greatest share and the scheme failed miserably as most of the poor farmers, anyway, can't afford to have a pump. For those poor farmers who did have pumps, the scheme meant no benefits, what with there being no power available for as long as nine hours at a stretch due to heavy load-shedding.

9. Lack Of Technological Support And Extension Of Research To Field

Vidarbha houses three premium institutes viz. Central Institute for Cotton Research (CICR), National Research Centre for Citrus (NRCC) and the Punjabrao Krishi Vidyapeeth. Yet, the farmer here continues to reel under crisis. Does he have any technological support from these institutes? The answer from these institutes is as cliched as it can get: "We have mandate for research, not for extension." So, what are the technologies they have developed? CICR harps on its Integrated Pest Management and Insecticide Resistance Management packages. It claims to have worked wonders in some intervention villages in Wardha district, but admits it hasn't yet caught the imagination of farmers across the region. No doubt, the CICR has developed some extremely useful technologies like fake Bt cotton as well as insecticide resistance detection kits, but a vast majority of farmers is still out of its reach.

The institute has been trying to develop its own Bt variety, but it has lagged way behind in competition with multinational and Indian companies, which have swarmed across the fields with their brands. It holds out a promise now with the effort appearing to bear fruits. It has been able to introduce the Bt gene in the Bikaner Narma variety and is all set to hit the market in two years from now. The farmers will have a variety this time, and not a hybrid, seeds which he needs to buy afresh every year. Similar claims are made by NRCC too, but extension remains the main gray area and the sad story of the death of orange continues unabated.

CICR scientist admit that the most important of the areas – development of drought-resistant cotton varieties for dryland farming regions like Vidarbha – has remained a far cry as far as cotton research is concerned. There also are institutes like National Bureau of Soil Survey and Land Use Planning (NBSS&LUB) in Nagpur, which have done a very useful study of soil classification and its suitability. Whatever happened to that? Nobody knows.Training the farmers in using such vitals technological inputs could have worked wonders, but alas!

10. Lack Of Strong Political Voice

Also to blame for the whole crisis is the political leadership of the region, particularly the Opposition, which has done little beyond tokenism to salvage the farmers from this seemingly unsurmountable crisis. By organising occasional road blocades for an impossible Rs 2,700 per quintal to cotton farmers, they actually tried to score brownie points against the ruling alliance than genuinely help the farmer. Journalists covering cotton know how Opposition leaders “off the record” say that “the MCPS is not practical, but it gives them a chance to get one up on the ruling government”. Their opposition, thus, is for opposition’s sake and the farmers are mere pawns in the game of political one-upmanship.

Farmer’s organisations like Sharad Joshi’s Shetkari Sanghatana have remained too obsessed with their political goals to genuinely do anything for the farmers. Gone are the days when Joshi’sa one call could gather a crowd of lakhs of farmers. Today, he hardly attracts a few thousand of them. Of late, while claiming that open market and globalisation are here to stay, Joshi’s organisation staged some violent road blocades for the Rs 2,700 rate to cotton farmers. Today, he appears to be fighting more for sugarcane than cotton farmers.

There are farmer leaders like Vijay Jawandhia, who speak a lot of sense on the issue in general. Jawandhia, a strong opponent of the extension of globalisation to agriculture, rightly points out how politicians in western Maharashtra cut across party lines to lobby hard for sugarcane farmers. Leaders like Sharad Pawar get the import duty on cane raised whenever there is a crisis for cane farmers, but steadfastly refuses to increase the one on cotton, he alleges. The government's policy on sugar is one of protection. It controls the release of sugar to check the fall in prices, but doesn't bother about cotton dumping due to low import duty, he argues. The import duty on sugar is 60 percent, but the Centre has always turned a deaf ear to the demand to raise the one on cotton, which currently is a poor 10 percent. Now from Cotton Federation to Marketing Minister, everybody has started clamouring for it, with little effect. Erosion of farmers' strength over the past decade and a half has helped the cotton mills lobby call the shots, Jawandhia has another valid point. He says the situation wouldn't have come to this pass had the government regularly paid for the MCPS losses in annual budgets. But with the state government itself going broke, it now appears a daunting task to reverse the situation on its own.

11. Lack Of Individual Enterprise And Symbiosis With Industry

The Vidarbha farmer has had a poor history of enterprise. Though there are farmers doing exceptionally good agriculture, they are working in isolation and are very few. Amidst distressing stories of farmers' suicides, a few farmers from villages on the fringes of Nagpur have been earning to the tune of over Rs 40,000 a month by doing the highly lucrative radish farming. Experiments like contract farming in cotton under the aegis of the Cotton Corporation of India were initiated in a few villages, but they are not known to have achieved spectacular results.

Also, despite the protective umbrella of MCPS, there has been virtually no growth of cotton-based industry in Vidarbha. Ironically, despite the MCPS slogan of "cotton to cloth", most of the cotton mills came up in western Maharashtra. There is no symbiotic relationship between the cotton farmers and the mills like that of the cane farmers with the sugar industry. The big cotton consuming cloth mills, owned mostly by non-political private industrial houses, go for the best deal in the international market, thus not bothering for the cotton farmers like the sugar units owned by the politicians which protect the farmers' interests by getting the export-import policy to suit them.

All these factors have combined to push the cotton farmer to the brink over the years. Similar is the story of orange processing units. A huge spurt in orange production in the ninetees couldn't trigger the growth of these or exporting units in the region. All orange processing units in the region have long downed shutters. This all-round failure has had a crippling effect on the Vidarbha farmer who sees suicide as his only way out.

Irrigation first, experiments (Bt) later. In his hour of grave crisis, the "adopt-modern-techniques" sermon sounds like the callous "eat-cake-if-you-can't-eat-bread" advice. It is only after the basic need for water is met that innovative techniques and technological upgradations like Bt cotton could work. Bt pays only in irrigated patches and not in rain-fed ones. That's the reason why it has made a slow progress in Vidarbha, where of the 29 lakh hectare under cotton last year, just about 34,000 hectare was under Bt. In the kind of financial crisis that he is in, a price of Rs 1,600 per 450 gm is just impossible for the average Vidarbha farmer to afford. If you sow this costly Bt in rain-fed patches, then the losses during droughts could deal a crippling blow to the cultivators. Most of the farmers reporters, including this author, have reported about in the past few years said they are too bogged down by the financial crisis to afford the luxury of Bt experiment. Buts Bt is slowly but surely picking up in the region. This year, the Bt area is four times that of the last year – 1.35 lakh hectare, as per the government sources.

12. Crop Pattern

Another charge that the Vidarbha farmer faces is that he is slow in changing crop pattern. Actually, the need for change in crop pattern was never so severely felt as over the last five years. The Vidarbha farmers, however, seem to be shifting gears of late, though slowly. The biggest example has been of soyabean, which is fast replacing cotton. The pace of this change can be gauged from the fact that in Amravati Division of the region, it has gone up to over 9 lakh hectare this year (2005-06) compared to the normal Soyabean area of about 4.16 lakh hectare.

13. Remedies

Now that a Minister has admitted that farmers are reeling under heavy debt, one of the first thing the state government could do is release substantial funds for rural credit with the help of Centre. Deputy Chief Minister R R Patil said the government is going to try that soon.

There is an urgent case for reduction of interest rates on farm loans, as Dr Swaminathan suggests. The government should also ponder waiving off part of the past loans if not the whole of them. Also needed is relaxation in the condition for repayment of loans. The defaulting farmers shouldn't disqualify for fresh loans at least for the next one year. Jawandhia, the Cotton Federation and NCF have suggested hiking import duty on cotton to check dumping, but it doesn't seem to have found any favours with the Central government. It may well serve as a very effective remedy to help the farmers. As Swaminathan rightly says, the cotton industry will have to play an affirmative role than merely look at their own profits. A long-term plan for increasing irrigation in regions like Vidarbha and Marathwada must be immediately unveiled and implemented. Without irrigation, even a dramatically innovative rural credit scheme won't work as pointed out earlier in this paper by citing the case of Vijaygopal village.

Also, the current apparatus for extension of technology to the field seems to have gone awry. The government needs to create a separate department for extension of research to farm and hold it accountable for the job, which currently appears to be nobody's baby. By pressing into service an army of trained personnel working as link between researchers and farmers, the sagging farming scenario could be lifted from the depths it has fallen to. The governmental research bodies, too, need to be held accountable for meeting the farmers' needs. Currently, they seem to be totally cut off from their target beneficiaries. As Dr Swaminathan suggests, immediate reduction in insurance premiums for agriculture, which currently stand at 16 percent compared to one percent for non-farm enterprises, is a must. But if the government schemes aren't working and the politicians aren't helping, then what do the farmers do?

