



MICRO LEVEL STUDY OF LONG TERM GROWTH RATE AND SHORT TERM GROWTH RATE OF AGRICULTURAL PRODUCTIVITY IN MADHYA PRADESH (YEAR 1970-71 TO YEAR 2003-2004)

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ABSTRACT:

To meet out the increasing demand of the growing population it is an urgent need to develop our agricultural resources. There are two ways to increase the production from agriculture: (i) horizontal expansion in the agriculture, and (ii) the intensification. There is a remote possibility of horizontal expansion in the state; therefore intensification in the agriculture is now only alternative to increase the production. Several efforts have been made out to raise the per unit the productivity and overall production from agriculture in the state during last five decades. The state has recorded a significant progress both in the productivity and production. Madhya Pradesh was one of the backward states of the country in terms of the agricultural production before 1957, and there was an acute shortage of food for the people (Mishra, 1989). After 1960, this state has achieved a sufficient progress in the production of food grains, oilseeds, vegetables and fruits, and therefore the state has become one of the surplus producers of the country. But, in recent decade water has become one of the major deciding factors for this improvement. There is a scarcity of water in the state and it has direct impact on the use of agricultural inputs and indirect impact on the production. (Mishra, R. P. 1989).

KEYWORDS:

HORIZONTAL, PRODUCTIVITY, PRODUCTION, FACTORS, IMPACT, PROGRES.

INTRODUCTION:-

This state has occupied more than one-tenth (11.8 %) cultivated land under major crops and produce only 6.2 per cent of the country during the year 2002-03. The lower agricultural production is an indication of lower productivity. The average per unit productivity of food grains in the state is 944 kg/hectare, which is about 60 per cent of the country's productivity of food grains 1562 kg/hectare. Moreover, the state has occupied 7.9 per cent area of the cereals of the country and produce only 4.9 per cent of the country during the year 2002-03, this situation is because of lower productivity in the state. The productivity of cereals in the state is 1154 kg/hectare and it is 1863 kg/hectare in the country. But, the productivity of pulses is relatively higher in the state i.e. 103.4 per cent of the country. The productivity of pulses in the state is 576 kg/hectare while it is 556 kg/hectare in the country. The state has occupied 20.6 per cent area of the pulses of the country and produce 21.3 per cent of the pulses of the country during the year 2002-03. Thus, it is therefore concluded that this state has occupied more cultivated area and produce less, because of lower productivity (Enyedi, G. Y. 1964).

The yield rate of different crops, except maize and jowar, is lower than that of the average of the country. It is much lower in the case of rice, wheat and barley; while it is little lower in gram, tur, groundnut, and soybeans. Moreover, the yield rate of food grains has recorded 944 kg/hectare which is about 60 per cent lower than that of the average of the country (1562 kg/hectare). It is 1154 kg/hectare for cereals, 575 kg/hectare for pulses and 611 kg/hectare for

the oilseeds (Jain, C. K. 1988). The yield rate of cereals is about 38 per cent lower than the average of the country (1863 kg/hectare) it is 3.4 per cent higher in the pulses and for oilseeds (611kg/hectare) it is about 14 lower than the average of the country (710 kg/hectare).

The highest per unit productivity has been recorded by maize (1751 kg/hectare) followed by wheat (1520 kg/hectare) and barley (1257 kg/hectare). The per unit productivity of paddy is the lowest (646 kg/hectare), it is only 35.8 per cent of the average of the country (1804 kg/hectare). Among the pulses the highest per unit productivity has been recorded by gram (694 kg/hectare) and followed by tur (614 kg/hectare). (*Agriculture Statistics, 1973, 2005 Madhya Pradesh, Bhopal*).

DATA AND METHOD:-

The productivity level has been measured by the analysis of per unit yield rate, Ranking Coefficient method of Kendall, Index of Productivity, and Carrying Capacity of Land (SNU). For the measurement of agricultural productivity the data have been obtained from the agricultural statistics, Madhya Pradesh, Bhopal (1973 and 2005).

OBJECTIVES

- I. To know the level and trends in the agricultural Productivity.
- II. To analyse the agricultural Productivity of the dimensions of district level such as land use pattern.
- III. Adoption of farm technology and development.

STUDY AREA:-

In this paper, I have covered area of agriculture production of Madhya Pradesh. Under the field of study and have mainly done the field of agricultural productivity of Madhya Pradesh.

