#### A GEOGRAPHICAL ANALYSIS ON PROBLEMS AND PROSPECTS OF AGRO-BASED INDUSTRIES IN JALGAON DISTRICT

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#### Abstract:

Geography is a spatial science. It studies spatial and temporal distribution of geographical factors which are spread on the surface of the Earth. Agricultural Geography is a branch Geography. It studies agricultural activities in relation to geographical factors. Agriculture plays an important role in Indian economy. It is the main source of livelihood for nearly 70% of Indian population. So, the prosperity of the country depends largely on agriculture. The agriculture and industry go hand in hand as the former promotes the later. A country's economic strength depends on the development of industries. Industries boost agricultural development, empowerment and employment, increased and paced economic growth, etc. in a developing country like India, where a significant labor and resources are abundantly available. The term 'Agro-industries,' may be defined as those industries which are dependent on agriculture and draw their raw materials from agriculture, horticulture and Seri-culture, etc. which create supplementary sources of employment in addition to agriculture and allied activities. The paper focuses on various economical and geographical perspectives that influence to the prosperity of agro based industries in Jalgaon district. The study lists certain vulnerabilities and problems faced by the agro based industries and deduce some valuable suggestions for the agro based industries in Jalgaon district. Keywords: Geography, Agriculture, Agro-industries.

#### Introduction

A geographer may try to make analysis of human society and examine not only the location of the things but also their nature and development related to the places. Agro-based industries as a subject are the current highlight and draws attention of Geographers and Agrologists around the world. It is true that our agriculture sector is changing day to day. Although the pace of it is slow, there is increasing trend towards the use of improved farming practices on farms. The increasing use of hybrid and high yielding variety of seeds, fertilizers, chemicals and use of modern farming machineries show this fact clearly.

The term 'Industry' in its broadest sense refers to all economic affairs. Industries can be classified into three major groups-primary, secondary and tertiary which have many sub-divisions amongst them again. The word 'Industry' is loosely used to denote a vast range of human activities which are economically gaining and undergone the process of production. The term 'Industry' is often used by itself to denote manufacturing. The term 'manufacturing' includes those activities concerned with the processing and altering of raw materials and semi-finished products into finished products. These transforming operations are conducted in factories to which are brought raw materials from various source regions and from which go finished products to diverse market regions.

The term 'Agro-industries,' may be defined as those industries which are dependent on agriculture and draw their raw materials from agriculture, horticulture and Seri-culture, etc. which create supplementary sources of employment in addition to agriculture and allied activities. Agro-based industries are playing vital role in transforming the advance technology to the farmers and are educating the farmers in rural areas. Within a very short period, Agro-based Industries have provided the infrastructure in the development of agriculture and rural welfare in the study area. The Agro-based Industries perform an important function of arranging for the supplies of input and services to the farmers. Agriculture is the main occupation of the people in the study area. The rise of the Agro-based Industries provides the variety of facilities to the farmers. However, the distribution of the Agro-based Industries is affected by many factors.

The main aims and objectives of the present study are classified as follow:

1. To study the spatial analysis of Agro-based Industries in the Jalgaon district.

2. To understand the analysis of physical, social and cultural economic conditions which have influenced the growth of Agro-based Industries in the Jalgaon district.

3. To evaluate the problems and prospects of Agro-based Industries in the Jalgaon district.

#### Literature Review

This includes the study of available literature in the selected area of research from various libraries, reference books, research journals and websites that are categorized into Pre and Post-Independence period and has been studied in detail.

Pre-Independence, very little work was done in the field of Industrial Geography by Indian Geographers in the country. Studies in the field of Industrial Geography by Indian Geographers can be traced back to early forties of the twentieth century. The role of Geographer is very crucial in analyzing and synthesizing and the comprehensive study of an issue. For the present investigation, the literature from the different disciplines has been referred.