Community and individual initiatives could also do the trick, like what Anna Hazare has done at Ralegan Siddhi. But somebody has to lead the charge. The NGOs have a prominent role to play here. They could help farmers do watershed management as first step in the direction of freedom from habitual dependence on government. The government, too, needs to invest heavily in this sector, with, ideally, no direct control. A strong government-sponsored people's movement could do the trick for Vidarbha's crisis-ridden farming community.Of course, it is not that the government can't help innovatively. All it needs to do is listen to some potentially useful suggestions by experts. At least one such idea from Vijay Jawandhia could have worked wonders. Jawandhia had suggested that instead of doling out free power, the government could have made available interest-free loan worth Rs 16,000 crore to the

farmers and paid the Rs 1,600 crore it spent on free power towards interest. That could have wiped out their entire loan burden. But the government needs to shed its bureaucratic inertia to try out such novel ideas.

Agrarian Scenario in Yavatmal, Washim and Wardha Districts[1]

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Abstract

In the three study districts there seems to be a shift from Cereals and Cotton to Pulses and Soyabean. In general there is a significant backlog of irrigation in Vidarbha region. The existing irrigated areas are largely under Sugarcane. Cotton cultivation requires credit. Traditionally, Primary Agricultural Co-operative Societies provided this. In recent years, moneylenders are also a prominent source of credit. Besides, Cotton cultivation is increasingly becoming unremunerative – the increase in price is not commensurate with an increase in costs. Further, the farmer has to largely depend on unregulated traders for seeds, fertilizers and pesticides. To add to the price risk, 2004 also happened to be a rain-deficient year in the selected districts and thereby exposing the farmers to yield risk also.

[1] This has been prepared as a background paper for the study on 'Suicide of Farmers in Maharashtra' being conducted by the Indira Gandhi Institute of Development Research (IGIDR), Mumbai for the Government of Maharashtra. An earlier version was peer reviewed by two anonymous referees. This version is to be discussed in the interim workshop to be held on 18 August 2005 at IGIDR.

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1. Introduction

Vidarbha, with an area of 97,404 sq. km. is one third of Maharashtra (3,07,713 sq.km.). The area of Vidarbha is distributed between two revenue divisions i.e. Amravati (46,027 sq.km.) and Nagpur (51,377 sq. km.) Out of the total geographical area of the region only 56,540 sq.km. is cultivable area. Area under the crops constitutes 57 per cent of the geographical area, whereas area under forest works out to 28 per cent of the total area. Area under grazing constitutes 7 per cent and area for miscellaneous purpose is that of 11 percent of the total geographical area. In 2003, Vidarbha has an estimated population of 20.6 million, which is one fifth of Maharashtra (93.7 million). Sixty per cent of State's mineral production comes from Vidarbha and 80 per cent of Forestland is in Vidarbha. It's electricity generation is 2400 million units while it's own requirement is 1100 million units leaving a surplus of 1300 million units which is supplied to rest of Maharashtra. Such a rich area of Vidarbha is languishing in economic backwardness.

Vidarbha comprises 31.5% of the geographical area of the Maharashtra and nearly 22% of its Population. Its contribution to the State Gross Domestic Product is between 16 & 17 per cent on an average whereas it's per capita income is about 25 % i.e. below the state average. Vidarbha has several natural & geographical advantages. It has the largest mineral deposits, the largest forest cover, largest thermal power generation, largest cotton and orange production, largest untapped irrigation potential, largest industrial estate, centrally located, basic infrastructure with good road, rail and air net work and a large trained manpower.

Cotton is one of the most important cash crops of Vidarbha and it can be said that Vidarbha economy is linked to the economic condition of the cotton growers and cotton based industries. More than 13 lakhs hectare in Vidarbha is under cotton cultivation as per the information obtained for 2003-04. Out of this about 97 per cent is rain fed.

Vidarbha region which is rich in mineral and natural resources and self sufficient in most of the agricultural products is unfortunately suffering in recent years in terms of reduction in agriculture output and growing backlog of development within the state of Maharashtra. Number of factors is responsible for the backwardness of the region. Farmers' suicide has shaken the policy makers and the social scientists. Number of attempts is being made to analyse the problems of farmers' suicide. In order to analyse the problem in depth changing agrarian structure of the region needs to be studied. A study of three districts of the Vidarbha

i.e. Yavatmal, Washim & Wardha, which have witnessed heavy incident of suicides may help the policy makers to explain the current situation and to frame the suitable policies in future to avoid recurrence of such kind of incidents.

Changing agrarian structure has far reaching impact on the socio-economic and psychological fabric of the economy and on quality of life of the rural population. Suicides of farmers have confirmed that increase in developmental activities in general will not help the individuals to improve their quality of life. One of the important aspects of agrarian structure is its changing pattern of cultivation of crops, which ultimately gets reflected in area allocated for the various crops. Within crops food grains and cash crops ultimately influence the standard of living of the rural area. Cash crops being the high yielding source of income, the tendency of the farmers is to go for cash crops. The irrigation plays an important role in making choice for the cash crops. The area under irrigation therefore plays a vital role in the agrarian structure by influencing the political power equations and market strategies at micro and macro level. The size distribution of land holdings and institutional finance formal and no formal institutions catering to the needs of the farming community also play a major role in shaping the agrarian structure. Input providers like seeds, fertilizers and pesticide suppliers may also act as mediator in changing the pattern of crop cultivation. These input suppliers may supply inputs on credit in order to boost up their sales also influence the cropping pattern and may bring a substantial change in the power and water requirement for the various crops. Suicide of farmers seems to be the reflection of the agrarian crisis, which the region of Vidarbha is facing since last so many years. This agrarian crisis may be due to non-availability of substantial irrigation facility, power, marketing facility, extension services, etc. The districts of Vidarbha i.e. Yavatmal, Washim & Wardha has aroused lot of debate about the root causes of farmers suicide. Investigations relating to the changing agrarian structure are being made by the academicians, administrators and policy makers to identify the factors leading to such a phenomena of suicide, which has occurred, on a massive scale.

In this background paper an attempt has been made to examine the changing agrarian structure of the above mentioned three districts by incorporating some of the related variables like cultivated and irrigated area under various crops, production and productivity of various crops, institutional arrangement for agricultural finance, consumption of fertilizers, hybrid varieties of seeds, etc. This information is collected broadly for the period of ten years i.e. from 1995-96 to 2004-05. In some of the cases data are also collected at the tehsil level for

these three districts. The study of the above-mentioned agriculture related variables might help to study the rural economy and to identify and analyse the factors responsible for this phenomenon of mass suicides.

2. Limitation of the Study

Availability of the time series data is one of the major limitations of this study. The data are mainly collected from the Government offices and from the various reports prepared by governmental and non-governmental agencies. In some cases there are data gaps also due to non-availability of time series data. The problem was acute for the District Washim, which is formed in the year 1998 and got separated from the earlier Akola District.

3. Economy of Suicide Prone Districts

The economy of three Districts i.e. Yavatmal, Washim and Wardha with high incidence of suicides is dominated by the agriculture sector. Agriculture constitutes the main source of livelihood to the majority of the population in the region. Lack of adequate development in the non- agriculture sector/non farm sector has restricted the income and employment generating opportunities to the rural population and compelled them to take recourse to agriculture. Lack of adequate irrigation facilities in the region has further aggravated the situation by making agriculture subject to vagaries of monsoon. The importance of agriculture in these three Districts can be judge by analyzing some vital statistics of these three Districts.

Gross cropped area of these Districts accounted for 8.98 per cent of the gross cropped area of the State of Maharashtra. In the State Gross Irrigated Area constituted 15.4 per cent of the gross cropped area. However irrigated area of these three Districts accounted for only 4.45 per cent of the gross cropped area in 2003-04 which is almost ¼th of the State average in this respect. If the comparison is made with the total irrigated area of the State these three Districts claimed only 2.60 per cent share in the total irrigated area of the State. Production of foodgrains in these three Districts accounted for only 6.40 per cent of the total production of food grains in the State. It is noteworthy that the share of these three Districts in the production of foodgrains is marginally higher than their share in total area in relation to State average. The yield per hectare, which can be taken as a proxy for productivity of food grains, is higher in these three Districts as compared to State average. Thus, in spite of low irrigation the yield per hect. of food grains is higher in Yavatmal, Washim and Wardha Districts as

compared to State average. Studies, which have been conducted so far, have pointed out that the incidence of suicides has a link with the cotton growing area. Therefore there is a need to study area under cotton for these three Districts. In terms of area under cotton the share of these three Districts is 20.36 per cent in 2003-04 in the State. However in production of cotton they claim a lower share of 19.31 percent in the State. The yield per hect. of cotton is lower (179.73 k.g. per hect) in these Districts as compared to State average of 190 k.g. per hect. This may be a natural outcome of lower share of cotton in area as well as in production in relation to State average. These three Districts also account for a very small share in irrigated area under cotton in relation to State.

