

Changing Pattern in Land Use and Agrarian Relation in Maharashtra and its implications for Rural Livelihood

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Abstract

Land grabbing and irrational use of land are two piercing issues in the political economy of Maharashtra. It is considered as one of the developed States of India, but if a few regions are excluded, its development level can shy any BIMARU state in India. The agrarian crisis that emerged in Vidarbha has its roots deep into the development model the state has perceived and followed over the last two decades. Land use is one of the important pivots of this development. The implementation of land reforms was half hearted and the State did not hesitate to handover the process of justice, through the tribunals, in the hand of the exploiters themselves. Even in the land use under crops the state has erred on negative side opting for excessive commercialization, and tilting the income distribution in favour of large farmers. At the same time the process of marginalization of size land holding is going at a faster rate than the demographic changes. As a result an all insidious farm sector crisis is lurking ahead for the state and Vidarbha is only the beginning.

I. Introduction:

Agricultural sector of Maharashtra has survived several crises during the last six decades. Up to mid-sixties, owing to various constraints, not only low value crops were dominating in the cropping pattern but both production and productivity of crops were also very low. The droughts of mid sixties and the devastating experience of 1972-73 taught bitter lessons to the policy makers in the State. Development initiatives for agricultural sector and regional imbalances emerged as two major issues to spur the development. The situation in Indian agriculture changed after the introduction of Green Revolution, but in Maharashtra, changes could take place as late as in 1973-74, after the shock of droughts. While the production of food grains has increased, a similar kind of trend is also noticed in the production of commercial crops like oilseeds, cotton, sugarcane, etc. (GoM, 2002). The overall development tilt of the State is towards tertiary sector and that is the trend in most of the other states in the country. Maharashtra is not an exception. In the process of economic development the share of primary sector to the total income declines and at the same time the other sectors increase. Similar, feature

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has been observed in Maharashtra. In the state, share of primary sector declined from 41.83 per cent to 23.47 per cent during 1960-61 to 1990-91 and further to 14.84 per cent during 2000-01 to 2005-06 (Table 1). The share of the secondary sector increased during 1960-61 to 1980-81 but gradually declined in the subsequent decades. Only the share of the tertiary sector increased from 31.75 per cent to 57.53 per cent during 1960-61 and 2005-06. The decline in the share of secondary sector is a matter of concern as the State is known for its industrial development. Therefore on the overall development scenario, the state is going away from its focus on secondary sector and the tertiary sector is emerging powerful growth engine. The question, however is: Will this new found engine of growth take the state ahead and will that inflict externalities on the primary sector?

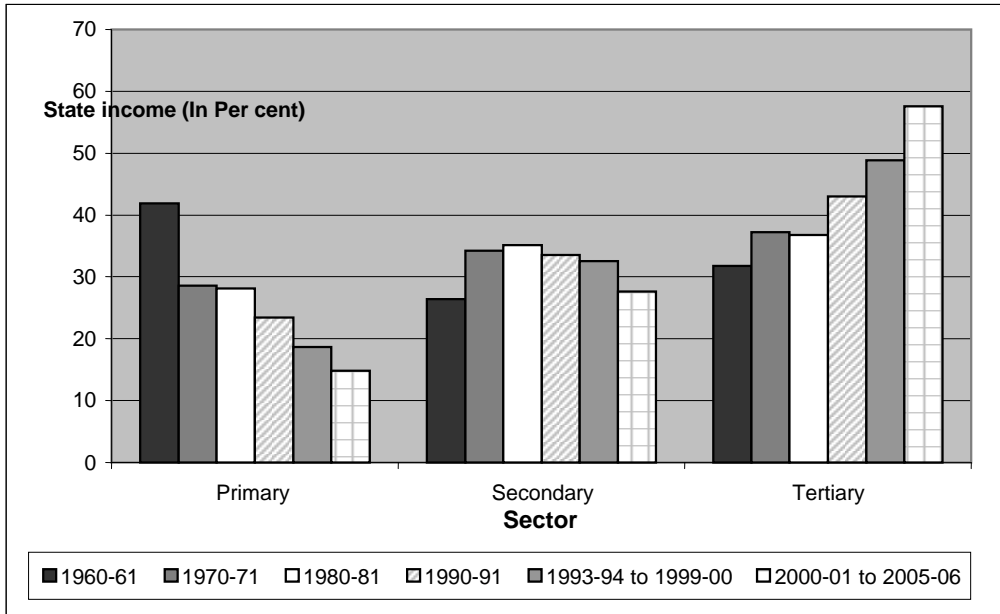
Table 1: Sector wise share of State Income of the Maharashtra

Income	1960-61	1970-71	1980-81	1990-91	1993-94 to 1999-00	2000-01 to 2005-06
Primary	41.83	28.61	28.10	23.47	18.63	14.84
Secondary	26.42	34.19	35.09	33.52	32.54	27.63
Tertiary	31.75	37.20	36.81	43.01	48.83	57.53

Source: Economic Survey of Maharashtra State, GoM, Mumbai (Various Issues) and last two columns are from Bhandari (2007).

According to the Human Development Report of Maharashtra, 2002, it is one of the developed states in the country. Its State Domestic Product is the second highest among all states during the same period (GoM, 2002, p-33). The figures for 1999-2000 indicate that almost 53 per cent of the income generates from the tertiary sector followed by the secondary (30.15 per cent) and primary sector (17 per cent) (p-35). However, two-third of the population is still dependent on agriculture. Despite of high urbanization trends and economic growth, the majority of the population finds their livelihood in agriculture and allied sector. On one side we find the share of agricultural sector in the State domestic product declining at a faster rate than that of the workforce in the sector, along with that the productivity of most of the crops has stagnated. The process of declining average size of holding is faster than the demographically explainable trend.

Figure 1: Sector wise share of State Income of the Maharashtra



That inflicts marginalization not only in the size of cultivated land but marginalization of the profession. That makes commercialization of agriculture inevitable. There is a clear evidence of land slipping out of the foodgrain economy and losing it to commercial crops and at the same time land is also slipping out of agriculture. The paper addresses to the issue of changing workforce in agriculture and then includes the analysis of the changing land use as well as land holding pattern. Problem areas and way forward are attempted in the last section.

II. Carrying capacity of agricultural sector

An analysis on the changing workforce would not only reveal the share of rural population depending for their livelihood on agriculture but also the changes in carrying capacity of the sector. It is evident from the distribution of rural workforce for Maharashtra that despite achieving significant development in industrial sector in the state, the workforce (cultivators and agricultural labourers) directly relying on agriculture has declined only marginally (by 1.93 percent points) between 1981 and 2001. This reduction is far lower as compared to the reduction observed at the country level. The relatively high share of workforce still relying on agriculture in the state is mainly because

of lower growth in non-farm rural employment opportunities (Narayanamoorthy, et al., 2002; Visaria, 1995).

