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# The Study of Sugarcane Cultivation in Pune District (M.S.): A Geographical Analysis (2011-2021)

Jitendra Vitthal Madake

## Abstract

The present study focuses on the spatial and temporal analysis of sugarcane cultivation in Pune district, Maharashtra, during the period 1991 to 2011. The research aims to understand the changing patterns of sugarcane area, its regional distribution, and the geographical factors influencing its growth. The study is based on secondary data collected from the Socio-Economic Abstracts and Agricultural Department reports of Pune district. The findings reveal that the total area under sugarcane cultivation increased substantially from 65,628 hectares in 1991 to 1,36,450 hectares in 2011, registering an overall growth of 70,822 hectares. The eastern and southeastern tahsils — particularly Indapur, Shirur, Baramati, and Daund — recorded significant expansion due to the availability of irrigation facilities from the Bhima and Nira river systems, fertile black soils, and the presence of cooperative sugar factories. Conversely, western tahsils such as Velhe, Mulshi, Mawal, and Bhor experienced limited growth because of hilly terrain, uneven rainfall, and limited irrigation infrastructure, while Haveli tahsil showed a decline due to urbanization and industrial development. The study concludes that the distribution and growth of sugarcane cultivation in Pune district are primarily controlled by irrigation, topography, and the cooperative sugar industry, but regional disparities persist between irrigated and rainfed zones. The research emphasizes the need for sustainable water management, crop diversification, and balanced agricultural development to ensure long-term productivity and socio-economic stability in the region.

**Keywords:** Sugarcane cultivation; Irrigation; Pune district

## Introduction

Etymologically agriculture geography deals with the arts and science of domestication of plants and animals (M. Husain, 2002). In modern sense the Agriculture consist of practice of cultivation of crops raising livestock, fish, pig farm, goat farm and poultry. Directly and indirectly, the Indian economy is depending on agriculture. The agriculture provides livelihood to about 65 per cent of total labour force. Agriculture is base of trade, transport and trade. In Maharashtra state about 65 per cent of the total workers depend on agriculture and allied activities. (Dr. M. R. Nangare and dr. Patil R.R. 2020)

Agriculture is one of the most important sector of the Indian. Agriculture is the only means of living for almost two thirds of the workers in country. The agriculture sector of India has occupied 43% of India's geographical area, and is contributing 16.1% of India's GDP. Agriculture still contributes significantly to India's GDP despite decline of its share in India's GDP. There are number of crops grown by farmers. These include different food crops, commercial crops, oil seeds etc., sugarcane is one of the important commercial crops grown in India. Sugarcane is the main source of sugar in Asia and Europe. Sugarcane is grown primarily in the tropical and sub-tropical zones of the southern hemisphere. Sugarcane is the raw material for the production of white sugar, jaggery (gur) and khandsari. It is also used for chewing and extraction of juice for beverage purpose. (Dr. M. R. Nangare and Dr. Patil R.R. 2020)

Sugarcane is most important commercial crop of Pune district as like India and tropical countries. The district accounts largest part of the cane crushed in the state during 2021-22. Sugarcane is certainly one of the most profitable crops because it requires less labor considering crop like onion and chili. Hence an attempt is made here to examine the "The study of sugarcane cultivation in Pune district (MS): A geographical analysis (2011-2021).

## Study Region:

For the present investigation Pune district is selected as a study region. The Pune district is one of the agricultural district in the Maharashtra state. Geographically Pune district is located between 17° 54' N to 19° 24' N latitude and 73° 19' E to 75° 10' E longitude. The total geographical area of the Pune district is 15,642 sq.km. The proportion of area of Pune district as compare to Maharashtra is about five (5.08 %) per cent.

The district is surrounded by Ahamadnagar district to the north and east, Pune district in the southeast, Satara district in the south, Raigarh district in the west and Thane district in the northwest.

It is administratively sub-divided into 14 tahsils namely, Ambegoan, Baramati, Bor, Daund, Haveli, Indapur, Junnar, Khed, Mawal, Mulshi, Pune City, Purandar, Shirur, Velhe etc. According to the 2011 census, Pune district has 14 tehsils having 35 towns and 1877 villages. The Pune district is a part of Bhima basin. The average annual rainfall in the district is 722 mm. Due to uneven physiography; rainfall is unequally distributed in study region.