4. Changing cropping pattern

4.1 Foodgrains

Changing cropping pattern reflects the preferences of the farmers for a particular crop. Substitution in terms of production of crops does take place depending on the number of natural and manmade factors. The cropping pattern of three selected districts for two broad categories of crops i.e. foodgrains and cash crops are considered in this section. The changes in the cropping pattern have been examined at three points of time i.e. 1996-97, 2000-01 and 2003-04. Cropping pattern has been examined by measuring the share of food crops and cash crops in gross cropped area. A further segregation of food grains has been made into two broad categories i.e. cereals and pulses. Broadly, this would reflect change in the cropping pattern within the category of food grains. In all the three districts under study the proportion of area under food grains was in the range of 36% to 56% of the gross cropped area in the year 1996-97. Washim district showed the highest proportion of area under food grains as compared to Yavatmal and Wardha districts. There was a significant fall in the area under cereals in all the three Districts in 2000-01 as compared to 1996-97. However the area under cereals increased in the year 2003-04 in all the three districts. Highest growth in the area under cereals as well as pulses was observed in Washim district. There is a substitution of pulses for cereals to some extent as far as these three districts are concerned. Area under Cereals has gone down whereas Pulses area has gone up during 1996-97 to 2003-04 (Table 1).

The behaviour of area under foodgrains does not show consistency in either direction in case of Washim and Wardha districts. A rising trend in proportion of area under food grains is observed in Yavatmal district. The share of area under cereals showed some uniformity in the pattern of growth behaviour where fall in area is followed by rise in area for the time period

under consideration. Area under Pulses showed consistently rising trend in case of Yavatmal and Wardha districts.

Table 1
Changing Cropping pattern (% to GCA)

Area	Yavatmal			Washim			Wardha		
	96-97	00-01	03-04	96-97	00-01	03-04	96-97	00-01	03-04
Foodgrains									
a) Cereals	32.44	14.23	23.12	49.72	6.33	16.23	29.06	14.83	18.79
b) Pulses	14.22	18.87	24.78	21.88	16.81	39.14	12.34	17.57	19.99
c) Total	40.82	41.93	42.27	56.08	49.68	55.37	35.78	35.95	31.85
Cash Crops									
a) Cotton	50.07	45.85	42.40	35.80	19.50	16.27	42.40	36.55	25.69
b) Sugarcane	0.84	0.76	0.63	0.24	0.52	0.26	0.18	0.91	0.67
c) Soyabean	3.66	7.77	11.04	12.53	15.11	26.21	15.76	35.25	40.12
d) Total	54.58	54.38	54.07	48.57	35.13	41.05	58.35	72.71	66.48

4.2 Cash Crops

Only three major cash crops i.e. cotton, sugarcane and soyabean have been selected to indicate changes in the cropping pattern. These three crops constitute a major share (more than 50%) in total area, under cash crops particularly in districts Yavatmal and Wardha. Wardhsa district witnessed a significant rise in the area under three major cash crops from 58.35% in 96-97 to 66.48% in 03-04. However, its share in cash crop was highest i.e. 72.7% in the year 2000-01. Yavatmal and Washim districts experienced a fall in their share of area under cash crops for the study period. Washim district showed a major fall during 1996-97 to 2000-01.

Soyabean seems to be gaining preference for the farmers in terms of allocation of area under cultivation in case of all the three districts. Area under Soyabean as a proportion of gross crop area has more than doubled in all three districts during 1996-97 to 2003-04.

Thus these three districts have shown a major shift towards cultivation of cash crop in favour of Soyabean and farmers are substituting this crop for Cotton. Thus economies of these three districts seem to be mainly thriving on these three cash crops with a preference for Soyabean in the recent period.

Surprisingly, the share of cotton crop i.e. the white gold of Vidarbha in all the three districts is showing a declining trend. In all the three districts Yavatmal Washim and Wardha where high incidence of suicides is reported, the area under cotton has significantly gone down in

terms of GCA during the period of 1996-97 to 2003-04. Share of area under cotton crop has declined significantly in Washim district. Yavatmal district showed continuous reduction in the proportion of area under cotton reaching the level of 42.4 % in the year 2003-04. Thus, from the above discussion, one can observe that in terms of allocation of area, cotton crop is losing its earlier importance.

Sugarcane claims a small share in gross cropped area. In all the three districts it accounted for less than one percent share.

5. Irrigation

Agriculture in Vidarbha is subject to vagaries of monsoon. Therefore, irrigation plays a vital role in agrarian economy, which helps to minimize its adverse impact in the event of failure of monsoon.

In all the three districts there is an increase in the proportion of gross irrigated area (GIA) to gross crop area (GCA). Yavatmal and Washim districts experienced only a small growth in the share of irrigated area for the period under consideration. However Wardha district showed a spectacular rise in proportion of gross irrigated area to gross cropped area from 7.33% to 29.78% almost the four times growth. Distribution of irrigated area for foodgrains and cash crops has been explained in the table no.2.

Yavatmal and Washim districts showed a growth in irrigated area under foodgrains. However Wardha district showed a fall from 58% to 40% in the irrigated area under food grains. Cereal claimed a major share in the irrigated area under food grains. In Washim district its share was as high as 90% in the year 1999-00. In the all the three districts, even though the irrigated area under pulses claims a smaller share as compared to Cereals, the proportion of irrigated area under pulses has shown a tendency to rise in the recent period.

5.1 Irrigated area under cash crops

Yavatmal and Wardha districts showed a rising tendency of irrigated area under cash crops to gross irrigated area. Whereas,Washim district shows a falling tendency for the same. Wardha district experienced more than three times growth in proportion of irrigated area under cash crops. It shows a change towards cropping pattern in favour of cotton. In case of this crop the proportion has showed an increase from 1 per cent in 1995-96 to 24.83 % in 2000-01. The

area under sugarcane has showed a tendency to go down indicating thereby substitution of cotton for sugarcane for the above period.

Yavatmal district showed a small rise in irrigated area under cotton whereas Washim district exhibited a marginal fall in the irrigated area under cotton. In case of sugarcane, Washim district witnessed a significant fall in irrigated area from 10.69 % in 1995-96 to 1.89 % in 1999-00. Share of irrigated area under sugarcane has remained almost constant in Yavatmal district.

The proportion of irrigated area under cotton to gross irrigated area accounts for a very small share, less than one percent in Washim district. However, Yavatmal and Wardha districts showed a relatively satisfactory situation. Irrigated area under cotton crop showed a spectacular rise from 1.0% to 24.83% from 1995-96 to 2000-01 in case of Wardha district and from 9.85% to 12.90% growth in irrigated area under cotton in case of Yavatmal district.

Table 2
Changing Cropping pattern, Irrigated Area (Percentage)

Area	Yavatmal			Washim			Wardha		
	95-96	99-00	02-03	95-96	97-98	99-00	95-96	97-98	00-01
Foodgrains									
a) Cereals	40.26	36.31	45.94	54.44	71.50	90.05	46.07	43.55	24.75
b) Pulses	4.26	5.93	8.39	6.04	5.68	13.74	12.44	9.32	15.25
c) Total	44.52	42.25	54.33	60.48	77.18	103.79	58.52	52.87	40.00
Cash Crops									
a) Cotton	9.85	0.58	12.90	1.24	0.49	0.41	1.0	0.84	24.83
b) Sugarcane	21.23	21.79	20.73	10.69	2.67	1.89	7.0	7.94	2.22
c) Total	31.08	22.37	33.63	11.93	3.16	2.30	8.0	8.78	27.05
% of GIA to GCA	4.41	4.47	4.83	2.53	3.85	4.50	7.33	8.42	29.78

As compared to cotton, sugarcane accounted for a significantly higher share in irrigated area. Washim and Wardha districts claimed less than 10% share in irrigated area under sugarcane except for the year 1995-96 in Washim district. However, Yavatmal district showed a marginal fall in its share as far as irrigation is concerned. Surprisingly, share of irrigated sugarcane is higher in Yavatmal, Washim and Wardha districts than cotton in both the time periods under consideration, except for the period 2000-01 in case of Wardha District. In this District, the share of cotton for the period was significantly higher (24.83 percent) than sugarcane 2.22 per cent. The information relating to this is presented in Table 2.

6. Credit Scenario

6.1 Primary Agriculture Credit Societies (Loan for Cotton Cultivation)

Credit plays a critical role in agrarian structure of the rural economy. Lack of irrigation facilities coupled with erratic behaviour of monsoon necessitates strengthening the rural credit networking system to small and marginal farmers in the region. In the extension of credit facilities to the farmers the role of informal as well as formal sources of finance need a separate inquiry.

Timely & adequate availability of loan plays a vital role in the institutional credit given to agricultural sector. Analysis of crop-wise distribution of loan is important in this context. Distribution of loans among food & cash crops shows that in Wardha District around 43 to 45 per cent of loans given by the Prima Agricultural Credit Cooperatives are given for cotton cultivation for the period 1992-2003. Wardha, Selu and Aarwi are the Tahsils where the maximum beneficiaries are found for the cotton crop loan. In Washim as well as in Yavatmal Districts the major portion of loan is given for cultivation of cotton. Sugarcane, which is another cash crop of a region, has received a smaller share in total loans disbursed by the District Primary Agriculture Cooperative Societies. Tables 3 and 4 show the distribution of loans for food crops and cash crops for the three districts i.e. Yavatmal, Washim & Wardha.