Table 2: Rural workforce distribution: Maharashtra and India

Particulars	Maharashtra			India		
	1981	1991	2001	1981	1991	2001
Cultivators*	47.87	46.26	41.69	51.10	48.39	40.14
Agricultural Labourers*	35.14	36.61	39.39	29.88	31.64	33.20
Household Industry Workers*	2.22	1.47	2.09	3.08	2.16	3.77
Other Workers*	14.78	15.66	17.83	15.94	17.80	22.90
Total Rural Main Workers (million)	17.42	21.38	22.75	176.43	222.90	229.67
Total Rural Main + Marginal workers (million)	19.65	24.03	28.11	197.31	249.03	310.66
Total Rural Population (million)	40.79	48.38	55.73	507.61	622.82	740.26

Note: * - 1981 and 1991 figures are percentage to total main workers and data pertaining to 2001 are percent to total workers (main plus marginal).

Sources: GOI (1981 and 1991) and www.censusindia.net

And non-farm sector also includes the fast growing service sector. As one of the main factors responsible for the growth of non-farm rural employment is agricultural development itself. But the quality of growth in the state could not initiate this change. This process could not be stimulated due to the predominant rainfed agriculture in the State. (see Mahendra Dev, 1990; Fisher et al., 1997; Hazell and Haggblade, 1991). In any development scenario it is expected that the workforce from traditional sector (with lower productivity), should shift to the non-traditional emerging sector. In Maharashtra it did not happen and that increased the dependent on land in rural areas. That got reflected clearly in the land use pattern.

III. Land slipping under the feet of agriculture

When the workforce in a sector increases, and the production of the sector stagnates, the net income will decline. A natural outcome of this trend is the deterioration in the value of fixed assets. Therefore the changes in land use pattern were quite expected and are direct outcome of the policy. Maharashtra is one of largest states in

India, both in terms of Gross Cropped Area (GCA) and population. While accounting for about nine percent of India's population, the state contributes over 20 percent in India's industrial output and about 13 percent in India's GDP in 2001-02 (GOM, 2003). The state also accounts for about 12 percent in India's Gross Cropped Area (GCA) in 1999-2000. Over the last forty years, the agricultural sector of Maharashtra has undergone significant changes. The changes in land use pattern are quite alarming and we note that land is slipping out of agriculture, steadily but firmly. The aggregate land base of the sector is shrinking and that is quite disturbing.

3.1: Land use pattern

Land use pattern explains how effectively land resources are utilised for different purposes in a state. The land use data are classified in nine fold classification and obtained from village papers. Broadly there are four land use groups namely i. Land under forests and other tree crops; ii, Land under agriculture; iii. Land not cultivated Table 3 presents the detailed land use pattern of the state. Since crops are cultivated predominantly under rainfed condition in Maharashtra, net sown area (NSA) has declined between TE 1962-63 and TE 2001-02, which is somewhat different from the trend emerging at the national level. Despite having limited availability of irrigation facility, area cultivated more than once increased from about 5 percent of the GCA in TE 1962-63 to over 20 percent in TE 2001-02. In fact, area cultivated more than once increased nearly three times between TE 1982-83 and TE 2001-02. Intensive cultivation of annual crops such as sugarcane, horticulture crops, etc., could be the main reasons for this sharp increase. While there is no significant change in area under fallow, lands under cultivable waste as well as permanent pastures and grazing and land used for non-agricultural purpose has increased from about 7.06 lakh hectares in TE 1962-63 to 13.06 lakh hectares in TE 2001-02, an increase of about 85 percent. Despite a severe scarcity for land resources, altogether about 4.80 mha of lands are available in the form of cultivable waste, permanent pastures, land under tree crops and grooves, current as well as other follows. Three important observation are stemming out of this analysis. First, about 5.11 lakh hectares of land has gone straight out of agriculture and this is on its way to non-agricultural uses. During the decade of nineties itself 1.58 lakh hectres increase in land for non-agricultural uses is noted and this is the highest amount of land going to non-agricultural uses during last four decades.

3.2: Cropping pattern: Under the weight of commercialisation

Land use pattern indicates an overall trend but there are micro changes in the land use under different crops. The forces of commercialization, availability of technology and market trends are the main determinants of the changes in cropping pattern. One of the important factors, which determine the cropping pattern, is availability of irrigation. Owing to limited availability of irrigation, which is only around 17 percent of GCA as of today, rainfed crops have been predominantly cultivated in Maharashtra, as reported in Table 2.4. However, the cropping pattern of the state has changed considerably over the last 40 years. Area under cereal crops declined by nearly 12 percent points between TE 1962-63 (55.60 percent) and TE 2001-02 (59.44 percent) mainly because of substantial reduction in area under jowar, which is the important food grain crop of Maharashtra. Though the productivity of pulse crops has been lower in the state, the total area under pulse crops has increased from 12.60 percent in TE 1962-63 to 15.75 percent in TE 2001-02. As the alternative crops suitable to rainfed condition are not available, farmers continue to cultivate pulse crops predominantly in the state. Recently soyabean has been introduced in a strong way and large area has come under this crop. The varieties available are suitable to the regional characteristics and the prices are also quite attractive to the farmers. More than all this the system of marketing soyabean is well developed.

Table 3: Land use pattern in Maharashtra

(Area in '00 ha)

Particular	TE 1962-63	TE 1972-73	TE 1982-83	TE 1992-93	TE 2001-02
Reported area for LUS	307760 (100.00)	307583 (100.00)	307583 (100.00)	307583 (100.00)	307583 (100.00)
Forest	54213 (17.62)	53947 (17.54)	53291 (17.33)	51356 (16.70)	52959 (17.22)
Barren and Unculturable Land	17983 (5.84)	17866 (5.81)	17372 (5.65)	16159 (5.25)	17053 (5.54)
Land Under non Agricultural Use	7058 (2.29)	8810 (2.86)	10480 (3.41)	11477 (3.73)	13061 (4.25)
Cultivable waste Land	9233 (3.00)	13598 (4.42)	9924 (3.23)	9601 (3.12)	9024 (2.93)
Permanent Pastures and Grazing Land	14230 (4.62)	16557 (5.38)	15639 (5.08)	11476 (3.73)	13106 (4.26)
Land Under Misc. tree crops and grooves	1826 (0.59)	2049 (0.67)	2120 (0.69)	2905 (0.94)	2317 (0.75)
Current Fallow	11618 (3.78)	16282 (5.29)	6870 (2.23)	12067 (3.92)	11882 (3.86)
Other Fallow	11717 (3.81)	9225 (3.00)	12390 (4.03)	10942 (3.56)	11692 (3.80)
Net Area Sown	179890 (58.45)	169213 (55.01)	179498 (58.36)	181599 (59.04)	176489 (57.38)
Area Sown more than once	9793 (3.18)	10225 (3.32)	16726 (5.44)	29005 (9.43)	46805 (15.22)
Total Cropped Area	189689 (61.64)	179440 (58.34)	196224 (63.80)	210605 (68.47)	223294 (72.60)

Note: Figures in brackets are percentage to reported area.

Sources: GOM (various issues of *Season and Crop Report of Maharashtra State*); GOM (2003).