The following are the notable studies done by the geographers in this field during the pre-Independence period. Iyengar C.V.V.(1930) studied "The Oil Industry in Coimbotore", Rao R.H. (1930), 'A Note on the Home Industries of Coimbatore District', Rao R.S.(1931) studied "Cottage Industries of Malabar", Loknathan (1932, 1936, 1939) studies 'Localization of Industry in India, Recent Trends in Cotton Textile Industry and Industries of Madras', Kalyansundaram (1934) examined 'Geographical Basis of Iron and Steel Industry', Prakash Rao V.L.S.(1941) studied "Geographical Factors and the Ship Building Industry", Ghosh S.C.(1946) studied 'Spatial Distribution of Industries in India', Gandhi (1945) studied 'Problems and Prospect of Sugar Industry in India'.

Post-Independence studies in the field of Industrial Geography have been undertaken by the Geographers. The following studies are the notable. Among them Panday R.S. (1951) has studied "Bagelkhand: A Study of Industrial Geography', Panachal Nandkishore (1967) has done their work on 'Industrial Geography of Madyapradesh', Shisodia M.S. (1983) has studied

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'Industrial Geography of Ghaziabad Town', Shrama S.D. (1985) has worked on 'Industrial Geography of Gwalior Division'. Keche P.J. (1986) worked on "Industrial Geography of Marathwada Region", Gulave M.N. (1998) has completed his work on "A Study of Small Scale Agro-based Industries in Beed District" and Gaikwad S.B. (2004) has done their work on "Geographical Perspective on Growth of Sugar Industries in Maharashtra".

Some of the noted reviews of Geographers' research are given below:

**Dr. M. N. Gulve (1998):** The author has studied small scale agro-based industries in Beed district of Maharashtra. The author suggested in his study that banks should provide working capital to entrepreneurs at low rate of interest. Government of Maharashtra should have set separate centres to provide raw materials to the small-scale agro-based industries in the study region [3].

**S. B. Gaikwad (2003):** The author has worked on geographical perspective on the growth of Sugar Industry in Maharashtra. The author focused on the problems faced by the farmers like poor quality fertilizers and pesticides, shortage of fertilizers and pesticides, natural manures, labour problems for weeding, cutting and crushing of sugarcane [6].

Ashok Khade (2014): Following suggestions have been made for the new beginning of agrobased industries in the Kolhapur district by the author.

- 1. Potential for the development of Sugar Industries.
- 2. Potential for the development of Edible-Oil Industries.
- 3. Potential for the development of Food Processing Industries [1].

**Prabeena Ambidattu (2015):** The author described that the area under cashew nut cultivation has decreased every year due to the fluctuating weather conditions, low prices, high land usage for cashew plantations, un even seasonality of the cashew production cycle and the infirmity of the cashew trees. The author also suggested that requisite steps to be taken by the government and other Non-Government Organizations (NGOs) for the improvement of cashew nut production [5]. **Malkar Vinod Ramchandra (2019):** The author has worked on the marketing problems faced by small scale agro-based industries in the Ahmednagar district of Maharashtra. He has classified the study as problems in pricing, transportation, distribution, market demand, market potential, competition, channel management, marketing research, customer relationship management, marketing communication, sales promotion, public relation, branding and advertising. The author deduced that the agro-based industries have moderate problems related to market research, market potential and market demand and faced severely high problems related to other remaining classifications [4].

**Dr. Satyendra Kumar Verma (2020):** The author has studied the development of agro-based industries in north Bihar. He has focused on some minor factors that directly or indirectly affect the development or establishment of new agro-based industries in the study area as the personal favour shown by high officials in the government offices, loads of taxes, capacity and understanding of the local people in the area, etc [2].

Sunita Kumari (2020): The author has worked on the problems and perspective of agro-based industries in the Saran district of Bihar. She has referred to the physiological conditions like climate, soil, activities, topography and human resources for playing a significant role in

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developing, affecting and establishing new agro-based industries in Saran district. She has also suggested several measures like proper coordination, expansion and development as an inseparable part, advanced management and marketing techniques, forward and backward-looking relationships and adopting the prescribed institutional framework and support of government and NGOs for the development of agro-based industries in Saran district [7].