Table 3
Distribution of loan provided by District Primary Agriculture Co-Operative Societies: Cash & Food Crops

District	Year	% share of Cash Crops	% share of Food Crops
Yavatmal	31-3-99	75.91	24.09
	31-3-04	55.12	44.88
Washim	31-3-99	63.51	36.49
	31-3-04	47.48	52.52
Wardha	31-3-99	54.89	45.11
	31-3-01	54.65	45.35

The share of loan provided for the foodcrops has been observed to be rising for Yavatmal and Washim Districts during 1999 to 2004. However, for Wardha District it has remained almost constant. In case of cash crop there is a significant fall in the share of cash crop for Yavatmal and Washim Districts, with Wardha District showing almost constant share. For all the years mentioned in the above table the proportion of loan given for cash crops stands at the higher level with exception of Washim District for the year 2004. The distribution of loan for two major cash crops i.e. Cotton and sugarcane is shown in the following table.

Table 4
Distribution of loan provided by District Primary Agriculture Co-Operative Societies: Cash Crops

District	Year	% share of Cotton	% share of sugarcane
Yavatmal	31-3-99	69.77	30.23
	31-3-04	72.75	27.25
Washim	31-3-99	97.64	2.36
	31-3-04	99.34	0.66
Wardha	31-3-99	81.81	18.19
	31-3-01	78.95	21.05

Yavatmal and Washim Districts observed a significant rise in the share of loan provided for cotton. However, Wardha showed a fall in the share provided to the cotton. Amongst cash crops proportion of loan provided for cotton is on the higher side than the sugarcane. Though Wardha experienced a rise in its share of area under cotton cultivation to GCA, its share in cotton loan has significantly gone down. On the contrary the share of loan provided for sugarcane cultivation has significantly improved though area for this crop has gone down in total irrigated area. (Table 2)

Primary Agriculture Cooperative societies have provided maximum amount of loan for cash crops. On an average in the district Yavatmal from 1996-02 near about 75% of the total loan is provided for cash crops. Foodcrops constitute lower proportion. Amongst cash crops maximum loan is provided for cotton crops in Yavatmal district. Near about 70% of the total loan is normally provided for cotton in Yavatmal district. Similar trend has been observed in other two districts i.e. Washim and Wardha. In the district Washim more than 95% loan is provided for cotton amongst cash crops. The share of cash crops in total loan constitute near about 64% on an average in the district Washim. In the year 2004, in both the districts Yavatmal and Washim, there is a reduction in the share of loan for cash crops. In the district Wardha near about 55% of the total loan is provided for cash crops. In this district also the share of loan provided for cotton crops is on the higher side.

6.2 Loans per hectare for Cash Crops

Table 5 gives the information relating to loan per hector of area under cotton. It can be seen that there is a rising trend of loans per hectare for all the three districts under study except for the year 2001 in the District Wardha, in which there is a marginal fall over the earlier year.

The district Washim indicates the maximum amount of loan per hector provided to the farmers followed by Wardha.

Table 5
Loan per hecare of area under cotton (Rs per hectare)

Year	Yavatmal	Washim	Wardha
1998	268.00	-	449.64
1999	261.00	-	590.47
2000	268.00	820.72	-
2001	272.00	988.10	571.50
2002	282.00	1068.58	718.80
2003	-	2173.00	970.00

6.3 Role of financial institutions in providing loans to agriculture sector

Many financial institutions including National Bank for Agriculture and Rural Development have been playing a major role in providing financial support to rural areas. Their role in supplying loans to farmers for various activities has also been considered in this section. Three aspects of priority sector lending i.e. Crop loan, agriculture credit and no farm lending are analyzed.

6.4 Credit for Crops

Credit provided for crop loan in three Districts under consideration for two years i.e. 2002-03 and 2003-04 is presented in Table 6. At an aggregative level there was 32.36 percent growth in crop loans given by various Institutions like CBs, ADCCB and RRB. The highest growth in crop loans is observed in case of Wardha District, which is 180.22 percent whereas Washim District showed a negative growth of the order of 1.28 per cent during the above period. Yavatmal District showed a moderate growth of 16.42 per cent. The share of Yavatmal and Washim Districts showed a reduction in their share of crop loans over a period of one year. Whereas, Wardha District experienced more than doubling of it's share during this period.

Table 6
Institutional Credit for Various Crops, Rs.Lakh

Year	Yavatmal	Washim	Wardha	Crop loans s & total loans
2002-03	12732.70 (63.91)	4739.94 (23.79)	2451.20 (12.30)	19923.84 (100)
2003-04	14823.46 (56.20)	4679.21 (17.74)	6868.87 (26.04)	26371.54 (100)
% Change	16.42	-1.28	180.22	32.36

6.5 Agriculture Credit

In terms of total agriculture credit there was 11.89 per cent growth in all the three Districts taken together (Table 7). Yavatmal District showed highest growth in Agriculture Credit (14.81 per cent) followed by Wardha District. However, Washim District showed only marginal growth of 1.09 per cent in total agricultural credit. There is insignificant rise in the share of Yavatmal and Wardha Districts in the total agricultural credit. The share of Washim District, on the contrary, is reduced during the period under consideration.

Table 7
Total Agriculture Credit (Rs. Lakh)

Year	Yavatmal	Washim	Wardha	Total
2002-03	18433.93 (58.28)	5224.66 (16.52)	7970.77 (25.20)	31629.36 (100)
2003-04	21164.44 (59.80)	5167.53 (14.60)	9058.00 (25.60)	35389.97 (100)
% Change	14.81%	1.09%	13.64	11.89%

6.6 Credit to Non Farm Sector

Development of Non-farm sector helps to provide a cushion during the crisis situation in agriculture sector. It has been been observed that regions where Non Farm activities are undertaken, the severity of the problems gets reduced and rural people at least earn their livelihood through these activities. Institutional credit provided to Non Farm Sector is therefore analyzed with the help of Table 8.

Table 8
Credit to Non-Farm sector (Rs.in Lakh)

Year	Yavatmal	Washim	Wardha	Total
2002-03	3097 (76.12)	225.69 (5.55)	745.72 (18.33)	4068.41
2003-04	2776 (87.05)	32.66 (1.02)	380.56 (11.93)	3190.02
% Change	-10.36	-85.53	-48.97	-21.59

The share of Yavatmal in the Non-farm credit stands at the highest level of 76.12 per cent in the year 2002-03. In other two Districts i.e. Washim and Wardha it is 5.55 per cent and 18.33 percent respectively. Yavatmal District experienced growth in it’s share, whereas Washim and Wardha Districts observed a fall in their share of Non farm Credit in the same year. All the three Districts experienced negative growth in Non Farm Credit. In Washim District the fall in the share of its credit is maximum (85.53%) followed by Wardha (48.97 %).

6.7 Priority Sector Lending

At an aggregative level the priority sector lending has increased by 4.50 per cent during the period of 2002-03 to 2003-04. The share of Yavatmal District in the Priority Sector is the highest. Its share has also increased from 58.02 per cent to 62.11 per cent. Negative growth has been observed in Wardha District. The growth in Priority sector lending in Washim District is also not very significant. Non-farm sector in all the three districts needs to be developed in order to overcome the problem (Table 9).

Table 9
Priority sector lending to rural area (Rs. in Lakh)

Year	Yavatmal	Washim	Wardha	Total
2002-03	25816.78 (58.02)	6152.18 (13.83)	12527.05 (28.15)	44496.01 (100)
2003-04	28880.24 (62.11)	6339.87 (13.63)	11279.17 (24.26)	46499.28 (100)
% Change	+11.87	+3.05	-9.96	+4.50

6.8 Component wise allocation of Priority Sector Lending

Agricultural Credit forms an important component of total priority sector. Out of the total loan, 76.11 per cent is provided for agriculture followed by Crop Loan (56.71%). Non farm sector's share in the total priority sector is the lowest. The share of Non-farm sector lending is falling over a period of time. It was 9.14 per cent in 2002-03, which has reduced to 6.86 per cent. Adequate attention to the non-farm activities therefore, needs to be provided in all the three Districts especially, Washim District to encourage Non-farm activities in order to supplement the falling level of Agriculture income (Table 10).

Table 10
Distribution of priority sector lending

Year	District	Crop loan %*	Agricultural credit %	Non farm %
2002-03	Yavatmal	47.92	71.40	12.00
	Washim	77.04	84.93	3.76
	Wardha	19.57	63.63	5.95
	Total	44.78	71.08	9.14
2003-04	Yavatmal	51.33	73.28	9.61
	Washim	73.81	81.51	0.51
	Wardha	60.90	80.31	3.37
	Total	56.71	76.11	6.86

Note: *Crop loan constitutes part of agriculture credit.