Table 4: Cropping pattern of Maharashtra state: TE 1962-63 to TE 2000-02

(Area in '00 ha)

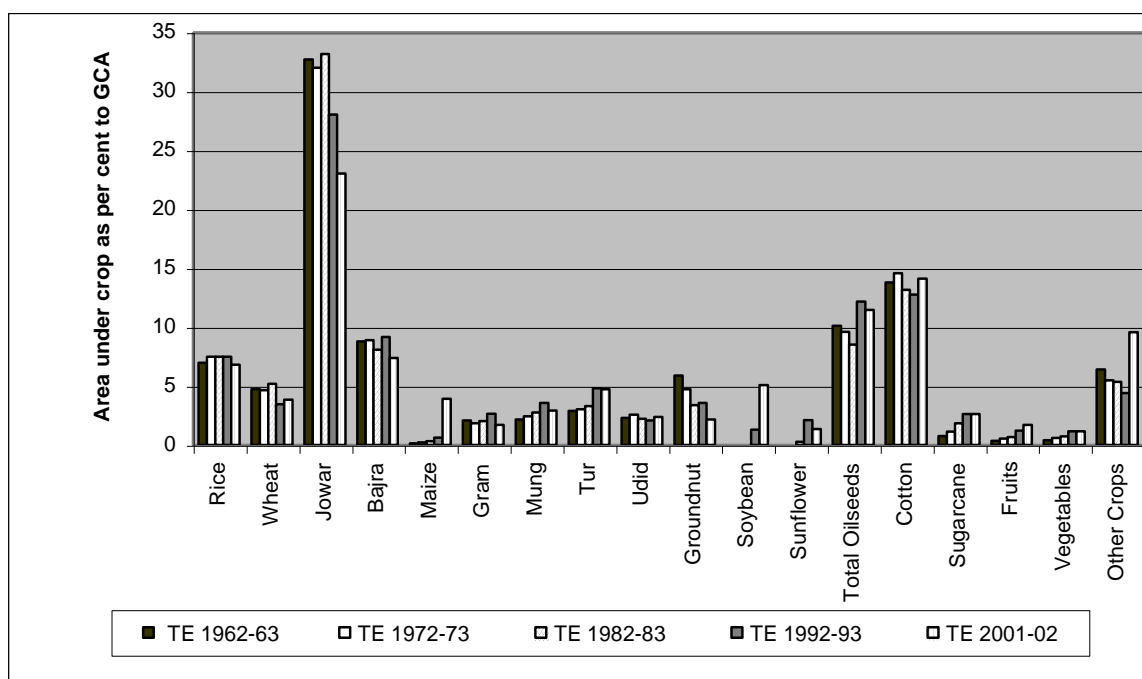
Crops	TE 1962-63		TE 1972-73		TE 1982-83		TE 1992-93		TE 2001-02	
	Area	% to GCA	Area	% to GCA	Area	% to GCA	Area	% to GCA	Area	% to GCA
Rice	13204	6.96	13393	7.46	14700	7.49	15805	7.50	15153	6.79
Wheat	8984	4.74	8334	4.64	10127	5.16	7319	3.48	8597	3.85
Jowar	62048	32.71	57379	31.98	65071	33.16	58961	28.00	51407	23.02
Bajra	16683	8.80	15935	8.88	15862	8.08	19234	9.13	16450	7.37
Maize	278	0.15	394	0.22	625	0.32	1297	0.62	8750	3.92
Total Cereals	105465	55.60	99067	55.21	110152	56.14	105733	50.20	97570	43.70
Gram	3929	2.07	3343	1.86	4013	2.04	5647	2.68	3770	1.69
Mung	4077	2.15	4338	2.42	5351	2.73	7540	3.58	6592*	2.95
Tur	5455	2.88	5442	3.03	6461	3.29	10100	4.80	10513	4.71
Udid	4352	2.29	4579	2.55	4344	2.21	4381	2.08	5298*	2.37
Total Pulses	23901	12.60	23242	12.95	26649	13.58	32414	15.39	35167	15.75
Total Foodgrains	129229	68.13	122309	68.16	136801	69.72	138153	65.60	132737	59.44
Groundnut	11155	5.88	8520	4.75	6610	3.37	7539	3.58	4867	2.18
Soybean	--	--	--	--	--	--	2729	1.30	11370	5.09
Sunflower	--	--	--	--	502	0.26	4436	2.11	3000	1.34
Total Oilseeds	19168	10.11	17220	9.60	16685	8.50	25657	12.18	25523	11.43
Cotton	26181	13.80	26075	14.53	25814	13.16	26849	12.75	31453	14.09
Sugarcane	1484	0.78	2010	1.12	3591	1.83	5542	2.63	5872	2.63
Fruits	708	0.37	936	0.52	1353	0.69	2562	1.22	3790*	1.70
Vegetables	802	0.42	1056	0.59	1455	0.74	2510	1.19	2633*	1.18
Other Crops	12110	6.38	9834	5.48	10525	5.36	9332	4.43	21285	9.53
GCA	189683	100.00	179440	100.00	196224	100.00	210605	100.00	223294	100.00

Notes: * relates to TE 1997-98.

Sources: GOM (2003, various issues of *Season and Crop Report of Maharashtra State*); GOM (various issues of *Economic Survey of Maharashtra*).

Oilseed crops such as groundnut, soyabean, etc., have also been cultivated predominantly in the state. Despite a significant reduction in area under groundnut, area under the total oilseed crops increased marginally (increased from 10.11 percent to 11.43 percent) between TE 1962-63 and TE 2001-02. This is mainly because of impressive increase in area under soyabean since early 1990s. Since both pulses and oilseeds are mainly cultivated under rainfed condition and also the state has enormous potential for cultivating these crops, the policy makers should give top priority for promoting the cultivation of these Cotton is another important crop predominantly cultivated under rainfed condition in the state. In spite of facing problems such as severe pest attack, increased cost of cultivation, low productivity and profitability, area under cotton has marginally increased between TE 1962-63 and TE 2001-02. This only shows that there is a tremendous potential for expanding the cultivation of cotton in the state. Measures such as introduction of pest resistance varieties (Bt cotton, etc.), improved cultivation practices, quality extension network and proper marketing network may help to improve the cultivation of cotton crop in the state.

Figure 2: Cropping pattern of Maharashtra state: TE 1962-63 to TE 2000-02



Despite severe water scarcity in the state, area under sugarcane has increased nearly four times between TE 1962-63 (1.48 lakh ha) and TE 2001-02 (5.87 lakh ha) in

the state. The share of sugarcane area in GCA has also increased from just 0.78 percent to 2.63 percent during this period. Though net returns per unit of water generated by sugarcane is very low when compared to most of the foodgrain crops, estimates show that this crop alone consumes nearly two-third of irrigation water available in the state (World Bank, 2002). Continued support of the sugar industries (through state government) encourages the farmers to cultivate this water intensive crop. Keeping in view the water balance of the state, strict rules need to be enacted to discourage the cultivation of sugarcane under flood or conventional method of irrigation.