Figure 1: Map of Jalgaon District.

The Jalgaon district is located  $20^{0}$ - $21^{0}$  North latitude and  $74^{0}$ - $76^{0}$  East longitude. It is situated in the northern part of Maharashtra State in India. It encompasses geographical area of 11765 Sq.km. It is bounded on the north by the state of Madhya Pradesh, on the east by Buldhana District of Maharashtra, on the west by Nasik and Dhulia Districts of Maharashtra, and on the south by Aurangabad District of Maharashtra. Administratively, Jalgaon District is divided in to 15 tehsils (Figure 1).

There are several factors for selecting the area. But following are the specific factors which forced to select the area:

1. Jalgaon district comprising 15 Tahsils has the significant location on the North Maharashtra Plateau. The Tapi River flows east to west through the northern part of the district and involves 8 Tahsils like – Raver, Muktainagar, Yaval, Bhusawal, Jalgaon, Chopada, Dharangaon and Amalner. The fertile Black Cotton soil of the basin of River Tapi supports to the high concentration of Agrobased industries.

ISSN: 0555-7860 UGC-CARE Group 1 Journal 2. Groundwater for irrigation through wells, bore-wells and lift-irrigation is available throughout the year. Hence cash-crops like banana, sugarcane etc. are produced on the very large scale.

3. Development of Agro-based Industries i.e., PVC factories, Sugar-Industries, Cotton-Ginning Mills, Oil Mills and other industries have been set up in the study area. They provide facilities of modern implements to the peasants.

4. Jalgaon district is well known for 'Milk' production. The dairy development schemes are well spread throughout the area. Co-operative dairy and chilling plants are functioning very smoothly.5. There is a significant increase in the area under cash crops i.e., banana, sugarcane etc. It is only due to the use of modern technology by the farmers of the study area.

6. Moreover this region is untouched regarding such studies.

#### **Historical Background**

Historical Background of Jalgaon district:

Jalgaon, also referred to as East Khandesh before 21 October, 1960 was a part of 'Khandesh', presently comprising of three districts namely, Jalgaon, Dhule and Nandurbar. The name Khandesh gets its significance from the title 'Khan' given to the second Faruki king, Malik Nasir by Ahmad-I (1411-14433) of Gujarat, illustrated by the famous author Abul Fazal in his notable work, Ain-i-Akbari (1157). Jalgaon has also got a reference from the Khandava forests of Mahabharata.

#### Agro-based Industries in Jalgaon district in the Pre-Independence Period:

Jalgaon like any other districts in the state of Maharashtra had no automated industries except a few like cottage and weaving factories. Very small-scale factories like Oil pressing, Pottery, Gul-making, Grass oil manufacturing, Carpentry, Handloom weaving, Catechu making, Shoe making, etc. were predominant in rural British era. Investment for the factories was at the reach of the artisans and the raw materials for the process was readily available from the forest cover surrounding the district.

#### Agro-based Industries in Jalgaon district in the Post-Independence Period:

The agro-based industries went a revolutionary change and witnessed a swift economic growth in the post-independence period. The British rule in India had developed a mode of communication and automation which led to the foundation of new industries. The availability of favourable resources like mode of transportation, cheap unskilled labour and raw cotton or agriculture produce has happened to be the boon for the development of new cotton pressing, ginning, weaving and spinning industries in the district. After the First World War, Edible Oil Industry expanded with a significant rise in the groundnut crop cultivation area in the Jalgaon district.

#### **Design of Work**

A. Types of Agro-based Industries:

Four categories of agro-based industries are:-

**1. Agro-Produce Processing Units** – They process the raw materials for preserving and transporting at a low cost. Here no new item is produced. Eg. Groundnut mills, Dal mills, Rice Mills, etc.