RESULTS:-

The result thus obtained would be index of productivity as percentage of state average. The average productivity of food grains in the state is about 943 kg/hectare, it ranges from 436 kg/hectare in Damoh district to 1803 kg/hectare in Hoshangabad district during 2002-03. The average productivity of food grains in the state has recorded 65.5 per cent increase during 1970-71 to 2002-03, from 570 kg/hectare to 943 kg/hectare. More than 91 per cent districts (41 districts) have recorded increase in the productivity, and the remaining 9 per cent districts (4 districts) have recorded decrease in the productivity during 1970-71 to 2002-03. They are Balaghat, Guna, Sagar and Damoh, where the productivity of food grains has decreased during the period (Mishra, R. P. 2006).

During 2002-03, out of the total districts, 26 districts (58 %) have recorded higher productivity than that of the

average of the state (943 kg/hectare). Among these districts, 23 districts have recorded very high productivity and remaining three districts have recorded high productivity. Moreover, two districts (Hoshangabad and Harda) have recorded extremely high productivity, i.e. 1803 kg/hectare and 1744 kg/hectare respectively (Shafi, M. 1968).

On the other hand, about 19 districts (42 %) districts have recorded low and very low productivity when comparison made with the state's average and remaining three districts have recorded high productivity. Out of these districts, three have recorded the lowest productivity, i.e. below 500 kg/hectare. They are Guna (496 kg/hectare), Damoh (437 kg/hectare) and Sagar (446 kg/hectare). There are four districts which have very low productivity; they are Shahdol (545 kg/hectare), Katni (530 kg/hectare), Dindori (516 kg/hectare) and Umaria (507 kg/hectare). Spatially, the Malwa plateau, the Nimar uplands, the Chhindwara plateau and the Madhya Bharat plateau have recorded high and very high productivity in terms of per unit area. On the other hand, most of the eastern plateau region and north central parts have low and very low yield rate in the state

TABLE-1

**COMPOUND GROWTH RATE (CGR) OF PRODUCTIVITY (YIELD RATE) IN MADHYA PRADESH
1970-71 TO 2003-2004 (KG/HECTARE)**

CROPS	LONG TERM GROWTH RATE 1970-71 TO 2003-04			SHORT TERM GROWTH RATE 1990-91 TO 2003-04		
	1970-71	2003-04	CGR (%)	1990-91	2003-04	CGR (%)
WHEAT	763	1867	2.75	1536	1867	1.51
RICE	694	1058	1.29	922	1058	1.06
JOWAR	611	1342	2.41	904	1342	3.09
BAJRA	638	1397	2.40	883	1397	3.59
MAIZE	999	2072	2.24	1447	2072	2.80
GRAM	528	932	1.74	792	932	1.26
FOOD GRAINS	617	2552	2.17	1018	2552	1.60
GROUNDNUT	716	1154	1.46	770	1154	3.16
MUSTARD	291	1009	3.84	902	1009	0.87
SOYBEANS	406	1132	3.16	1016	1132	0.84
COTTON	301	557	1.88	333	557	4.04
TOTAL	6564	15072	25.34	10523	15072	23.82

Source : Calculated and compiled on the basis of data obtained from *Agricultural Statistics, M. P., Bhopal, 1973* and *Compendium of Agricultural Statistics, M. P., Bhopal, 2003-04*.

Manifold in the category explain the long term growth rate and the type of growth rate related to different crops of m.p. in the context of Year 1970-71 to Year 2003-2004 in which I have described the compound growth rate of both

FIGURE-1
 AGRICULTURAL PRODUCTIVITY IN MADHYA PRADESH (YEAR 2002-03)