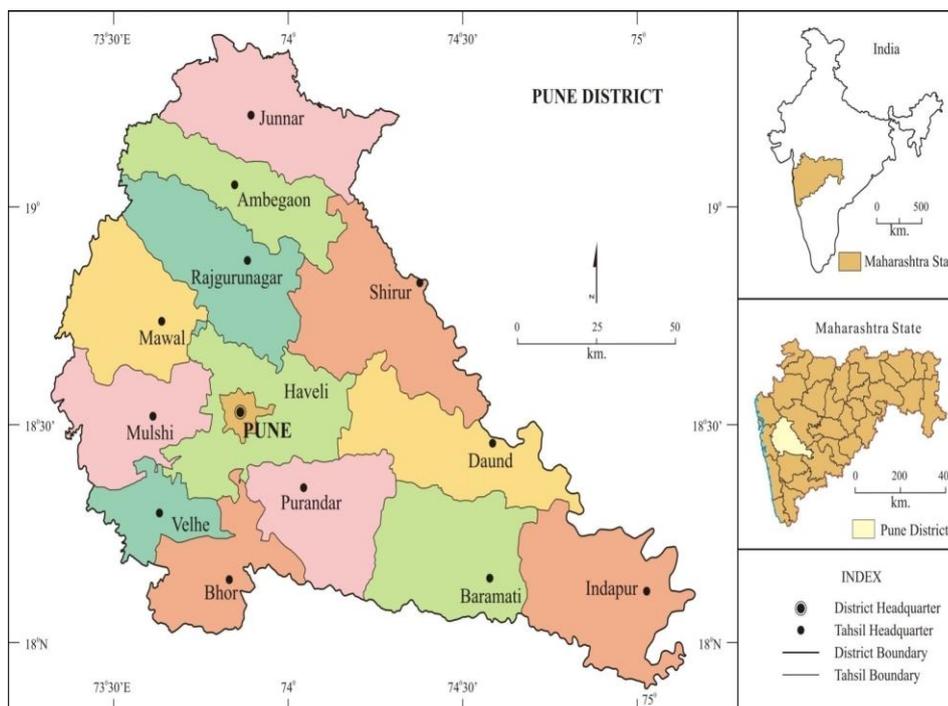


Fig. No. 01

**Objective:**

The main objectives of this paper are as following,

1. To study growth of sugarcane cultivation in Pune district.
2. To study the factor responsible for growth of sugarcane cultivation in Pune district.

**Database and Methodology:**

The study was conducted in the Pune district in Maharashtra state. For the purpose of the study, only secondary information was collected from different sources. The secondary data like information related to sugarcane cultivation and geographical information collected through Agriculture Department and Socio-Economic review and district Statistical abstract of Pune District from the year 2011- to 2021 used. Pune taluka was not included for the study as there is no agriculture or irrigation in this area.

**Result and Discussion:**

Sugarcane is one of the leading cash-crops in Pune district. Sugarcane occupies important place in the economy of the district. It is a long duration crop and requires 10 to 15 months to mature. It requires hot and humid climate with average temperature between 210 c. to 270 c. and 75 to 150 cm. rainfalls. It is grown well in black cotton soil. Irrigation facilities are essential for sugarcane cultivation (Dr. M.R. Nangare, 2021).

**Table No.1**

**Tahsil wise Area under Sugarcane area in Pune District-(2011-2021)**

Sr.No	Tahsils	Sugarcane Area in Hectare		
		2011	2021	Volume of changes
1	Junnar	7817	8400	583
2	Ambegoan	3304	5636	2332
3	Shirur	3804	24035	20231
4	Khed	174	2381	2207
5	Mawal	588	2346	1758
6	Mulshi	542	1088	546
7	Haveli	8715	7290	-1425
8	Daund	14661	21321	6660

9	Puranda	562	2831	2269
10	Velhe	42	324	282
11	Bhor	954	1674	720
12	Baramati	15530	29580	14050
13	Indapur	8935	29543	20608
14	District	65628	136450	70822

(Source: Compiled by researcher on the basis of Socio-economic Abstract of Pune District 2011 and 2021)

The table No.1 shows a detailed tahsil-wise distribution of sugarcane cultivation in Pune district during the period 1991 to 2011. It indicates that sugarcane cultivation has increased significantly across the district over the two decades. The total sugarcane area in Pune district rose from 65,628 hectares in 1991 to 1,36,450 hectares in 2011, registering an overall increase of 70,822 hectares. This clearly demonstrates a substantial expansion of sugarcane farming within the district.

**High-Growth Tahsils:**

Indapur (increase of 20,608 ha), Shirur (20,231 ha), and Baramati (14,050 ha) are the leading tahsils in sugarcane expansion. These tahsils are located in the eastern part of Pune district, which has better irrigation facilities due to canal networks and a concentration of sugar factories. The large-scale growth in these regions can be attributed to favourable topography, irrigation from the Bhima and Nira rivers, and the cooperative sugar industry’s influence.