**2. Agro-Produce Manufacturing Units** – They produce completely new items from agricultural raw materials. Here processed products are completely different from original raw matter. Eg. Textile mills, Sugar industries, Cement factories, etc.

**3.** Agro-Inputs Manufacturing Units – Factories that create products for automation of agriculture and for increasing the productivity are considered in this type. Eg. Fertilizers and pesticide factories, Agriculture supplements industries, seed factories, etc.

**4.** Agro-Service Centres – They are primarily service stations that focus on repairing, servicing and maintenance of the agricultural produce factories.

B. Major Agro-based Industries in Jalgaon district:

Some of the major agro-based industries currently set up in Jalgaon district include:-

### 1. Cotton Industry:

Before 1840 ginning process of cotton was done by hand. During 1844 Cotton Gin machines became popular among people and the Jalgaon district began its use at industries in Dharangaon and Jalgaon. Till 1850s number of small villages like Adavad, Chopda, Yawal and Kasoda had begun setting up mechanized gins. The cotton factories are spread over the entire district taking crores of investment. Cotton ginning, pressing and textile are the main work done at factories. The major industries lie in Jalgaon, Bhusawal, Dharangaon, Amalner, Bhadgaon, Pachora, Jamner, Chalisgaon, Raver, Yawal, Savda, Wargaon, Faizpur and Parola.

### 2. Sugar & Gul-making Industry:

Factories in Jalgaon see a seasonal working of Sugar and Gul-making industries during the months of January and June and crush sugarcane that is grown on their farmlands. Output is generally small and with a low quality as the production is on a small scale and the lower sucrose content in the sugarcane crop, therefore the produce is generally sold in local markets and surrounding areas. The small scale sugar factories are located at Muktainagar, Yawal, Chalisgaon, Chopda, Faizpur, Jamner and Erandol while Gul-making factories at Bhusawal, Chalisgaon and Jalgaon.

#### 3. Edible Oil Industry:

The edible oil industries are one of the oldest and the first set up industries in the Jalgaon district. Groundnut, cotton seeds, sunflower seeds, soya bean, copra and til are the raw materials required and crushed in the factories to extract and produce oil. Firemen, attendants and Engineers are employed in the factories. Women workers are also required for winnowing and cleaning of the raw materials. The produced oil is quality packed and sent to nearby taluka places in the district for local use. The oil factories are located at Amalner, Pachora, Varangaon, Dharangaon, Chopda, Bhusawal, Kajgaon, Raver, Naigaon, Chalisgaon, Faizpur, Yawal and Jalgaon.

#### 4. Food Processing Industry:

Food processing industries include Pickle, Banana and Potato Chips, Cereal, Pulses, Spices and Biscuit manufacturing industries. They generally employ qualified and skilled labour and follow safety as well as quality standards with ISO certifications. The product is generally of high quality and exported to national as well as international markets. Latest advanced machineries are used in such factories for production and packaging. Most of the large scale industries are situated near the district headquarters and some nearby it.

### 5. Dairy and Bakery Industry:

Jalgaon district is well known for 'Milk' production. The dairy development schemes are well spread throughout the area. Co-operative dairy and chilling plants are functioning very smoothly. This is one of the developed industries that are self-sufficient and self-reliant in the district. Some of the important products obtained after processing are Milk, Paneer, Cheese, Milk Powder, Bread, Butter, Yoghurt, Cream, Condensed Milk, Dried Milk, ice-cream, etc. and various by products including Ghee, Whey, Buttermilk and Skim Milk. The industries are situated at Jalgaon and prominent talukas like Chalisgaon, Parola and Erandol.

C. Geographical Factors Responsible for the Growth and Evolution of Agro-based Industries in Jalgaon District:

### 1. Favourable Climate:

Climatic conditions of a particular area play a vital role in the establishing or the development of agro-based industries. Before setting up an agro-based industry at a particular location, one must consider the climatic conditions of the place and decide accordingly. Too extreme climates i.e. too cold/humid/hot are not at all suitable for setting up of cotton textile industries.