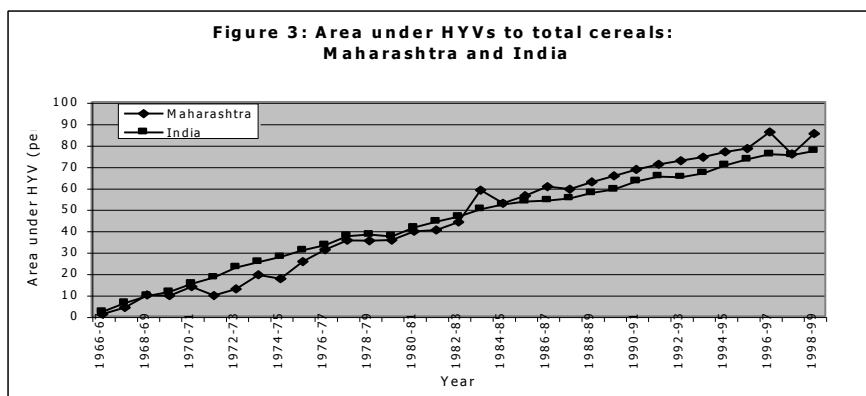
In an overall analysis, the process of commercialization is quite evident in the State of Maharashtra. The commercialization is in response to the market forces as well as the changing demand for the other crops. But in Maharashtra the public policy has caused very significant distortions in the cropping pattern. The centrally sponsored schemes of crop specific subsidies provoke changes in area allocation across crops. But all this is happening at the cost of the area under staple food grains of Maharashtra. Area under cereals has come down from 55.6 percent to 43.7 percent, so also the area share of total foodgrains which stands at 59.4 percent from 68.13 percent base. There is another strange argument supporting the reduction in the area under food grains and that rests on the increased area under High Yielding Varieties (HYVs). It is argued that even though the area under food grains has declined the shortage of production is made good by the area under HYVs. True, initially, in early seventies this process did take place but it lost its cadence during eighties.

3.3: Coverage of HYVs:

One of the indicators of level of adjustment in crop production is increasing the area under HYV. The use of HYVs is positively correlated with the availability of irrigation; farmers have been using the same even under rainfed condition because of the state led subsidy programmes, supported by extension network. While HYVs have been used for different crops including non-foodgrain crops, data on the coverage of HYVs for non-foodgrains are seldom available even at the micro level. This does not allow us to find out the extent of adoption of HYVs in various crops, especially in non-foodgrain crops.

Table 5 presents the coverage of HYVs in major cereal crops for Maharashtra state and all-India. It is evident from the table that despite having low irrigation facility and wide variation in rainfall across different regions in Maharashtra, the percentage

coverage of HYVs in cereal crops is found to be relatively higher in the state as compared to the national level average, especially since mid-eighties (see, Figure 3).



This shows that farmers of Maharashtra are fully aware of the importance of HYVs in crop cultivation, and the spread has slowed down in the post 1995. Relatively higher coverage of HYVs in cereal crops does not reflect in the productivity of the crops, which is a major concern of the agricultural sector of Maharashtra (productivity of different crops is discussed separately in the same chapter). This is mainly because of predominant cultivation of HYVs under rainfed condition, where moisture stress often affects the yield of crops substantially. By introducing drought resistance cum high yielding varieties in different crops, productivity of crops can be increased to a larger extent.

3.4: Production and Productivity of Crops:

Production of various crops has increased many fold in the state over the last forty years (see, Table 5). But the productivity of different crops is relatively lower in the state as compared to the all-India average, which is the major problem of Maharashtra's agriculture (see, Figure 4). As can be seen from Table 7, barring a few crops, productivity of all other crops is significantly lower in Maharashtra as compared to the all-India average. As mentioned earlier, cultivation of crops predominantly under rainfed condition is observed as the main reason by various studies (Sawant, et al., 1999; Dev, 1996). Crops such as jowar, groundnut and sugarcane have higher coverage of irrigation in Maharashtra and therefore, the productivity of these crops is relatively higher in the state.

Table 5: Production of important crops in Maharashtra

(Production '00' tonnes)

Crops	TE 1972-73	TE 1982-83	TE 1992-93	TE 2001-02
Rice	12711	22309	22840	23799
Jowar	15842	46686	53453	41967
Wheat	3955	8369	7789	11537
Bajra	4377	6459	12682	10173
Total Cereals	38946	87158	101444	94307
Tur	2263	3645	4565	7663
Gram	891	1411	2875	4671
Total Pulses	5635	9354	14113	19084
Foodgrains	44581	96512	115557	113391
Groundnuts	4328	5267	7590	5112
Safflower	1067	3996	4212	1451
Total Oilseeds	4381	10050	15757	23312
Sugarcane	150617	292520	352411	492830
Cotton	9135	14149	16407	25305

Sources: GOM (various issues of *Season and Crop Report of Maharashtra state*) and GOM (2003)

Farmers' income cannot be increased unless the productivity of crops is increased significantly. While it may not be possible to provide irrigation for the whole cropped area because of limited availability of irrigation potential in the state, moisture availability can be improved in the rainfed areas through rain water harvesting system and watershed development programmes. Needless to mention that watershed development programme under operation in different parts of the state has already made significant impact on productivity of crops by increasing the water availability. By expanding the watershed development programme in all potential areas in the state, not only the productivity of crops can be increased but the rural poverty can also be reduced in a sustained manner through agricultural growth.

Table 6: Area under HYVs in Maharashtra and India

(Percent)

Year	Maharashtra						India					
	Paddy	Jowar	Bajra	Maize	Wheat	Total Cereals	Paddy	Jowar	Bajra	Maize	Wheat	Total Cereals*
TE 1970-71	13.29	7.92	17.06	17.61	18.69	11.04	11.21	3.76	10.44	7.46	31.69	11.91
TE 1980-81	60.24	27.65	28.28	83.00	81.32	36.81	42.56	19.82	28.33	24.55	70.10	38.91
TE 1990-91	75.11	61.23	72.76	91.23	86.95	65.57	62.36	45.77	51.46	41.82	85.59	59.89
TE 2000-01 ^a	93.46	91.43	93.08	98.51	90.39	88.36	75.00	83.03	70.18	58.77	88.46	76.00

Notes: Figures are percentage to total area under the crop; * - 1990-91 onwards total area under cereals includes ragi for India.

a - India figures relate to TE 1998-99

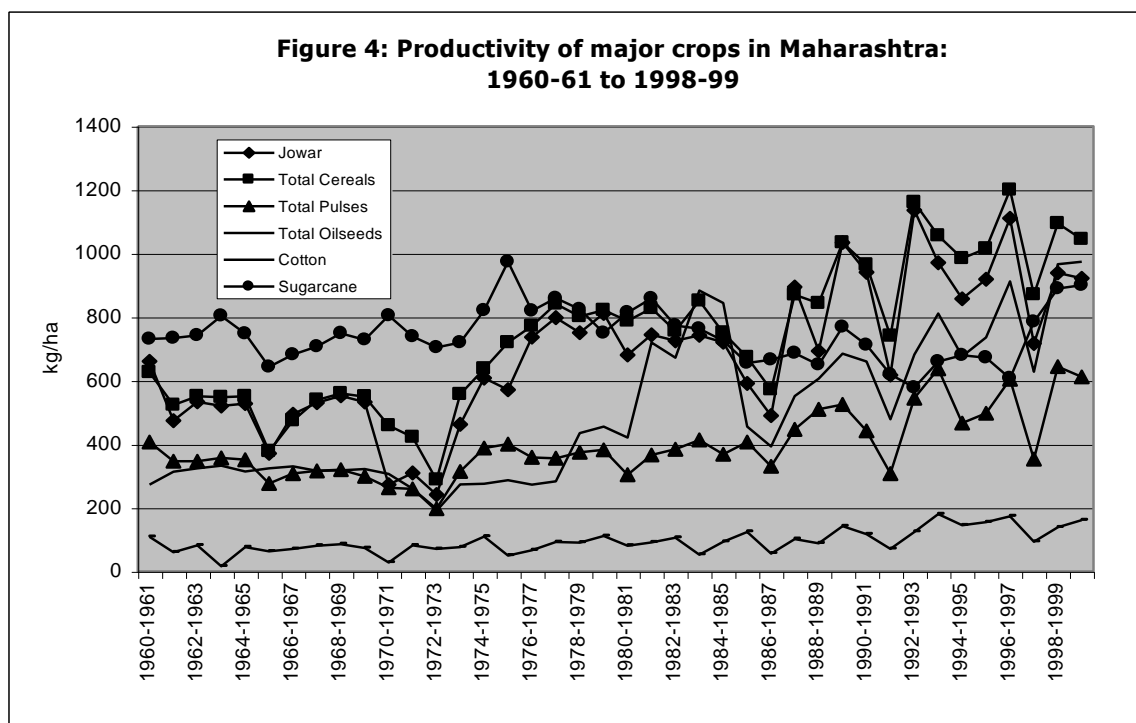
Sources: GOM (2003); FAI (2003).