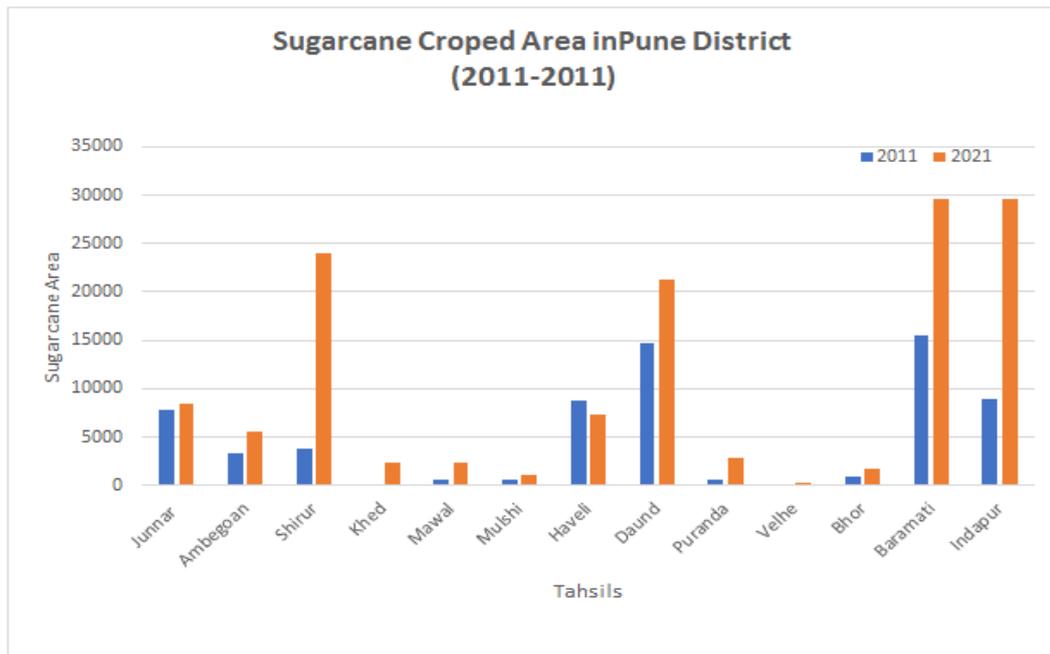


Fig. no. 02

**Moderate-Growth Tahsils:**

Daund (6,660 ha), Ambegaon (2,332 ha), Khed (2,207 ha), and Purandar (2,269 ha) witnessed moderate growth. These areas benefited from partial irrigation development and gradual adoption of commercial cropping patterns.

**Low-Growth Tahsils:**

Junnar (583 ha), Mawal (1,758 ha), Mulshi (546 ha), Bhor (720 ha), and Velhe (282 ha) showed comparatively low growth due to hilly terrain, limited irrigation, and rainfed farming conditions. The western part of Pune district generally remains less suitable for sugarcane cultivation because of its uneven topography and high rainfall variability.

The area of Sugarcane crop tremendously increased during the period of investigation. Tahsil level analysis shows both positive and negative changes. All tahsils of study region have positive changes except Haveli tahsil. Haveli tahsil recorded a decrease of 1,425 hectares in sugarcane area. This decline is likely due to rapid urbanization, industrial development, and conversion of agricultural land to non-agricultural uses near Pune city.

The eastern and southeastern tahsils show a concentration of sugarcane cultivation, forming a distinct “sugar belt” within the district. The western tahsils, dominated by the Sahyadri ranges, remain relatively less developed agriculturally.

**Conclusion:**

The geographical analysis of sugarcane cultivation in Pune district reveals both growth and disparities. The analysis of tahsil-wise sugarcane cultivation in Pune district (1991–2011) reveals a remarkable spatial and temporal growth in sugarcane area. The total sugarcane cultivation expanded from 65,628 hectares in 1991 to 1,36,450 hectares in 2011, registering a significant increase of 70,822 hectares over two decades.

The eastern and southeastern tahsils particularly Indapur, Shirur, Baramati, and Daund have emerged as the major sugarcane-producing regions, primarily due to the availability of irrigation from Bhima and Nira rivers, the establishment of cooperative sugar factories, and favourable climatic and soil conditions.

In contrast, western tahsils such as Velhe, Mulshi, Mawal, and Bhore have shown limited expansion owing to hilly topography, uneven rainfall, and restricted irrigation facilities. Haveli tahsil has witnessed a decline in sugarcane area due to urbanization and industrial development near Pune city. Overall, the study concludes that the growth of sugarcane cultivation in Pune district is closely associated with irrigation infrastructure, cooperative movements, and agricultural modernization, but the regional imbalance in development continues to persist between the irrigated east and the rainfed west.

Therefore, future strategies should emphasize efficient water management, crop diversification, and adoption of sustainable agricultural practices to ensure long-term productivity and livelihood security in Pune district.

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#### **Conflicts of interest**

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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