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# **INTERLINK RESEARCH ANALYSIS**

**Editor In Chief  
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## Spatio Temporal Changes In Use Of Chemical Fertilizers In Maharashtra State

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Research Paper - Geography

### Introduction :

Soil naturally contain many nutrients like nitrogen, phosphorous, calcium and potassium. These nutrients allow plants to grow. When soil nutrients are missing or in short supply, plants suffer from nutrient deficiency and stop growing. When nutrient level is too low, the plant cannot function properly and produce the food necessary to feed the world's population. Once crops are harvested for human consumption, the natural supply of nutrient's in the soil must be refilled, So farmers add nutrients the their soil. Nutrients can be added from verity of sources that is organic matter, chemical fertilizers and even by some plants. This maintain soil fertility. So the farmers can continue use the fertilizers for the healthy crops farmers turn to fertilizers because these substance. Fertilizers are simply plant nutrients applied to agricultural field to supplements required elements found naturally in the soil. Fertilizers have been used since the start of agriculture.

Fertilizers use is remarkable increased from some last decade in all over the world as well as in study area due to the pressure of growing population on agricultural land, consumption of chemical Fertilizers in the Maharashtra state for 2016-17 was 64.67 lakh MT with per hectare consumption of 122.3 kg. It was 59.63 Lakh MT with per hectare consumption of 122.5 kg for 2015-16. The present investigation tries to find out the spatio temporal changes about use of fertilizers in study area in the research paper authors also highlight the which problems are created due to the heavy use of chemical Fertilizers.

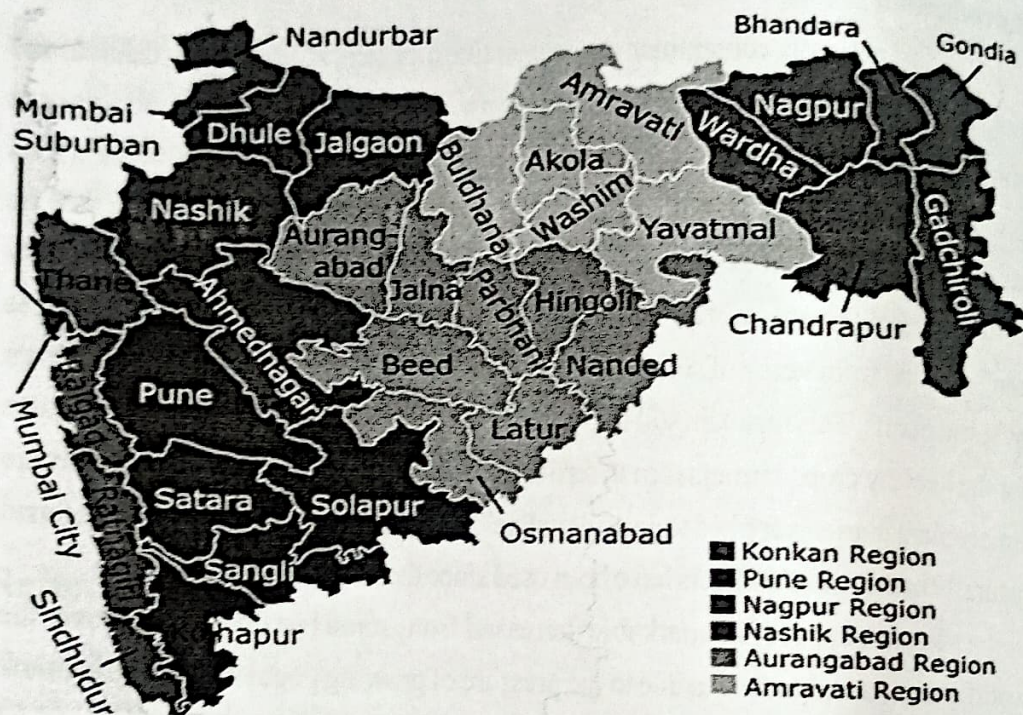
### STUDY AREA :

The selected study area, Maharashtra state is located in north Centre of peninsular



India and it is lying between 15°04' to 22°06' north latitude and 73°03' to 80°05' east longitude. Maharashtra has a remarkable physical homogeneity. The dominant physical trait of the state is its plateau character. Maharashtra's western part of coastal plains western upturned rims rising to from the Sahyadri range and its slopes gently descending towards to east and southeast. The Major rivers and their master tributaries have covered the plateau in to alternating broad-river valleys and intervening higher level interfluvies. The Sahyadri range is the physical backbone of the Maharashtra State. Rising on an average to an elevation of 1000 mtrs.