Table 7: Crop productivity of Maharashtra and India

Crops	Productivity (Kg/ha) 2001-02		Relative Productivity of Maharashtra (%)
	Maharashtra	India	
Rice	1751	2086	83.94
Wheat	1388	2770	50.11
Jowar	761	785	96.94
Bajra	594	875	67.89
Maize	1804	2018	89.40
Total Pulses	555	609	91.13
Tur	757	681	111.16
Gram	594	865	68.67
Foodgrains	874	1739	50.26
Total Oilseed	943	913	103.29
Groundnut	1147	1125	101.96
Soybean	1254	941	133.26
Sunflower	482	606	79.54
Cotton	147	149	98.66
Sugarcane	78097	68154	114.59

Note: Relative productivity is the ratio of Maharashtra' S Productivity of the crop to that of India's average.

Source: <http://agricoop.nic.in>



On the policy front also the State plan expenditure on agricultural sector as the share of total expenditure is declining over plan periods. Plan expenditures from three

heads namely (a) agriculture and allied activities, (b) rural development, (c) irrigation and flood control generally have a direct bearing on agricultural growth. Table 8 presents the sectoral distribution of plan expenditure during different plan periods in Maharashtra. Altogether from third plan to ninth plan period, about Rs. 38150 crore (in current prices) have been spent on the above mentioned three heads. Though these three heads altogether accounted for about 41 percent in the total plan expenditure from third plan to ninth plan period, the share of agriculture and allied services has sharply declined. Including rural Development, it was about 31 percent during third plan and by ninth plan this has slid down sharply to 14 percent. During the last plan the agricultural sector could get only about 4.98 percent of the total expenditure (see table 8).. A similar trend is also noticed at the national level, where the share of agriculture and allied services has declined from 12.7 percent to 4.9 percent during the same period. Unlike the agriculture and allied services, the plan expenditure in irrigation and flood control has sharply increased from 14.92 percent in third plan to nearly 30 percent in ninth plan in Maharashtra. This is in contrast to the national level picture, where the same share has declined from 7.8 percent to 6.5 percent during this period. The expenditure on irrigation sector however, has increased substantially. But not to say that the area under irrigation during this phase has increased with a similar growth rate nor the productivity under irrigated agriculture. In fact the productivity of these crops has clearly stagnated during the last plan period.

IV: Irrigation, Watershed and Horticulture: The Drivers

It is true that in the State like Maharashtra, investment in agriculture is essential for increasing as well as sustaining the overall growth of agriculture. Public sector investment in agriculture also stimulates private sector investment, as has been proved by various studies in India (see, Rath 1989; Mishra and Chand 1995; Dhawan 1998). Considering the vast rainfed cultivated areas and also the importance of irrigation in agricultural growth, the state government has been giving top priority to exploit the available irrigation potential.

Table 8: Sectoral distribution of plan expenditure in the five year plans of Maharashtra state

(Rs. in Crore)

Sr. No	Five Year Plan Schemes	Agriculture and Allied Services	Rural Development	Irrigation and Flood Control	Power Development	Industry and Minerals	Transport and Communication	Others	Total (3 to 9)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	3 rd Plan (1961-66)	134.21 (30.87)	-- --	64.85 (14.92)	93.91 (21.60)	14.81 (3.41)	37.45 (8.61)	89.50 (20.59)	434.73 (100.00)
2	4 th Plan (1969-74)	221.71 (22.07)	-- --	165.96 (16.52)	283.64 (28.24)	39.62 (3.94)	81.08 (8.07)	212.50 (21.15)	1004.51 (100.00)
3	5 th Plan (1974-79)	343.32 (12.91)	-- --	501.54 (18.85)	910.39 (34.22)	105.69 (3.97)	220.08 (8.27)	579.11 (21.77)	2660.13 (100.00)
4	6 th Plan (1980-85)	393.38 (6.01)	894.94 (13.66)	1437.44 (21.95)	1734.76 (26.49)	255.31 (3.90)	422.81 (6.46)	1410.75 (21.54)	6549.39 (100.00)
5	7 th Plan (1985-90)	614.39 (5.56)	1575.86 (14.27)	2239.53 (20.28)	2835.39 (25.67)	420.25 (3.81)	585.77 (5.30)	2773.31 (25.11)	11044.50 (100.00)
6	8 th Plan (1992-97)	1470.60 (5.71)	2836.44 (11.01)	5668.34 (22.01)	5864.09 (22.77)	941.89 (3.66)	2015.36 (7.83)	6954.94 (27.01)	25751.66 (100.00)
7	9 th Plan (1997-2002)	2247.89 (4.98)	3901.95 (8.65)	13437.69 (29.78)	6881.79 (15.25)	1109.77 (2.46)	4183.55 (9.27)	13362.36 (29.61)	45125.00 (100.00)
	Total (3 rd to 9 th Plan)	5425.5 (5.86)	9209.19 (9.95)	23515.35 (25.40)	18603.97 (20.10)	2887.34 (3.12)	7546.10 (8.15)	25382.47 (27.42)	92569.92 (100.00)

Note: Figures in brackets are percentage to total.

This naturally requires more investment and therefore, investment in irrigation and flood control has increased substantially over the plan periods in Maharashtra. One needs to study how far this investment in irrigation has translated into irrigated area in the state. On the whole, unlike the national level picture, the total share of investment in agriculture and irrigation development has been increasing across different plan periods in the state.

Maharashtra has taken the initial strides in Watershed development and the experiments of Ralegan Siddhi, German Project and Adgaon were the torch bearers. But from the State sector it has totally failed the farmers and the expenditure on watershed development could not justify even reducing the instability. Despite having a large share of rainfed areas dominating the agricultural sector and drought-prone areas spread over thirteen districts the State policy seems to have by passed the problems of these regions. In contrast the Krishna Valley Development was taken on priority with huge public borrowing. The distortions in the cropping pattern and preference towards new crops emerged out of the initiatives in irrigation and a direct neglect of rainfed areas. A direct negative externality inflicted by the over-emphasis on irrigated agriculture is the neglect of rainfed crops in terms of area, investment, technology and post-harvest processing. Somewhat similar is the situation about the big push on horticulture. State programme on subsidies on horticultural crops brought in areas under horticulture but without backward and forward linkages.