6.9 Role of Moneylenders in providing financial support

In spite of the plethora of financial institutions operating in rural areas for providing credit to agriculture sector there is no marginalisation of the role of informal credit institutions. Moneylenders are still more accessible and timely credit providers in the rural areas. The number of moneylenders operating in the three districts has almost remained constant during the period of 1999 to 2003. Of course, considering the requirement of credit in the rural area, the increase in number of moneylenders is not very high but their importance and role has almost remained constant over a period of time. At the district level it has been observed that moneylenders are providing maximum amount of loan to the individuals other than traders. The information relating to role of moneylenders is summarized in Table 11.

Table 11
Loans Provided by Money Lenders

Year	No. of money Lenders	% of loan to farmers	% of loan to non farmers
31-3-1999	158	83.24	17.56
31-3-2000	166	83.71	16.29
31-3-2002	149	91.25	8.75
31-3-2003	157	83.74	16.26

The moneylenders provide the maximum amount of loan to the farmers in all the years under consideration. In the year 2002, it is 91.25 per cent of the total loan given to the farmers' non-farmers received the marginal share in the total loan. This shows that the farmers are ultimately the beneficiaries as well as the individuals who come under the clutches of the moneylenders.

The informal credit institutional framework is still dominating the rural credit lending. However considering the demand side and the number of farmers who need to take loan, moneylenders are fulfilling only the partial requirement of the farming community.

7. Area under Hybrid Crops

Extension of area under hybrid crops may increase input intensity of crops, which may, in turn, increase demand for more loans. Therefore it is essential to study the area under hybrid crops and its changing share over a period of time.

Cotton and Jawar are two main hybrid crops of the region. The area under hybrid cotton shows yearly fluctuations in Yavatmal and Washim districts. In case of Wardha there is an

increase in the area under hybrid cotton. No consistent pattern has been observed in terms of area under hybrid cotton for the three districts. Washim showed an increase in the area till 2001-02 but later on there was a fall in the area under hybrid cotton. In the year 2001-02, in the district Yavatmal, more than 93% area was diverted for hybrid cotton but in the next time period there was a reduction by almost 4%. Washim district witnessed a rise in the share to 75.29% in 2001-02 from 40.33% in 1999-2000. Wardha district also observed a growth in the share of area under hybrid cotton to total area under cotton from 61.61% in 1998-99 to 78.35% in 2000-01. This was followed by a reduction in the area insignificantly (Table 12).

Table 12
Area under Hybrid Cotton to Gross Area Under Cotton

Sr. No.	District	Year	% of Hybrid cotton to total cotton	% of Hybrid Jawar to Total Jawar
1	Yavatmal	1995-96	n.a.	0.00
		1996-97	n.a.	66.78
		1999-00	85.66	-
		2000-01	77.69	-
		2001-02	93.10	-
		2003-04	89.23	n.a.
2	Washim	1998-99		69.68
		1999-00	40.33	-
		2000-01	n.a.	-
		2001-02	75.29	-
3	Wardha	1996-97	n.a.	88.17
		1997-98	n.a.	94.18
		1998-99	61.61	n.a.
		1999-00	74.04	86.33
		2000-01	78.35	75.39
		2001-02	77.53	79.88

8. Distribution of chemical fertilizers by different institutions

Distribution of fertilizers by a specific type of institution plays a strategic role in the agrarian economy. Private institutes play a role of moneylenders in disguised form in the distribution of fertilizers and have become a source of exploitation for the farmers. In order to find out the role of institutions in supplying fertilizers, the information is collected for the distribution undertaken by the regulated institutions and by the private institutions. The information relating to distribution of chemical fertilizers is presented in Table 13.

Table 13 Distribution of Chemical Fertilizers by Institutions (% to total)		
Year	Regulated Institutions	Private Institutions
1998-99	32.50	67.50
1999-00	31.30	68.70
2001-02	27.45	72.50
2002-03	27.62	72.38

From Table 13 it can be seen that the ongoing process of privatization is affecting the rural area of the three selected districts also. For all the three districts it seems that regulated institutions are loosing their importance and this can be evidenced from the fact that their share has declined from 32.50 per cent in 1998-99 to 27.62 per cent in the year 2002-03. Private institute dominated the distribution process of chemical fertilizers. Their share improved from 67.50 per cent to 72.38 per cent during 1998-99 and 2002-03. The use of chemical fertilizers in general is rising and the private players are dominating the supply of chemical fertilizers.

9. Gross Value of Output

Income from various crops to some extent decides the cropping pattern of the rural sector of the economy. With recent trends towards market orientation, the realization of the monetory/market value of the product becomes a major consideration of substitution of one crop for the other as well as the changes in the area under crop. In the present analysis gross value of output has been estimated by taking the data of production and annual average market prices of the product. The estimates are made for gross value of output per hector. In relation to selected food and cash crops. The following table shows the variations in gross value of output of major crops for the selected three Districts of Vidarbha region. The gross value of output for three major food crops i.e. Rice, Jawar and Wheat has shown wide fluctuations for the period under consideration.

Table14 Gross Value of Output for major Food crops (Rs. Per hectare)				
Year	Yavatmal	Washim	Wardha	Total
1998-99	28404.09	23954.58	24703.79	77062.46
2002-03	22014.84	19465.50	23417.98	64898.32
% change	-22.50	-18.74	-5.20	-15.78

From Table 14 it can be seen that there is a reduction in the gross value of major food crops within four years by 15.78 percent. However, there is no consistent variation in the value of

gross output in either direction. Farmers do make variations in selection of crops every year depending on their own way of making calculations relating to the rate of returns. The variations can also be explained in terms of fluctuation in market prices of selected crops and their production. District wise information shows that the highest fall in the gross value of output is witnessed in Yavatmal District. The fall in income from cultivation of food crops might have changed the cropping pattern of Yavatmal District to some extent towards cultivation of cash crops like cotton or soyabean. Almost same trend has been observed in Washim as well as in Wardha District.

The gross value of rice per hectare shows a drastic fall in Washim District followed by Yavatmal District. Only Wardha District shows some rise in the gross value of output of rice. If the variations in the average annual market price of rice are observed they are very small. For a major period the price of rice per hectare has almost remained constant except in 2003-04 where a significant fall in the market price from Rs. 1160/- per quintal in 2002-03 to Rs. 1026/- per quintal in 2003-04 has been observed. Thus, a fall in the gross value of rice in Wardha District cannot be attributable entirely to the fall in market price of rice (Table 15).

Table 15
Gross Value of Output-Rice Per hectare (Rs.)

Year	Yavatmal	Washim	Wardha	Total
1998-99	8654.88	7134.40	6126.40	21915.68
2002-03*	7447.20	3669.66 (99-00)	7563.20 (01-02)	18680.06
% change	-13.95	-48.56	23.45	-14.76
Note: * The latest year for Washim and Wardha are 1999-2000 and 2001-02 respectively.				

Other major food crop i.e. Wheat shows 48.48 percent growth in gross value of output in 2002-03 over 1995-96. Yavatmal District experienced only 35.88 per cent growth in gross value of wheat, whereas in Wardha and Washim districts 59.81 per cent and 50.35 per cent growth has been observed respectively (Table 16).

Table 16
Gross Value of Output-Wheat Per hectare (Rs.)

Year	Yavatmal	Washim	Wardha	Total
1995-96	6731.49	6483.27	6406.44	19621.20
2002-03*	9146.85	9747.82	10238.09	29132.76
% change	35.88	50.35	59.81	48.48
Note: * The latest year for Washim and Wardha are 1999-2000 and 2001-02 respectively.				

In case of Jawar only 0.44 per cent growth in gross value of output is observed for the period under consideration (Table 17). Washim District reported negative growth in gross value of output (-20.3%), whereas Yavatmal District showed 39.13 per cent growth in gross value of output.

Table 17
Gross Value of Output-Jawar Per hectacre (Rs.)

Year	Yavatmal	Washim	Wardha	Total
1995-96	3896.20	7588.35	5524.75	17009.30
2002-03	5420.79	6047.65	5616.69	17085.13
% change	39.13	-20.30	1.66	0.44

10. Changes in Market Prices

The behaviour of market price for these two major food crops shows significant yearly variations. Price of wheat depicted a rise from Rs.590 per quintal in 1995-96 to Rs. 893 per quintal in 2001-02. However there was a fall in price to Rs.858 and to Rs.867 in the subsequent years. Thus in general there is a rise in price of Wheat for the period under consideration. Price of Jawar also showed a rise from Rs.385 to Rs. 576 in 1999-00 over 1995-96. However in subsequent period, fluctuations in either direction has been observed in it. The behaviour of cotton prices shows a consistent rise from Rs.1145/- in 1995-96 per quintal to Rs.2115/- per quintal in 2000-01. However after this period there is continuous fall. The data about the market prices of selected food crops and cotton are shown in Table 18.