### LOCATION MAP OF MAHARASHTRA :



### OBJECTIVES :

1. To Find out the region wise use of chemical fertilizers.
2. To assess the temporal changes in use of chemical fertilizers.
3. To give a review to consequences of use of more chemical fertilizers in study area.

### DATABASE AND METHODOLOGY :

The present study based on only secondary data, which is obtained from socio-



economic review of Maharashtra state for the period of 2015-16 and 2016-17.

The collected data were processed by appropriate statistical and quantitative techniques. The map, table and cartographic method are used for presenting the processed data and their interpretation, which is support for getting concluding remarks.

### Region wise use of chemical fertilizers in Maharashtra State (00 MT)

Sr. No.	Region	Use of Chemical Fertilizers		Volume of Change
		2015-16	2016-17	
1	Konkan	599 (2.17)	529 (1.54)	-70 (-0.63)
2	Pune	5755 (20.87)	8418 (24.58)	2663(3.71)
3	Nagpur	3334 (12.09)	3155 (9.21)	-179(-2.88)
4	Nashik	6451 (23.39)	8134 (23.75)	1683 (0.36)
5	Aurangabad	7104 (25.76)	9870 (28.82)	2766 (3.06)
6	Amravati	4328 (15.69)	4135 (12.07)	-193 (-3.62)
	Maharashtra	27571 (100)	34241 (100)	6670 (0.80)

(Fig. in Bracket indicate %)

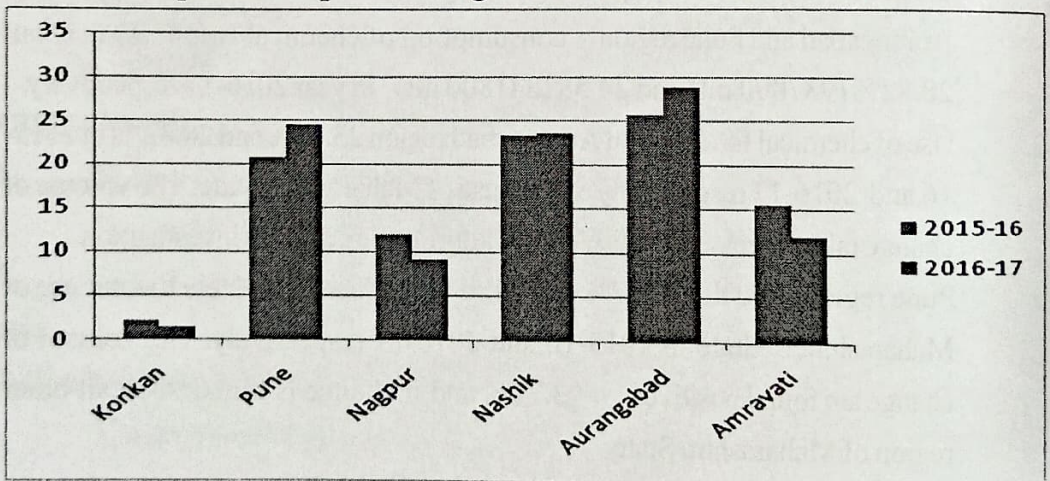
### RESULT AND DISCUSSION :

1. Particularly the Aurangabad and Pune region was used high chemical fertilizers during the investigation period. Both regions are used the chemical fertilizers 25.76% (710400 mt) and 20.87% (575500 mt) in 2015-16 respectively. Aurangabad and Pune region's consumption of chemical fertilizers is about 28.82% (987000 mt) and 24.58 (841800 mt) in year 2016-17 respectively.
2. Use of chemical fertilizers of Aurangabad region 25.76% and 28.82 % in 2015-16 and 2016-17 respectively to total use of Maharashtra State. The volume of change take place positive 3.06% during the period of investigation.
3. Pune region used the 20.87% and 24.58% chemical fertilizers to total use of Maharashtra State in 2015-16 and 2016-17 respectively. The volume of change are found positive 3.71% and it change is higher than all other region of Maharashtra State.