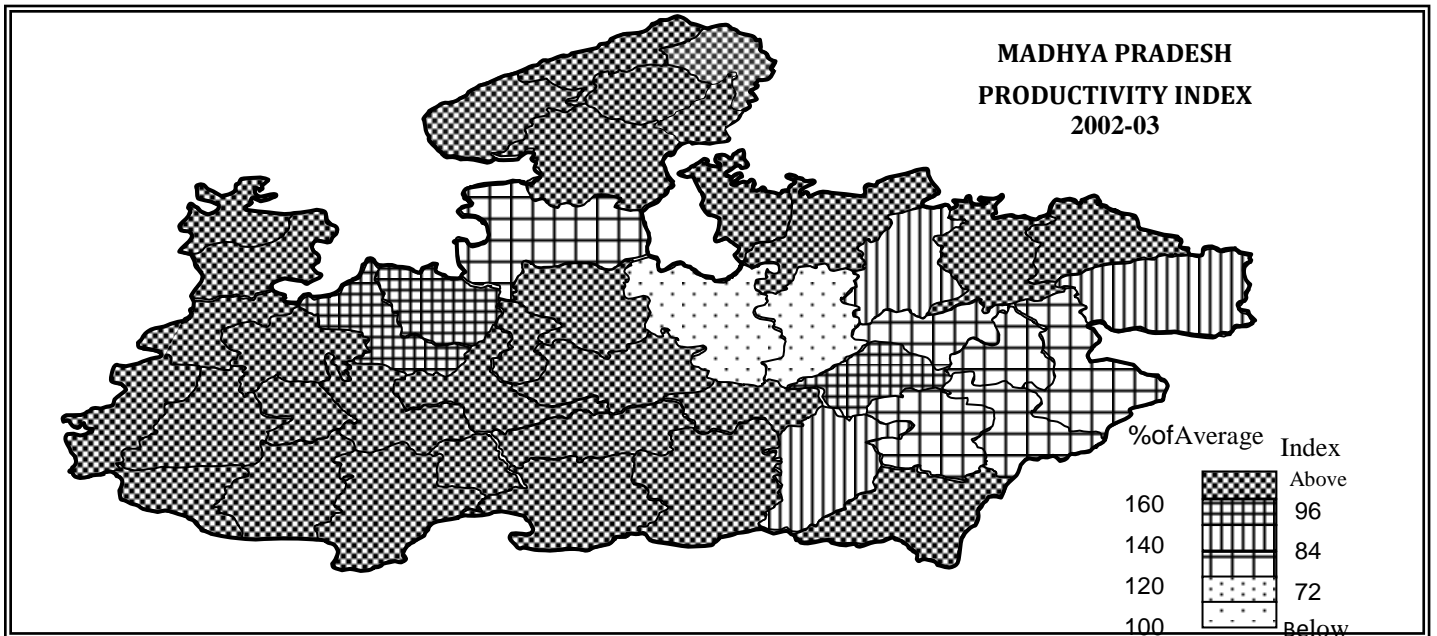


FIGURE-2
 THE CHANGING NATURE OF MADHYA PRADESH AGRICULTURAL PRODUCTIVITY (YEAR 1970-71 TO 2002-03)