4.1: Irrigation Development: Saviour or Villain

Considering the predominant nature of rainfed cultivation and wide variation in rainfall across regions, emphasis has been given for the development of irrigation in the state since independence. Area under irrigation (GIA) increased from 1.24 mha in TE 1962-63 to 3.66 mha in TE 2000-01 in Maharashtra, an increase of about 2.89 percent per annum (see, Table 9). However, the utilisation percentage of irrigation is very low in the state. As of June 2000, about 4.769 million hectares of irrigation potential has been created in the state. Of this, only about 34.7 percent (1.654 mha) has been utilised. This is very low as compared to the utilisation percentage of the national level, which was about 89.45 percent at the end of Eighth Plan. Inadequate availability of funds for developing hardware aspects of irrigation such as construction of main canals and distribution systems are often cited as the reasons for low utilisation. The fact however

remains that irrigation sources created are either misused or not used and the responsibility cannot be shifted on the shoulders of flimsy reasons.

In terms of investment on irrigation, Maharashtra state stands on the high side of the ladder across the States in India. Up to ninth plan period, for which we have comparable data, altogether Rs. 236.22 billion (in current prices) has been spent only on irrigation development. This accounted for over 17.36 percent of the country's total investment on irrigation, which is about Rs. 1360.65 billion, excluding investment on CADA and flood control. As a result of large investment on irrigation, Maharashtra state accounts for about 34 percent (1229 dams) of the total number of large dams constructed in the country, as per the latest information available from CWC (2002). But still the State is one of the low irrigated regions. Despite having largest number of dams and also storage (second highest in the country) capacity of 22.10 cubic km from the completed projects, in terms of achievements, the proportion of cultivated area under irrigation is only about 17 percent of gross cropped area (GCA) as of today, which is one of the lowest among the states in the country. We could see hardly any relationship between investment and area created across plan periods. During the sixth plan period, the state has spent Rs. 11.87 billion on MMI and created about 0.507 mha, by spending only about Rs. 23416/ha. But this has changed during seventh and eighth plan periods. With an investment of Rs. 23.92 billion during eighth plan period, the state could create only about 0.283 mha from MMI source. This means that the average investment required to create one hectare of irrigation increased to Rs. 84505 during eighth plan period. Incompletion of projects in time due to paucity of funds is identified as the main reason for poor cost efficiency (see, Gulati et al, 1994; Abbie et al, 1982; Deshpande and Narayanamoorthy, 2001). One of the important reasons for the less proportion of irrigated area is that two-third of water available in the state is used only for sugarcane, which accounts for less than three percent of gross irrigated area in the state. Thus, it is clear that irrigation water is not used judiciously in the state. The externality is however, suffered by the rainfed areas and the low density crops in terms of diversion of area to other crops.

Table 9: Trends in Irrigated Area - Maharashtra and India

(Area in mha)

Period	SIA		WIA		NIA		GIA	
	Maha	India	Maha	India	Maha	India	Maha	India
TE 1962-63	0.48 (44.04)	17.64 (69.29)	0.61 (55.96)	7.43 (29.64)	1.09 (100)	25.07 (100)	1.24	28.63
TE 1972-73	0.58 (43.61)	19.12 (60.70)	0.75 (56.39)	12.38 (39.28)	1.33 (100)	31.49 (100)	1.55	38.56
TE 1982-83	0.79 (41.36)	21.38 (53.49)	1.12 (58.64)	18.59 (46.51)	1.91 (100)	39.97 (100)	2.44	51.01
TE 1992-93	0.97 (36.06)	23.18 (46.93)	1.71 (63.94)	25.88 (53.08)	2.69 (100)	49.39 (100)	3.28	65.22
TE 2000-01	1.05 (35.35)	23.89* (42.87)	1.92 (64.65)	31.84* (57.13)	2.97 (100)	55.73* (100)	3.66	73.93*

Notes: * - relates to TE 1998-99; SIA – surface irrigated area; WIA – well irrigated area.:

Figures in brackets are percentages to net irrigated area (NIA).

Sources: GOI (various issues); GOM (various issues of *Season and Crop Report of Maharashtra State and Districtwise Agricultural Statistical Information of Maharashtra State*); FAI (2002).

Table 10: Sectoral distribution of plan expenditure in the five year plans of Maharashtra state

(Rs. in Crore)

Sr. No	Five Year Plan Schemes	Agriculture and Allied Services	Rural Development	Irrigation and Flood Control	Power Development	Industry and Minerals	Transport and Communication	Others	Total (3 to 9)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	3 rd Plan (1961-66)	134.21 (30.87)	-- --	64.85 (14.92)	93.91 (21.60)	14.81 (3.41)	37.45 (8.61)	89.50 (20.59)	434.73 (100.00)
2	4 th Plan (1969-74)	221.71 (22.07)	-- --	165.96 (16.52)	283.64 (28.24)	39.62 (3.94)	81.08 (8.07)	212.50 (21.15)	1004.51 (100.00)
3	5 th Plan (1974-79)	343.32 (12.91)	-- --	501.54 (18.85)	910.39 (34.22)	105.69 (3.97)	220.08 (8.27)	579.11 (21.77)	2660.13 (100.00)
4	6 th Plan (1980-85)	393.38 (6.01)	894.94 (13.66)	1437.44 (21.95)	1734.76 (26.49)	255.31 (3.90)	422.81 (6.46)	1410.75 (21.54)	6549.39 (100.00)
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	Total (3 rd to 9 th Plan)	5425.5 (5.86)	9209.19 (9.95)	23515.35 (25.40)	18603.97 (20.10)	2887.34 (3.12)	7546.10 (8.15)	25382.47 (27.42)	92569.92 (100.00)

Note: Figures in brackets are percentage to total.; Source: GOM (2002).

IV. Marginalising Peasantry:

Land reforms in Maharashtra were not as successful as in Kerala or in West Bengal and that created puzzling results in the agrarian structure. (Deshpande, 1998). About 13 enactments were included to eliminate landed intermediaries in Maharashtra and that the discussion on the limits to land holding was long drawn, with interests of the polity entrenched with the implementation. The tenancy abolition was plagued with a large number of loopholes and the Government of Maharashtra declared 1st April 1957 as 'Tillers Day' (Quite ironic is it not!). As a result the land holding pattern of Maharashtra state is emerged different from the all-India level. Though the proportion of marginal and small holdings has been increasing both at the state and the national level, the share of these groups in the total number of holdings is relatively lower in Maharashtra as compared to all-India level (see, Table 11). For instance, during 1990-91, marginal and small holdings accounted for about 63 percent of the total holdings in Maharashtra, whereas, the same group accounted for nearly 78 percent at the all-India level. This means that marginal and small farmers are relatively lower in Maharashtra as compared to the all-India level. An interesting fact emerging from Table 11 is that there is a sharp reduction in large holdings in Maharashtra (from 10.38 percent in 1970-71 to 1.80 percent in 1990-91) as compared to the trend observed at the all-India level.