4. Use of chemical fertilizers of Nasik region out of the total use of Maharashtra State is about 23.39% (645100 mt) in 2015-16 and is about 23.75% (813400 mt) in 2016-17. The use of chemical fertilizers is remarkable and volume of change observed to positive only 0.36% during the period of investigation.
5. Amravati region used to chemical fertilizers is about 15.69% (432800 mt) and 12.07% (413500 mt) in 2015-16 and 2016-17 respectively out of the total use to Maharashtra State. This share of utilization of Chemical fertilizers is moderate as compare to the other region of Maharashtra, But volume of change take place negative and high is about 3.62%.
6. Nagpur region used to chemical fertilizers is about 12.09%(333400 mt) and 9.21% (315500 mt) in 2015-16 and 2016-17 respectively; out of the Maharashtra. The volume of change is found negative and high 2.88%.
7. Use of chemical fertilizers of konkan region is very negligible as compare to other region of Maharashtra and it is only 2.17% (59900 mt) and 1.54% (52900 mt) in 2015-16 and 2016-17 respectively out of the total use of Maharashtra. The volume of change take place negative only 0.63%.
8. Total use of chemical fertilizers of Maharashtra observed is about 2757100 mt in 2015-16 and is about 3424100 mt in 2016-17. The use of chemical fertilizers is increased about 667000 mt (0.81%) during the period of investigation.

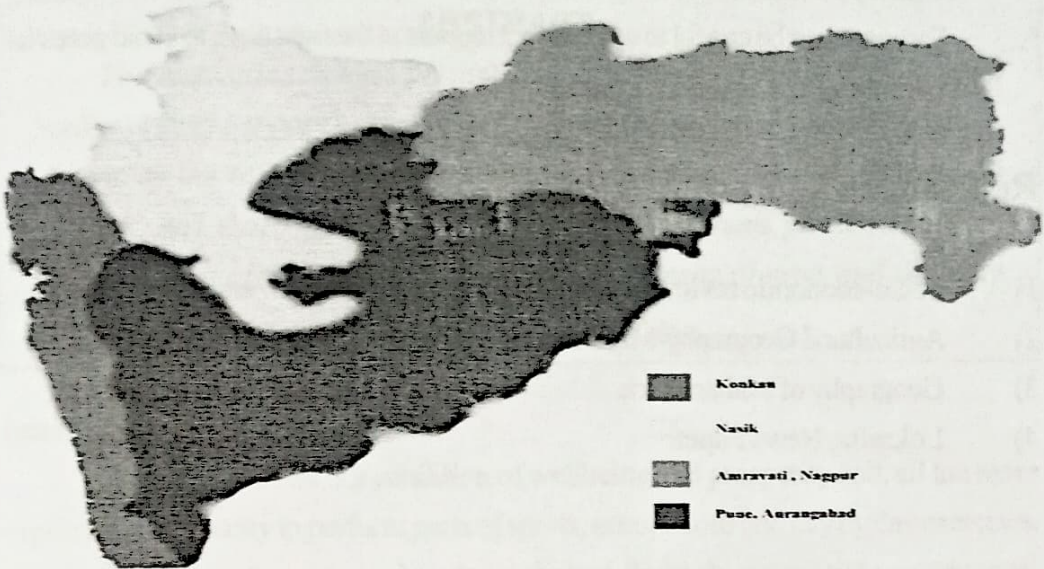
#### Spatio- Temporal Changes in use of chemical fertilizers.





### Use of Fertilizers

Sr. No.	Volume of Change in % 2015-16 to 2016-17	Region
1	-4.00 to 2.1	Amravati , Nagpur
2	-2.00 to 0.00	Konkan
3	0.00 to 2.00	Nashik
4	2.1 to 4.00	Pune, Aurangabad



Volume of change are take place in use of chemical fertilizers in Maharashtra during the period of investigation. Author has volume of change is classified into four class, that is negative 4.0 to 2.1%, negative 2.00 to 0.00% positive 0.00 to 2.00% and positive 2.1 to 4.0%. According to this classification Amravati & Nagpur region found in high negative change, Konkan region found in low negative change, Nashik region occur in low positive change and lastly Pune and Aurangabad region observed in high positive change.

#### CONCLUSION:

1. Aurangabad, Pune & Nashik region highly used to chemical fertilizers, due to the fertile soil & availability of irrigation sources and also this region growing the



- more cash crops.
2. Amravati & Nagpur region moderately use the chemical fertilizers due to the rainfed farming is more.
  3. Konkan region very negligible use the chemical fertilizers because of the hilly region and rain feed agriculture.
  4. Fertilizers use is very expensive and harm the environment, if not used the correctly.
  5. So use of more fertilizers may affect the accumulation of heavy metals in soil and plant system. Plant absorb the fertilizers through the soil, they can enter the food chain. So fertilizers leads to water, soil and air pollution.
  6. Farmers must be careful to use the right amount at the right time, to avoid potential negative effects to the environment.

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- 4) Loksatta, News Paper.