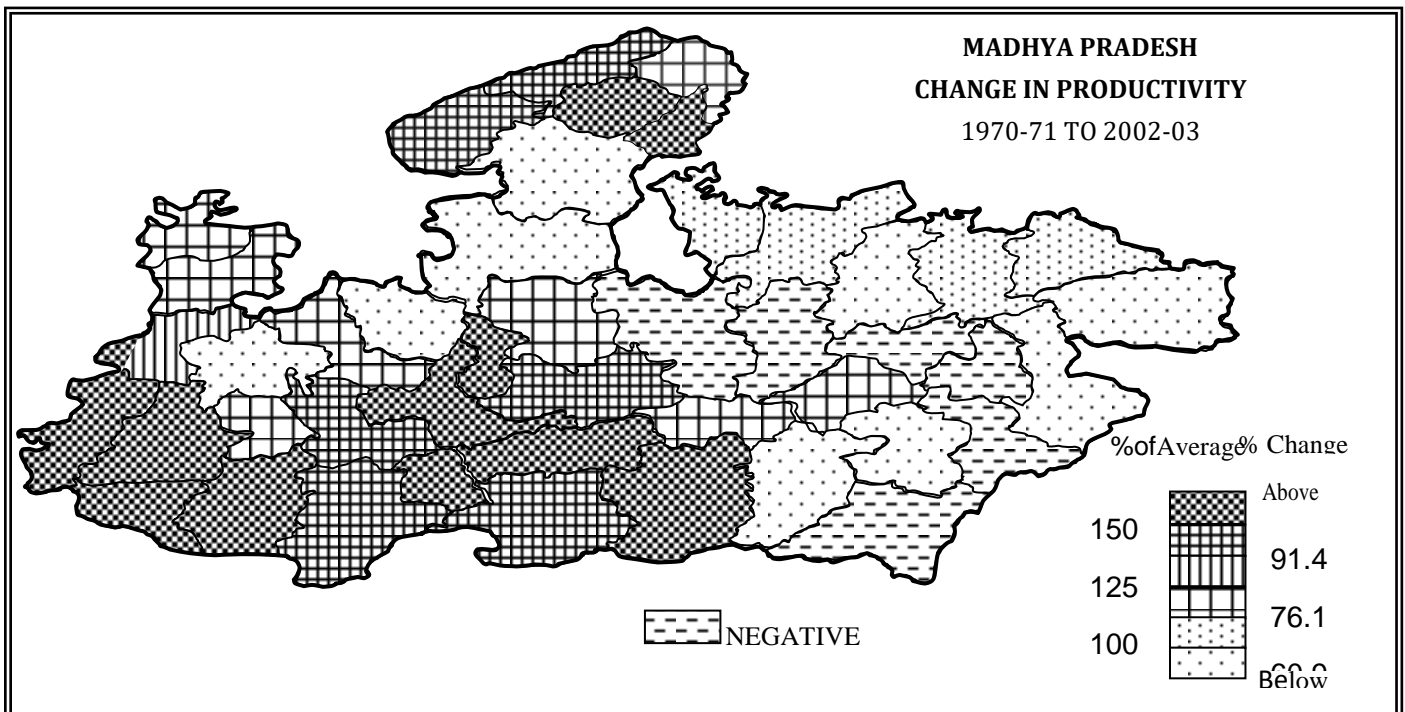
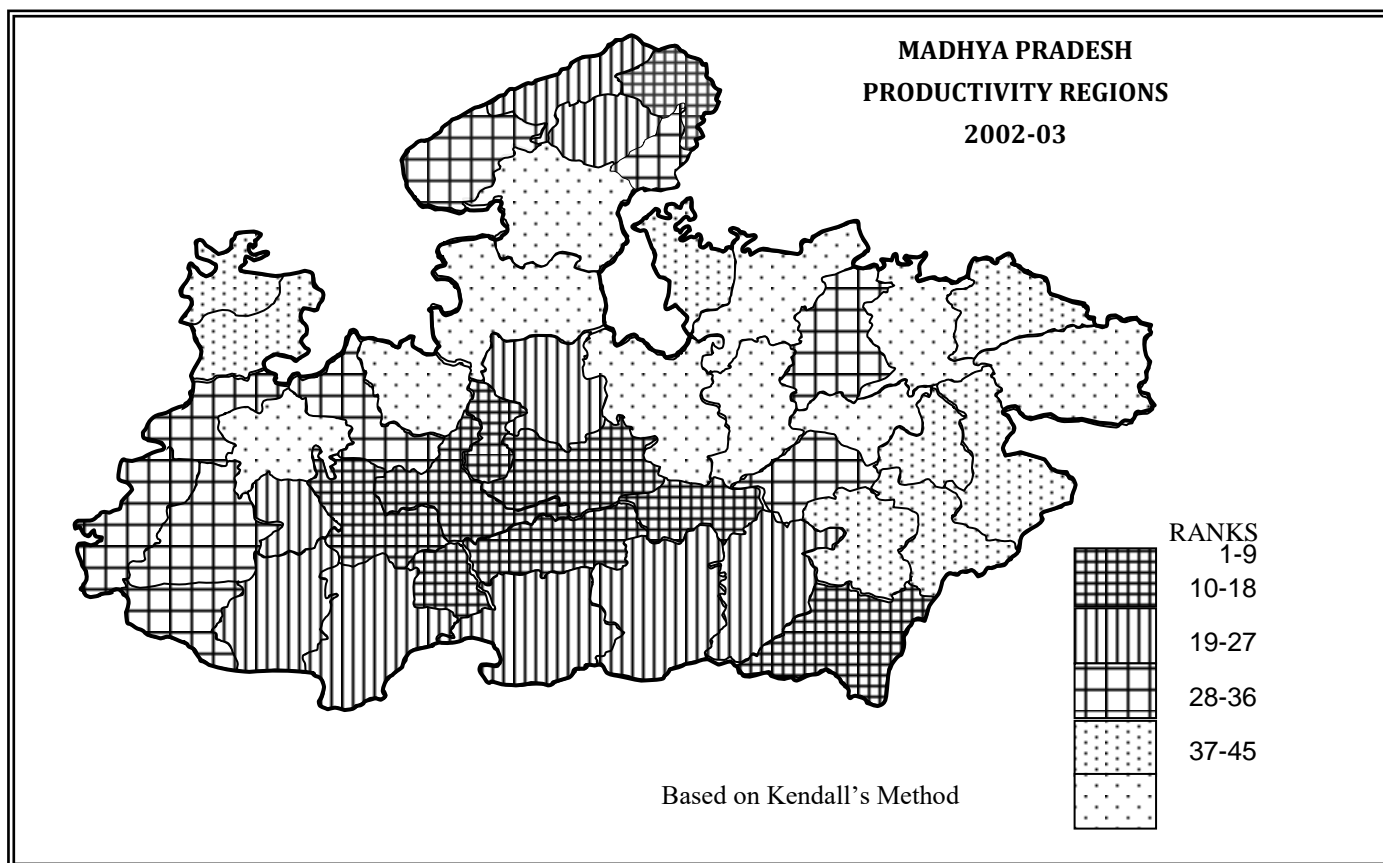