Table 18
General Average Annual Market Prices of Selected Food Crops & Cotton
(Price in Rs. per quintal)

Commo-dity	95-96	96-97	97-98	98-99	99-00	00-01	01-02	02-03	03-04
Rice	-	-	-	1168	1120	1102	1132	1160	1026
Wheat	591	737	745	773	785	824	893	858	867
Jawar	385	441	406	534	576	467	486	419	459
Cotton	1145	1175	1320	1421	1565	2115	1449	1789	----
Soyabean	925	-	946	817	861	1001	1128	1332	1529

Note: These prices are taken from Kalmna Market representing Vidarbha's Market for agriculture produce.

11. Gross Value of Cotton per hectare

Cotton is considered to be the major cash crop of the economy of Vidarbha and it influences the overall growth of the agriculture sector of the region. The estimates of gross value of

output of cotton for the above mentioned three Districts of Vidarbha showed a rise from Rs. 4751.75 of 1995-96 to Rs. 8232.87 for the year 2001-02 (i.e. 73.26 per cent growth). Wardha District observed highest growth in the gross value of output i.e. 111.35 per cent. Washim district showed 72.48 per cent rise in value of output per hect. whereas Yavatmal District indicated lowest growth in the gross value of cotton. (37.73 per cent) during the period 1995-96 to 2001-02 (Table 19).

Table 19
Gross Value of Cash Crop- Cotton (Rs. Per hectare)

Sr. No.	Year	Yavatmal	Washim	Wardha	Total
1	1995-96	1545.75	1728.95	1477.05	4751.75
2.	2001-02	2128.91	2982.15	3121.81	8232.87
3.	% Change	37.73	72.48	111.35	73.24

The growth in the gross value of output may be partially due to rising prices of cotton. The net value of income from cotton depends on the cost of production incurred by the farmers. The available data at the Maharashtra level show that cost of cultivation per hect. is rising continuously over a period of time for all varieties of cotton. Cotton as a cash crop can improve the standard of living of farmers provided their net earnings go up. Existing cost structure does not ensure profitability to the cotton growers at the current market prices.

12. Crop Economy: Growth of Area, Production and Productivity

Since the economy of the selected districts thrives mainly on agriculture, the behaviour of agricultural production, productivity and area under the cash crop needs to be analyses. An attempt has been made to estimate the compound growth rate of area, production and productivity under the major cash crop i.e. cotton. This is one of the cash crops of the region. The growth behaviour of cotton has a major impact on the cash economy of suicide prone area. The behaviour of area under cotton shows a declining trend in terms of compound growth rate. It has reduced from 1.01 per cent in 1961-95 to 0.99 per cent for the entire period of 1961 to 1999. However, upto 1997, there is some rising trend, though marginal in terms of area under crop. The compound rate of growth for the year 1961-97 has been estimated at 1.02 per cent as compared to 1.01 per cent for 1961-95. Thus, the fall in the area seems to be mainly concentrated in the later period i.e. from 1997 onwards. Table 20 provides information relating to compound rate of growth of area, production and productivity.

Table 20
Compound Growth Rate of Area, Production & Productivity (Cotton)

District	Area					Production					Productivity				
	1961 -95	1961 -96	1961 -97	1961 -98	1961 -99	1961 -95	1961 -96	1961 -97	1961 -98	1961 -99	1961 -95	1961 -96	1961 -97	1961 -98	1961 -99
Yavatmal	1.01	1.00	1.02	1.00	0.99	2.13	2.10	2.27	2.08	2.03	1.11	1.08	1.24	1.07	1.03
Wardha	-0.59	-0.53	-0.55	-0.58	-0.63	3.59	3.62	3.68	3.22	3.02	4.19	4.17	4.25	3.83	3.67
Parbhani	0.36	0.38	0.49	0.59	0.67	2.75	2.88	3.12	2.10	3.24	2.37	2.49	2.62	2.49	2.55
Maharashtra	-0.06	-0.17	-0.09	0.01	0.09	1.55	1.68	1.94	1.90	2.02	1.60	1.75	1.97	1.79	1.83

The estimates of compound growth rate of production, for Yavatmal District shows the same tendency as that of area. From 2.13 per cent in 1961-95, it has increased to 2.27 per cent in 1961-97. However, for the period of 1961-99 there is a fall in the compound growth rate in production to 2.03 per cent.

Behaviour of yield follows the same pattern as that of area and production in the District Yavatmal. The growth behaviour of area under cotton for Wardha District, which is also a major cotton-producing district does not reveal same pattern as growth in area. There is a rising tendency of negative growth rate of area under cotton crop from -0.53 per cent in 1961-96 to -0.58 percent in 1961-98 for Wardha and further accentuation to 0.63 per cent in 161-99.

In-spite of negative growth in area under cotton in Wardha, the growth rate in production has been observed to be positive with a rising trend of compound growth. However, after 1997, the trend in the growth rate of production though positive, is observed to be declining as estimated compound rate of growth has declined from 3.68 per cent to 3.02 per cent in 1961-99.

The yield per hectare also reveals similar tendency i.e. increase in growth rate upto 1997 followed by a reduction in the rate of growth of productivity. Estimates of growth rates of production and productivity of cotton crop are significantly higher for Wardha district as compared to Yavatmal district. The growth rate of productivity is almost 3-4 to times higher in Wardha district as compared to Yavatmal district.

A selection of major cotton producing district in Maharashtra i.e. Parbhani has been made to compare the growth behaviour of area, production and productivity of Yavatmal and Wardha district. A comparative analysis may throw some light on the major causes leading to suicides

in cotton producing districts of Vidarbha. Compound growth rate of area, production and productivity of cotton in Parbhani district has shown positive trend. Area under cotton has shown a consistently rising trend from 0.36% in 1961-95 to 0.67% in 1961-99. The behaviour of growth rate in production and productivity of cotton has also shown rising tendency except for the period 1961-98 where some marginal fall has been observed. The growth rates in production and productivity in Wardha district are significantly higher as compared to that of districts Yavatmal and Parbhani.

Low growth rate in production and productivity may be explained by the inadequate irrigation facilities, lack of support to the farm community with the help of procurement/ support prices or non-availability and accessibility of institutional loan during the period of harvest. The role of natural factors creating uncertainty about incomes of agricultural sector may be one of the contributing factors for the phenomena of suicide.

13. Compound growth rate of area, production and productivity- Food crops

The estimates of compound rate of growth are presented in Table 21. Productivity growth for the districts under consideration is almost same. Except Wardha in the other two districts i.e. Yavatmal and Parbhani the productivity growth is marginally higher than the State. The rate of growth of productivity of food grains is about 2 percent. Surprisingly in the case of Wardha District, though the rate of growth of area is negative, production and productivity indicate positive trend. Compound rate of growth of production in the District is lower than the State. The compound growth rate of area under the District Parbhani is higher than the States compound growth rate of area.

Table 21
Compound Growth Rate of Area, Production & Productivity (Foodgrains)

District	Area		Production		Productivity	
	1961-98	1961-99	1961-98	1961-99	1961-98	1961-99
Yavatmal	0.14	0.11	2.77	2.70	2.76	2.59
Wardha	-0.84	-0.92	1.18	1.06	2.04	2.00
Parbhani	0.39	0.37	2.78	2.72	2.38	2.34
Maharashtra	0.25	0.22	2.43	2.41	2.25	2.19

The area under cash crop needs to be supplemented with food crops in order to minimize the risk. There is a need to have the proper combination of production of cash crops and food crops both. Neglecting food crops totally to earn the higher level of incomes from cash crops

may prove to be disastrous for the farmers. This can be seen from the cropping pattern of the district Parbhani where both the types of crops are given proper weightage in terms of allocation of area, production and productivity.

14. Classification of Landholdings

Size distribution of land holding is also one of the important factors responsible for the low level of farm incomes. The size distribution of land holding for the three districts is presented in Table 22. The land holdings are classified in terms of less than one hectare, below 1 to 2 hectare & above 2 hectares. The distribution of land holding shows dominance of farmers holding lands more than 2 hectares except Wardha. Maximum small and marginal farmers are found in this district, where 66% of the landholders with an area of 19% operate in this district. Yavatmal shows near about 40% of the landholders as small and marginal. They are holding an area of around 16% of the total. Number of farmers above 2 hectares is more in Washim district (78.38%) and they are holding an area of 51% only. In the district Wardha it has been observed that 81% of the area is occupied by 34% of the landholders. In the district Yavatmal 60% of the farmers are having an area of 83%. This distribution clearly indicates that there is a high degree of inequality in distribution of land holdings.

Table 22
Size distribution of land holdings (2001)

Sl	Size	No of holdings			Area		
		Yavatmal	Washim	Wardha*	Yavatmal	Washim	Wardha*
A	0-1 hectare	11157 (4.16)	44288 (4.25)	91080 (66.00)	7750 (0.80)	35025 (15.26)	84550 (19.00)
B	1-2 hectare	95777 (35.60)	97618 (33.64)	-	141220 (15.96)	142925 (33.64)	-
C	Above 2 hect.	162065 (60.25)	148260 (78.38)	46920 (34.00)	735780 (83.16)	644470 (51.10)	360450 (81.10)
	Total	268999 (100.00)	290166 (100.00)	138000 (100.00)	884750 (100.00)	822420 (100.00)	445000 (100.00)

Note: For Wardha data are available for 0-2 hectares and above 2 hectares.
Source: Agriculture census 2001.