#### 2. Soil Profile:

Soil acts as an important physical characteristic for the growth of agro-based industries. Fertile alluvial soil is the need of such industries to prosper. Soil in Jalgaon district is derived from basalt and trap. The type of soil found in Jalgaon district include Medium Black Soil (*madhyam kali*), Deep Black Soil (*bhari kali*), Forest Soil, Loamy Soil (*malai* or *galwat*) and Sandy Soil (*murmad* or *barad*). The variety of Black Soil found in the district plays a key role for the development of Cotton, Sugar and Oil industries.

#### 3. Water Availability:

Adequate and continuous supply of water is another basic need of agro-based industries in the district. Most of the already set industries are on the banks of the rivers that drain the Jalgaon district like Tapi, Girna, Bori and Vaghur. Groundwater for irrigation through wells, bore-wells and lift-irrigation is available throughout the year. Hence, factories and industries that use cash crops like Banana and Sugarcane can be found on large scale.

#### 4. Raw Materials in Vicinity:

Availability of cheap and quality raw material in a close proximity to the agro industries is highly important. It helps to reduce the cost of production of the agricultural product. For heavy industries, cost of raw material and their logistics contribute a significant role in the total cost of production. Therefore, many of the cotton, sugar, food-processing and oil industries are located close to the availability of raw materials in the Jalgaon district.

#### 5. Cheap Labour:

It is another important requirement that has to be met as proficient and affordable labours are needed to deal with the machinery and process of obtaining finished product from the agrobased industries. It is met from the taluka places like Raver, Muktainagar, Yaval, Bhusawal, Jalgaon, Chopada, Dharangaon and Amalner where skilled work-force is available in the Jalgaon district.

## 6. Capital Investment:

No industries can be set without capital investments. Money is a governing factor in the setting up of agro-based industries. Banks, Government Schemes and Subsidies, Non-Government Organizations (NGOs) and Rural Banks and Co-operatives are some of the sources of capital in the district.

## 7. Machinery and Reliable Supply of Power:

Jalgaon being one of the developed cities in the north Maharashtra has workstations and outlets that provide with latest hardware and equipments necessary for running the agro industries. Newest and technologically advanced machineries are one of the requisites of the industries today. Uninterrupted power supply ensures that all goals of production are fulfilled by the agro-based industries.

### 8. Closeness to Markets:

Close presence of markets and trading centres for easy accessibility to sell the agricultural produce is essential requirement for setting up industries in any location. Taluka places like Raver, Muktainagar, Yaval, Bhusawal, Jalgaon, Chopada, Dharangaon and Amalner have huge markets and trading centres to allow business flow in the district.

### 9. Transportation:

Freight transportation of raw materials and finished agricultural products through road is also important factor in development of industries. All villages and towns are well connected with proper roadways for easy traversal of the goods from one place to another in the Jalgaon district, thereby reducing the huge cost incurred in logistics and management of transiting the goods.

## Problems

Problems and prospects of Agro-based Industries in Jalgaon District:-

## 1. Problems related to Cotton Industry:

- i. Unreliability in the availability of raw materials.
- ii. Scarcity of high quality cotton, yarn or fibre.
- iii. High paced competition from large scale mechanized loom industries.
- iv. Shortage of modernized technology.
- v. Constant fear of closure of such industries due to less productivity of product.
- vi. Looms and spindle are aged type. It is also evident that India has the lowest percentage of mechanized automated looms in the world.
- vii. Insufficient modernized machinery leads to high cost of production which in turn leads to loss of market.
- viii. Problems in administration.
- ix. High cost of maintenance of machineries.