Across social groups, Deshpande (1998) observed marginal improvement in the land holding among the STs of the Maharashtra during 1980-81 to 1990-91. However, more than sixty per cent of the tribal farmers are marginal and small. The agriculture of the tribal farmers is mostly subsistence level due to the lack of the infrastructure facilities and required inputs. Further, he pointed out that the land reform is naïve without improving their resource base and skill. Similarly, the per cent of the marginal and small farmers belongs to the tribals increased during 1995-96. Similar pattern has been observed among the SCs. However, the per cent of marginal and small farmers among SCs is higher than STs.

Five important observations emerge out of the analysis of the changes in agrarian structure of Maharashtra. First, the number of marginal and small farmer is increasing at a faster rate than explainable by demographic changes. The shrinking size of holding is steadily imposing non-viability on the peasants. This is enhanced by the increasing cost of cultivation and the technology. Second, the non-viability small size of holding

compelled the peasants to undertake commercial crops. They were attracted towards the new crops and varieties least recognising the market led instability in these. Third, the land market was more in favour of the large owners and that created the marginalization of the farmers from weaker sections. Large number of farmers from socially deprived castes lost land under the pressure of this non-viability and non-affordable technology. Four, The restrictions on tenancy created an under-cover tenancy market and this is fiercely exploitative than the tenant exploitation existing before the abolition of tenancy. The small tenants neither can claim benefits from the State led schemes nor they can abandon cultivation (Like a Marathi proverb "Mother does not allow to eat and father is prohibiting begging!"). Last, the large land owners and corporate sector struck exactly on this red hot critical situation by offering good price to the land. When cultivation is not even allowing bare survival, the peasants were left with no other choice than selling the land at the 'Attractive' price and join the band of landless labourers. The census of Maharashtra clearly shows increase in agricultural labourers disproportionate to the expected demographic trends.

Table 12: Size class wise percentage distribution of number of operational holdings and area operated among weaker section in Maharashtra

Size Class	No. of Operational Holding				Area Operated			
	SC		ST		SC		ST	
	1990-91	1995-96	1990-91	1995-96	1990-91	1995-96	1990-91	1995-96
Marginal	43.8	48.0	27.3	30.8	12.3	15.3	6.2	7.7
Small	29.7	29.7	33.9	32.4	25.7	28.7	19.2	21.6
Semi-medium	18.4	16.2	24.9	24.0	29.9	29.4	28.2	30.2
Medium	7.4	5.5	14.2	11.4	25.2	21.1	34.3	30.2
Large	0.8	0.6	2	1.5	6.7	5.6	12.1	10.3
Total	100.0	100.0	100	100.0	100.0	100.0	100.0	100.0

Sources: Agricultural Census of India

Table 11: Size class wise percentage distribution of number of operational holdings and area operated in Maharashtra and India

Size Class	Maharashtra						India					
	Distribution of number of holdings			Distribution of area operated			Distribution of number of holdings			Distribution of area operated		
	1970-71	1980-81	1990-91	1970-71	1980-81	1990-91	1970-71	1980-81	1990-91	1970-71	1980-81	1990-91
Marginal (Below 1.0 ha)	25.09	28.06	34.58	2.73	4.56	7.73	50.62	56.39	58.99	8.97	12.05	14.87
Small (1.00-1.99 ha)	17.74	22.45	28.80	6.06	10.92	19.04	19.05	18.08	18.97	11.89	14.15	17.34
Semi Medium (2.00-3.99 ha)	21.96	24.57	22.45	14.78	22.55	28.10	15.15	14.01	13.21	18.50	21.15	23.16
Medium (4.00 -9.99 ha)	24.83	20.28	12.37	36.44	39.55	32.77	11.25	9.08	7.25	29.75	29.63	27.20
Large (10.00 & above)	10.38	4.64	1.80	39.99	22.41	12.37	3.93	2.44	1.59	30.88	23.02	17.45
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Average Size	-	-	-	4.28	3.11	2.21	-	-	-	2.30	1.84	1.57

Sources: GOM (2003) and CMIE (2001).

Figure 5: Size class wise percentage distribution of number of operational holdings in Maharashtra and India

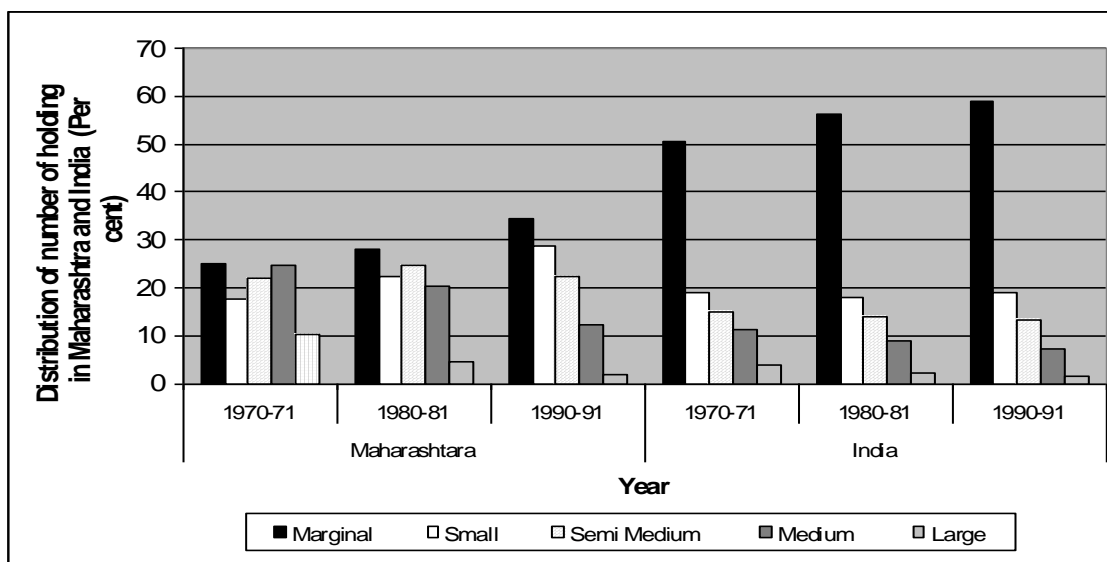
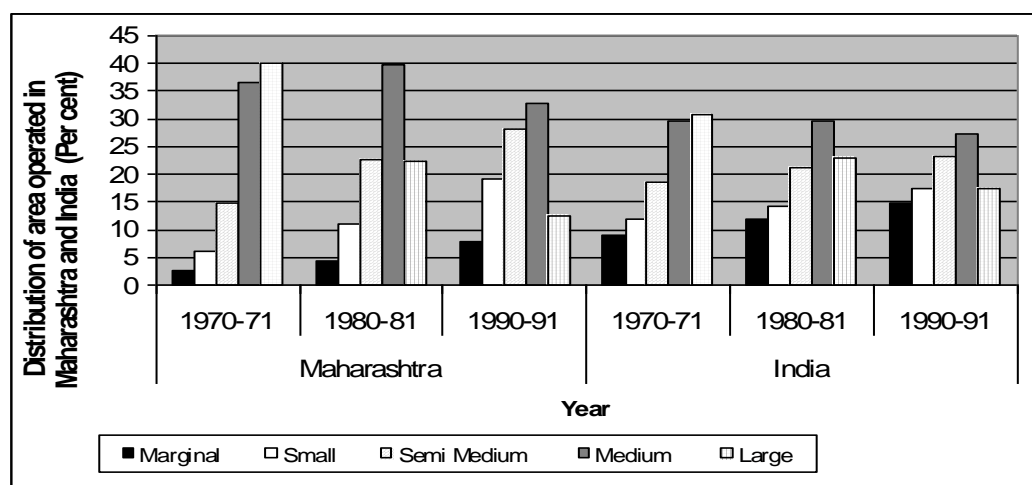