15. Minimum Support Price and Market Imperfections

Small and Marginal farmers need protection in terms of support price for the major crops. When for the products manufactured by the farmers, specially small and marginal, traders may beat down the prices to ridiculously low levels; farmers may be forced to commit suicide. Minimum support price coupled with a clear-cut procurement policy is only a ray of hope to the small and marginal farmers. Mere declaration of Minimum support Price

unsupported by procurement policy is of no help. Farmers do not prefer to grow all possible varieties of crops, if there is no guarantee about adequate returns. It is also necessary to have the consistency in the policy of procurement to create confidence among farmers. In number of cases it has been observed that products are rejected and do not get support price because of the low quality of produce. Farmers also had to wait in a big queue and spend several days outside market yard. There is no adequate staff in the yard to clear the procurement process. Even if the produce is purchased at MSP there is infinite delay in making payments for sale consideration. The marketing infrastructure in this context needs complete revamping with wide coverage of networking facilities.

Minimum support price provides a benchmark price and a safe level of commitment from the Government. This price also helps him to provide guidelines for entering in negotiations for the price with the traders. Farmers can even make contracts with traders about selling of product to him on some agreeable price. The advantage of this system is farmers can procure loan for the traders for cultivating a crop and it becomes a commitment for both buyers and sellers. With the kind of financial crisis State government is facing, procurement of food grains is going to be the first casualty and this will cause irreparable loss to small and marginal farmers. Marketing of agricultural produce has been a serious issue in the context of farmers mass suicides. Though there is existence of market yards in several places, small and marginal farmers are deprived of their rightful share. These farmers lack the power to assert their rights in the market yard and they are in many cases ignorant about the prices of products. Behaviour of cotton prices under monopoly procurement scheme for the region of Vidarbha is presented Table 23. Cotton Prices under Monopoly Procurement Scheme have almost remained stagnant till 2002-03. This holds good for both types of cotton procured under the above scheme. Farmers in most of the cases have switched over to hybrid varieties of cotton, which involves higher cost of production. This factor has also contributed in making cotton cultivation economically unviable.

Table 23
Behaviour of Cotton Prices under monopoly Procurement Scheme (Rs. Per Qtl.)

Year	Fair Average quality.	Fair
2000-01	2050	1725
2001-02	2050	1725
2002-03	2050	1725
2003-04	2250	1925
2004-05	2250	1925
Source: Maharashtra State Government G.R. issued from time to time.		

16. Rainfall Situation in Suicide Prone Districts

One of the important reasons for farmers' suicide was the scanty rainfall in all the three districts considered for the present study. In Yavatmal district the position of rainfall was better in the year 1999-00 compared to all other years from 1998-99 to 2004-05. In the year 1998-99 as well as in 2000-01 the rainfall situation was bad. In the year 2000-01, the cumulative rainfall for this year on an average was 776.98 mm. The situation has not improved in the successive years. On the contrary the rainfall situation became worse after 2002-03. In comparison with 1999-00, in all other years, the average rainfall was inadequate.

Table 24
Rainfall and Production of cotton and Rice in Yavatmal, Washim and Wardha Districts

District	Year	Production of cotton	Production foodgrains	average rainfall (mm)
Yavatmal	1998-99	2425	4272	595.40
	1999-00	4481	4259	1065.60
	2000-01	2382	3847	776.98
	2001-02	3056	3776	828.61
	2002-03	3136	3566	905.27
	2003-04	3823	3141	849.91
Washim	1999-00	1067	2376	996.45
	2000-01	535	1872	591.87
	2001-02	884	2421	791.13
	2002-03	726	979	1289.83
	2003-04	625	2206	807.47
Wardha	1998-99	1003	1376	232.85
	1999-00	1751	1229	1068.8
	2000-01	1594	1350	970.35
	2001-02	1362	1403	895.92

Note: Production figures are in 1000 bales for Cottona and in 1000 tons for Rice. Normal rainfall for Yavatmal, Washim and Wardha are 966.3 mm, 828 mm and 939.55 mm respectively.

In the district Washim almost similar pattern has been observed, 2000-01 was a bad year for the district. The rainfall was the lowest in this year. The situation of rainfall improved in the year 2002-03 significantly. In both the districts Yavatmal and Washim after 2000-01 in the year 2002-03 there was an improvement in rainfall but in the subsequent year there was again sudden reduction.

In the district Wardha 2001-02 was the bad year in terms of rainfall. 1998-99 was the worst year considering the position of rainfall in the other years. 1999-00 received the highest rainfall in Wardha but after that there was reduction upto 2001-2002. There was some sign of improvement in 2002-03 but in subsequent years the district suffered from scanty rainfall. In all the three Districts the actual rainfall is below the normal rainfall in almost all the years.

The data relating to rainfall is presented in Table 24 along with production of cotton and food grains.

Normal rainfall in three Districts is taken into account along with production of cotton as cash crop. It may be noted that Districts where normal rainfall is on the higher side the tendency of the production is to go up. Out of these three Districts, Washim shows lower level of normal rainfall, in this district the production of cotton in comparison with other two districts is also on the lower side. Adequate rainfall helps to improve the production of crops specially cash crop. Food grains production does not appear to be directly related to rainfall, but cash crops production and rainfall seem to be interrelated to some extent.

17. Conclusion

During the last forty-five years infrastructure facilities like irrigation, roads, marketing etc. were not created sufficiently and therefore the productivity of land has declined. Agro-based industries, particularly textiles are not attracted to this region and trade turnover has been reduced. The agrarian economy of Vidarbha remained backward mainly due to non - diversification of crops and lack of supporting non - farm activities. Cotton crop has remained as single largest growing crop in the region however the productivity has remained low throughout the period under consideration. Maximum suicides have been reported in Vidarbha particularly after a second crop failure and in some cases third also, left farmers with no chance to repay their loans. Even a hand - to - mouth existence was rendered difficult. Mounting debt owing to crisis in the crop is the most common reason for the suicides in Vidarbha. Excess amount of rain or drought both the situations affect the agrarian economy of Vidarbha. Lack of crisis management and insufficient cushion to tackle vagaries of nature affect the economy of Vidarbha. Monopoly Cotton Procurement Scheme of the state government is a unique scheme for protecting the farmers, but the scheme is not operating as smooth as required for providing cushion to the farmers. Farmers have to operate ultimately at the mercy of private traders. The waiting period in some cases is required to get the proper price for the crops but unfortunately farmers in this region cannot afford to wait for too long and they are forced to sell their produce to private traders. In order to avoid the interest accumulation of the loan taken by them for the moneylenders they are forced to sell the produce at a lower price. Farmers were selling off their produce to private traders but a vast majority always opted for the government scheme despite the erratic and painful payment schedule. But in recent years the operation of the scheme has forced the farmers to sell their

produce to the traders. The three districts of Vidarbha Yavatmal, Washim and Wardha are peculiar. Cotton is the major crop of the region but the area under cotton is falling in districts like Washim and Wardha. No equivalent type of cash crops is substituted in order to balance the incomes of the farmers. The substitution takes place continuously for traditional crops like Jowar, wheat, cereals, etc. There is no significant change in the cropping pattern, except farmers have started cultivating soyabean. More and more area is coming under soyabean crop. The excess production of soyabean has affected the prices and in the next time period its area under cultivation has gone down.

The agrarian scenario of Vidarbha needs a special and area - specific treatment. Some areas will have to be identified to grow special type of crops and the link needs to be established for marketing of their crops. Agriculture extension services have a special role to play in this regard. The issue need not be considered in an isolated manner for the farming community alone. The industrial infrastructure needs to be developed by considering the availability of agricultural inputs from the region. Developmental programs of other regions and the success stories of other regions cannot be planted as it is in this region. The quality of soil, availability of natural resources, culture, tradition of this region need to considered while setting the policy framework for the region of Vidarbha.

The Human development Report of Maharashtra, 2002 highlights the backwardness of the districts of Vidarbha. The Human development Index of Yavatmal was 0.22 and amongst the 35 districts of Maharashtra it’s rank was 34’th. Washim is also another district of Vidarbha where the Human Development Index was 0.36 and its rank was 31’st. Wardha is better in terms of Human development which was 0.49 and its rank was 16’th. In terms of Per Capita District Domestic Product also Yavatmal is lagging behind with 30’th rank in the state of Maharashtra. Washim and Wardha stand in 19’th and 16’th position respectively. The three suicide prone districts indicate high literacy rate of more than 70%. But the skill formation required for supplementing developmental activities normally takes place after the 10’th standard. But in case of Yavatmal the dropout rate per 100 was 64, in Washim and Wardha this rate was 49 and 46 respectively. This clearly shows that this population is not available for further developmental activities and it affects the entrepreneurial skills also. Obviously this affects their standard of living and they have to depend on minimum income generating activities. The aspect of educational attainment also needs to be considered along with other factors mentioned above.