## 2. Problems related to Sugar Industry:

- i. High quality sugarcane requires a combination of well-drained loamy soil and neutral soil, which is in low proportion in the district.
- ii. Absence of the required soil conditions degrades the sucrose content in the sugarcane which ultimately leads to poor yield.
- iii. Uncertain year to year production causes fluctuations in prices.
- iv. Yield per hectare is quiet low.
- v. Financial loss and seasonal unemployment of labours due to a short crushing season varying from 3-6 months in a year.
- vi. Heavy taxes and duties, uneconomic cost of production and insufficient technology.

## 3. Problems related to Oil Industry:

- i. Small factories and low production.
- ii. Low oil quality.
- iii. Inability to sustain competition in market due to law quality of oil obtained.
- iv. Perishable nature of product, therefore low expiry.
- v. Extensive effort required for production of oil.
- vi. Skilled labour required to mediate with the process of production of oil.
- vii. Use of absolute outdated technology and machineries.

# 4. Problems related to Food Processing Industry:

- i. Deficient primary processing of raw materials.
- ii. Non-efficient storage and distribution facilities.
- iii. Seasonality in functioning therefore low utilisations of hardware.
- iv. Gap between production, processing and supply chaining.
- v. Non-adherence to ISO standards, thereby low focus on standardization, grading, safety and quality.
- vi. Less product development and innovation
- vii. Lack of marketing and awareness among common people.
- viii. Presence of high quality ready-to-eat products in the market.
- ix. High cost of cold storage and packaging.

# 5. Problems related to Dairy Industry:

- i. Shortage and high-priced feed/fodder to the cattle.
- ii. Unhealthy breeding system including diseased cattle, mineral and vitamin deficiencies lead to inheritance problems.
- iii. Lack of education and training on good dairy practices.
- iv. Veterinary health centres located at far off places or near district headquarters.
- v. Unhygienic milk production, dilution, adulteration, contamination and various malpractices adopted to increase the productivity and profits.
- vi. Unorganised nature of cattle raisers unlike wheat, rice, cotton, sugarcane-producing farmers.
- vii. Varied and unsatisfactory Minimum Support Price to milk and high cost of production.
- viii. High cost of packaging and logistics.

- ix. Perishable and faster run out products, therefore low expiry.
- x. Unawareness about modern scientific dairy farming techniques.

### **Conclusion and Suggestions**

Agro-based industries play a key role in the growth of a nation's economy giving a boost to the process of Industrialization in a developing country like India. Although the significance of these industries may get reduced due to certain factors like rapid paced industrial advancements, increased urbanization and the request for a diverse and technologically advanced types of processed food increases. The agro-based industries in Jalgaon district include Cotton, Sugar, Oil, Food-processing and Dairy Industries. It is evident from the study that the area around the Tapi River Basin in Jalgaon district has a large potential for the Agro-based industries. Both natural and human-influenced factors are responsible for the growth, development and evolution of such industries in the Jalgaon district. The area is rich in fertile black soil, adequate irrigation facilities, growth of cash crops and availability of skilled labour for handling of modern machineries and equipments etc.

Following suggestions have been made for the new beginning and development of agrobased industries in the district:

- i. The development and evolution of agro-based industries should form an indivisible part of the inclusive economic and industrial growth of the country.
- ii. The relative groups of agro-based industries should be put up in a harmonized way such that the derivatives, by-products and remains are processed and used simultaneously.
- iii. Revolutionary and modernized methods for management, administration and marketing should be introduced in the industries to compete with the external world and meet the export demands.
- iv. Both forward and backward-seeking relationships should be secured so that the maximum development notions are generated and met.
- v. Adoption of new institutional substructures should enable involvement of a large number of small farmers to engage in and get advantages from agro-processing. The need to flourish a co-operative environment with an eye to systematizing and correlating the interests of manufacturers, processors and consumers in order to prevent excessive belief on private corporations.
- vi. Acquisition of green and clean technology for an efficient and environmental friendly way of processing raw materials into finished agricultural product.

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