Figure 6: Size class wise percentage distribution of area operated in Maharashtra and India



V. Conclusions

The agricultural sector in Maharashtra is at crossroads, and this process of acute distress in the sector is not new, nor of recent origin. Long term continued neglect on the policy front and misplaced priorities have brought the sector in to the current distressful situation. Presently the distress is located only in one region of Maharashtra, but it will not take longer to spread it across the state. Right from the days of reorganization, the policy has always been truncated in the state in favour of certain regions and groups of farmers. Not recognising that the major portion of the state is under rainfed condition

and the state has a dubious distinction of being one of the most drought-prone and least irrigated states in the country. The policy emphasised irrigation and irrigation alone, by putting large amount of scarce resources in this unyielding sector. There are no two opinions that irrigation has helped sugarcane development in Maharashtra but it is also undoubtedly true that the very sugar economy feeds only haves and neglects have-nots. As a result of the truncated policy, the share of State Domestic Product originating from agriculture is sliding down at a faster rate than the labour force in the agricultural sector. As a result, the carrying capacity of agricultural sector and the dependency on the agricultural land has been increasing. Marginalisation of peasantry is the most expected outcome of such policy. This is reflected in the land use trends in the state. It is a shocking that large chunk of agricultural land (about two lakh hectares) is going out of the sector and marginal lands are coming under cultivation. The increase in the land going to nonagricultural uses as reflected even from the secondary data is a matter of deep concern. But all this happened, mainly due to the policy of marginalising the peasantry under the pressure of technology and market discrimination on one side, whereas, increasing cost of cultivation through input prices on the other. The non-viability of the small and marginal farmers compels them to get out of cultivation as a profession. At this juncture any attractive offer of the price of the land induces the farmer to get rid of the land and join the folds of agricultural labour. Demographic trends have clearly indicated such transformation. More than that, even the primary level data and newspaper reports very clearly indicate land going out of agricultural sector. This trend unfortunately originated at the doorstep of the policy which prominently includes discrimination in the market, misdirected technological options and the heavy pressure of commercialisation. Land reforms did harm along with little use to the state, and that calls for looking into the land policy a fresh. Being a very progressive state, Maharashtra has surprisingly not attempted any long-term land policy unlike Karnataka. It is time now, not to have patchy solutions for the distress of the farmers, but a long-term policy thinking that will go at least for the next decade, and includes market, technology, land and input delivery system as the major determinants.

References

- Abbie, L; J.Q. Harrison and J.M. Wall (1982), *Economic Returns to Investment in Irrigation in India*, World Bank Staff Working Papers No. 336, The World Bank, Washington, D.C., U.S.A.
- Bhandari, Laveesh and Sumita Kale (2007). "Maharashtra: Performance, Facts and Figures", *Dorling Kindersley*, New Delhi, India.
- CMIE (2001, 2004), *Agriculture*, Centre for Monitoring Indian Economy Pvt. Ltd., Mumbai.
- Deshpande R S (1998). Land Reforms and Agrarian Structure in Maharashtra, *Journal of Indian School of Political Economy, VolX No. 1.*

- Deshpande R. S. and A. Narayanamoorthy (2001) "Issues before the Second Irrigation Commission of Maharashtra", *Economic and Political Weekly*, Vol. 36, No.12, March, pp. 1034-1043.
- Dev, Mahendra (1996), *Agricultural Policy Framework for Maharashtra - Issues and Options*, Proceeding/Projects Report, July, Indira Gandhi Institute of Development Research, Mumbai.
- Dhawan, B. D. (1998), *Studies in Agricultural Investments and Rural Savings*, Commonwealth Publications, New Delhi.
- FAI (2002, 2003), *Fertiliser Statistics*, Fertilisers Association of India, New Delhi.
- Fisher, T; V. Mahajan and A. Singha (1997), *The Forgotten Sector: Non-Farm Employment Enterprises in Rural India*, Oxford and IBH Publishing Company Private Limited, New Delhi.
- GOI (1981,1991), *Primary Census Abstract*, Census of India, Registrar General, New Delhi.
- GOI (2001). *Approach to the Tenth Five Year Plan*, Planning Commission, New Delhi.
- GOI (various years), *Area and Production of Principal Crops in India*, Ministry of Agriculture, Government of India, New Delhi.
- GOM (2002). "Maharashtra Human Development Report", Government of Maharashtra, Mumbai.
- GOM (2003), *Tenth Five Year Plan, 2002-2007 and Annual Plan, 2002-2003, Maharashtra State*, Planning Department, Government of Maharashtra, Mumbai.
- GOM (various years), *Districtwise Agricultural Statistical Information of Maharashtra State*, Part I and II, Commissionerate of Agriculture, Maharashtra State, Pune
- GOM (various years), *Economic Survey of Maharashtra*, Directorate of Economics and Statistics, Planning Department, Government of Maharashtra, Mumbai.
- GOM (various years), *Season and Crop Report of Maharashtra State*, Commissionerate of Agriculture, Maharashtra State, Pune.
- Gulati, Ashok; Mark Svendsen; Nandini Roy Choudhury (1994), "Major and Medium Irrigation Schemes: Towards Better Financial Performance", *Economic and Political Weekly*, Vol. 29, No. 26, pp. A72-A79.
- Hazell; Peter B.R. and S. Haggblade (1991), "Rural-Urban Growth Linkages in India", *Indian Journal of Agricultural Economics*, Vol. 46, No.4, October-December, pp. 515-529.
- Mahendra Dev (1996), *Agricultural Policy Framework for Maharashtra - Issues and Options*, Proceeding/Projects Report, July, Indira Gandhi Institute of Development Research, Mumbai.
- Mishra, S.N. and Ramesh Chand (1995), "Public and Private Capital Formation in Indian Agriculture: Comments on the Complementarily Hypothesis and Others", *Economic and Political Weekly*, Vol. 30, No. 25, June, pp. A65-79.
- Narayanamoorthy, A. (2002), "Indian Irrigation: Five Decades of Development", *Water Resources Journal*, No.212, June, pp. 1-29.
- Rath, Nilakantha (1989), "Agricultural Growth and Investment in India ", *Journal of Indian School of Political Economy*, Vol. 1, No. 1, January-June, pp. 64-83.
- Sawant, S.D.; B.N. Kulkarni; C.V. Achuthan and K.J.S. Satyasai (1999), Agricultural Development in Maharashtra - Problems and Prospects, Occasional Paper 7, *National Bank for Agriculture and Rural Development, Mumbai*.
- Vasaria, Pravin (1995), "Rural Non-Farm Employment in India: Trends and Issues for Research", *Indian Journal of Agricultural Economics*, Vol. 50, No. 3, July-September, pp. 398-409.
- World Bank (2002), *INDIA, Maharashtra: Reorienting Government to Facilitate Growth and Reduce Poverty*, Vol. I and II, Report No. 25053-IN, Poverty Reduction and Economic Management Unit, South Asia Region, USA.

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