FIGURE-3

REGULATIONS OF AGRICULTURAL PRODUCTIVITY IN MADHYA PRADESH (YEAR 2002-03)

**CONCLUSIONS:-**

1. The production of food grains has recorded about four times increase during last half century, from 27.7 lakh tonnes in the year 1950-51 to 107.5 lakh tonnes in the year 2002-03. This increase is due to both horizontal expansion and the intensification in the agriculture during the period.

2. When comparison made between 1970-71 and 2002-03, this growth was only two times, and since the year 1991 the area, production and productivity of food grains is almost stable.

3. This state has occupied more than one-tenth (11.8 %) cultivated land under major crops and produce only 6.2 per cent of the country during the year 2002-03. The lower agricultural production is an indication of lower productivity.

4. The average per unit productivity of food grains in the state is 944 kg/hectare, which is about 60 per cent of the country's productivity of food grains 1562 kg/hectare.

5. Moreover, the state has occupied 7.9 per cent area of the cereals of the country and produce only 4.9 per cent of the country during the year 2002-03, this situation is because of lower productivity in the state.

6. The productivity of cereals in the state is 1154 kg/hectare and it is 1863 kg/hectare in the country. But, the productivity of pulses is relatively higher in the state i.e. 103.4 per cent of the country.

7. The productivity of pulses in the state is 576 kg/hectare while it is 556 kg/hectare in the country. The state has occupied 20.6 per cent area of the pulses of the country and produce 21.3 per cent of the pulses of the country during the year 2002-03. Thus, it is therefore concluded that this state has occupied more cultivated area and produce less, because of lower productivity.

8. The yield rate of different crops, except maize and jowar, is lower than that of the average of the country. It is much lower in the case of rice, wheat and barley; while it is little lower in gram, tur, groundnut, and soybeans.

9. Moreover, the yield rate of food grains has recorded 944 kg/hectare which is about 60 per cent lower than that of the average of the country (1562 kg/hectare). It is 1154 kg/hectare for cereals, 575 kg/hectare for pulses and 611 kg/hectare for the oilseeds.

10. The yield rate of cereals is about 38 per cent lower than the average of the country (1863 kg/hectare) it is 3.4 per cent higher in the pulses and for oilseeds

(611kg/hectare) it is about 14 lower than the average of the country (710 kg/hectare).

11. The highest per unit productivity has been recorded by maize (1751 kg/hectare) followed by wheat (1520 kg/hectare) and barley (1257 kg/hectare). The per unit productivity of paddy is the lowest (646 kg/hectare), it is only 35.8 per cent of the average of the country (1804 kg/hectare). Among the pulses the highest per unit productivity has been recorded by gram (694 kg/hectare) and followed by tur (614 kg/hectare).

12. To assess the agricultural productivity the district wise average agricultural output has been worked out for nineteen crops. The average combined yield rate of these twenty crops was 833 kg/hectare during the year 2002-03; it ranges from 347 kg/hectare in Umaria district to 1154 kg/hectare in Hoshangabad district

13. The yield rate of nineteen major crops has been taken for the analysis of agricultural productivity, by using the Kendall's method.

14. The average productivity of food grains in the state is about 943 kg/hectare, it ranges from 436 kg/hectare in Damoh district to 1803 kg/hectare in Hoshangabad district during 2002-03.

15. The average productivity of food grains in the state has recorded 65.5 per cent increase during 1970-71 to 2002-03, from 570 kg/hectare to 943 kg/hectare. More than 91 per cent districts (41 districts) have recorded increase in the productivity, and the remaining 9 per cent districts (4 districts) have recorded decrease in the productivity during 1970-71 to 2002-03.

16. During 2002-03, out of the total districts, 26 districts (58 %) have recorded higher productivity than that of the average of the state (943 kg/hectare). Moreover, two districts (Hoshangabad and Harda) have recorded extremely high productivity, i.e. 1803 kg/hectare and 1744 kg/hectare respectively.

17. On the other hand, about 19 districts (42 %) districts have recorded low and very low productivity when comparison made with the state's average.

18. The index of productivity in the state is 60 per cent; it ranges from 46 per cent in Damoh district to 192 per cent in Hoshangabad district during the year. Out of the total

districts, 37 districts (82 %) have recorded higher index of productivity than that of the average of the state.

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