Poisoning Cases in Yavatmal Medical College, July 2004-June 05[1]

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This Version: July 2005

Abstract

Using a sample of case records of poisoning cases reported (435 of 938) in the Medical College at Yavatmal during July 2004-June 2005, one observes that 68 per cent were males and 54 per cent were in the age group of 26-35 years. Most of the cases were from rural areas (83 per cent) and almost 90 per cent were labourers. Time distribution of all the 938 cases indicates that the maximum cases were reported in the July-September quarter (29 per cent) and the minimum cases were reported in the April-June quarter (21 per cent). From the cases analysed, 45 per cent were diagnosed with organophosphorous poisoning and another 17 per cent with other pesticides. Almost all the cases were suicidal in nature (93 per cent). Analysis of the case record further indicate that 76 per cent were cured, 15 per cent of lives could not be saved despite medical interventions and the remaining 9 per cent were discharged as they wanted to leave against medical advise.

[1] This has been prepared as a background paper for the study on 'Suicide of Farmers in Maharashtra' being conducted by the Indira Gandhi Institute of Development Research (IGIDR), Mumbai for the Government of Maharashtra. After submission the author was transferred to Nagpur and without access to relevant data. The scope for revising this paper – to extend the analysis to all cases instead of a sample of the reported cases and to earlier years – was limited.

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1. Introduction

As per the WHO report in 1999 more than three million poisoning cases with 251881 deaths occurred Worldwide in a year. Of these 99% occurred in developing countries.

Its incidence is steadily rising and now at least 10 percent of all adult emergency admission to hospitals is due to suffering from poisoning in Britain. Accidental poisoning in the home is also very common, especially in young children. The nature of poison varies in different parts of the world and even in the same country depending on the socio-economic factors and cultural environment and also due to the occupations in which they are working.

In developing countries like India agrochemical is the commonest agent responsible for poisoning. It has been revealed from the record of Shri Vasantrao Naik Government Medical College (V.N.G.M.C.), Yavatmal that 314 (14.9 percent) out of total 2105 deaths had been due to the different types of poisons. During January 2004-June2005, it has been noted that 55 percent deaths and 20 percent admissions were due to Organo phosphorous compounds and other type of the insecticides consumption.

Area served by Shri V.N.G.M.C. Yavatmal is a rural and tribal area. A large number of the cases of poisoning are coming to the hospital from the peripheral area. This study has been undertaken to study the trends of poisoning in the cases reported in this hospital.

2. Materials And Method

The study was conducted at Shri V.N.Govt.Medical College, Yavatmal it is both a hospital and institute for medical training. There is a separate section where records are made available at the hospital. The records include information such as patient's age, sex, address, occupation, mode of poisoning, nature of poisoning, duration of hospital stay, type of treatment received, outcome after treatment etc. The records could be traced for all cases that were admitted and information was collected in pre-designed performa from the Medical Record Section for July 2004 to June 2005. Deaths due to poisoning cases were cross-checked from the death registers. Investigator did analyses of the records. Statistics were performed on the data such as percentages, average, chi square test, 'p' value etc.

2. Observation And Discussion

In this study, total 9397 medico legal cases were reported in V.N.G.M.C hospital during the period of July 2004- June 2005. Out of these 938 (9.98%) cases were poisoning (which excludes snake bites cases). In this study the analysis was done for only 435 cases due time constraints. The rest of the cases will be analyzed within due course of time. The analysis of the same with conclusions will be reported in final reports. In this study, out of 435 patients 282 (64.8%) were male and 153 (35.2%) were female (Table 1). The male female ratio is around 2:1.

Table 1
Sex Wise Distribution

Sex Group		
Male	Female	Total
282(64.8)	153(35.2)	435(100)

Table 2
Age Wise Distribution of Poison Cases

Age Group	No	Percentage
0-12	30	7
13-18	53	12
19-25	-	-
26-35	235	54
36-50	87	20
50 +	30	7

Youngest patient was 1 ½ year old, while the oldest was 70 years old (Table 2). It was also observed that 54 % patients were in young and active age group i.e. 19 to 35 years and male and female shared the same ratio. Similar findings were reported by Multani et al (1991) and Singh et al (1997). This may be because this age group is more involved in all types of strains, domestic, educational and employment. Males have easy accessibility to agrochemicals due to more involvement in agricultural work particularly in rural areas.

Table 3
Rural and Urban Distribution of Poison Cases

Area	No of cases	Percentage
Rural	360	82.7
Urban	75	17.3
Total	435	100

Patients reported from rural area observed to be more than urban areas. This may be due to large population in rural area than that in urban (Table 3).

Table 4
Occupation Wise Distribution of Cases.

Occupation group	No of cases	Percentage
Agriculturist	38	8.7
Labourers	388	89.2
Other	9	2.1
Total	435	100.0

It was observed that majority of the patients i.e. 89.2 percent were from laborers group (Table 4). These laborers were either working in agriculture sector or in construction work and also belongs to low socio-economic group. It may be due to more stress and strain and easy accessibility to agro-chemical because of their occupation. It has been also noted in the study that only 8.7 per cent patients were agriculturist or farmer. The rest of the 2.1 per cent were from high income group, servicemen or students.

Average number of cases attending per month was found to be 78 (Table 5). The table shows that in the first quarter of the year was 23 percent case while in the 2nd , 3rd and 4th quarter of the year the per cent distribution were 21.2, 29.2, 26.6 respectively. So this distribution does not seem to be uniform.

Table No 5
Time Distribution of Cases Attended

Months	No of cases	Percentage	
January-March	216	23	
April-June	198	21.2	44.2
July-Sept	274	29.2	
Oct-Dec	250	26.6	55.8
Total	938	100.0	
N=938 cases, period July 2004-June 2005.			

More cases were admitted in the 2nd half of the year, i.e 29.2 and 26.6 percent than in the 1st half of the year. After application of the x2 test, difference was found to be statistically significant (p0.05). This may be due to more exposure of the labourers to pesticides spraying operations that are commonly carried out during this part of the year. The similar type of finding was observed in previous study carried in V.N.G.M.C Yavatmal in Oct 2003.

Table 6 Name and Type of poison abused.		
Name and type	No of cases	Percentage
Organophosphorous	195	44.82
Other pesticides	73	16.78
Rodenticide (Zinc Phosphide)	49	11.26
Alcohol	35	8.08
Drug intoxification	19	4.36
Kerosene/Diesel	13	2.98
Unknown	51	11.72
Total	435	100.0

Most common agents responsible for poisoning are organophsophorous compounds like endrin, Rogar, Novacran etc, amongst 44.82 percent, followed by other insecticides in 16.78 per cent and rodenticides in 11.26 per cent of cases (Table 6). Alcohol intoxication was observed to to be 8.06 percent. And other poisons such as drug intoxication, phenyl, dettol, seeds of chandrajyoti, kerosene,diesel, camphor constitute 7.34 percent. Similar finings were observed in previous data of Oct 2003 investigation. Easy availability of highly toxic substance like organo phosphorous compound has pushed up the incidence of poisoning. Similar type of findings were reported by another investigator Basu et al(1999) and Multani et al (1991).

Table 7 Mode of poisoning		
Mode	No of Cases	Percentage
Suicidal	404	92.8
Accidental	31	7.5
Homicidal	0	0
Total	435	100.0

The most common mode of poisoning was suicidal (self consumed) in 92.8 percent, followed by accidental poisoning as 7.2 percent (Table 7). From this observation, it can be concluded that in times of stress, the patients resort to agrochemical to commit suicide. It was observed that majority of the cases (75.9%) were cured and discharged, while 9.2 % left hospital in spite of them being advised otherwise (Table 8). Mortality due to poisoning was found to be 14.9 percent in this hospital, in spite of all medical efforts. The overall mortality rate in the study of Multani et al (1991) it was 25.5 % and Singh et al was 17.3 %. In comparison, the the mortality rate found by this hospital study was less.

Table 8 Outcome of the Polio cases		
Outcome	No of cases	Percentage
Cured	330	75.9
DAMA	40	9.2
Death	65	14.9
Total	435	100
Note: DAMA indicates discharged against medical advice.		

3. Conclusion

In Shri Vasantrao Naik Government Medical College Hospital, Yavatmal a rural medical college of Vidarbha, most of the cases were referred from primary health centers (PHCs) and belonged to labour group with low socio economic status. Common age group affected among both males and females was 19-35 years. Average number of cases reported per month in this hospital is 78. However during second half of the year that is July to Dec the number of poisoning cases admitted increase. Most common chemical agent responsible for poisoning cases was found to be Organo phosphorous compounds i.e. 44.82 percent cases consumed followed by insecticide (16.78 percent) and rodenticide (11.26 percent). Mortality rate among all admitted poisoning cases was 14.9 percent.

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