



Status of Household Petha Industry in Agra City of Uttar Pradesh: A Spatio-temporal Analysis

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Abstract— The study has done in Agra City where the lack of awareness among the people and workers of the petha industry creates major issues and restrict the proper development of this industry. To know the present status of the petha industry the present study has done and collected the secondary sources of data from the District Industries Centre Agra, Agra Nagar Nigam etc. In this study we found that the petha industry growth is stagnant from 2011-2019 and the major concentration is found in central part of the city. This industry is major cause for solid waste production in the city. Petha industry has a huge potential for further employment after the proper development of this industry. The finding has the implications, that there is a need to government has the responsibility to prohibit the all those things which is the cause for restriction in the growth of petha industry.

Index Terms— Development, solid waste, Household Petha industry

I. INTRODUCTION

One of India's most significant economic industries is horticulture. The nation ranks second in the globe for producing more than 130 million tonnes of fruits and vegetables. The processing of fruits and vegetables has been referred to as India's "Sun-rise industry." The value of the global processing market is estimated to be around Rs. 16000 billion, of which Rs. 1400 billion comes from India. It's also fascinating to know that only 2% of the fruits and vegetables produced in India are currently commercially processed, compared to over 50% in affluent nations. Over the past five years, processed fruits and vegetables have grown at an average yearly pace of almost 22% in the nation.

The fruit "Ash Gourd," whose botanical name is *Benincasa hispida* and which is often referred to as Petha in India or Kushmand in traditional ayurveda, is thought to have extraordinary therapeutic capabilities. It is wholesome and nourishing, known to serve as a

blood coagulant, and used to treat obesity and gastric ulcers. It is used to make delectable sweet remedies that are used to cure anaemia, heart weakness, and tuberculosis. Since ancient times, India has loved the petha for both its therapeutic benefits and its exquisite flavour. The common crystalline and translucent shape of sweet petha has transformed this unassuming pumpkin-like vegetable into a gourmet's dream. Petha poses a serious threat to the environment in the city of Agra and other areas despite its enormous popularity and historical significance. In addition, this serious risk spreads disease and has an impact on all three—the water, the air, and the land.

Agra's petha cluster dates back more than a century. Here, the term "Petha" refers to a type of sweet prepared from ash-pumpkins. The abundance of raw fruit and the locals' love of sweets led to the concentration of businesses engaged in the production of petha sweets in Agra. The majority of petha's production facilities are situated in Agra's Noorie Darwaza. According to legend, this location, which at the time was home to the petha industry, was where Empress Nur Jahan's procession stopped. The modest petha was presented to her as a typical Indian sweet offering to the visitor, and the Empress enjoyed its flavour and showered it with praise. The traders' reaction to the royal endorsement led them to give the market the name Noorie Darwaza. In Agra and the surrounding areas, the petha fruit is readily available. The prejudice of their respective communities has been the primary driver of this industry's expansion. The Bania and Muslim communities were the primary participants in this trade. However, due to conventional processing, the industry's growth has been incredibly sluggish. The sweet is still only ever processed by hand. The use of some technology for the preservation of the sweet has just lately begun in two or three units.

Even though the production of petha sweets has begun in several locations around Uttar Pradesh and



Delhi, the petha from Agra remains the best because of its excellent flavour and variety. In Agra, petha sweet is being produced in roughly 1588 units.

Petha sweet production and distribution have typically been family-run enterprises. Almost all businesses are run either as partnership concerns or on a proprietary basis. Most of the new units that are currently forming are the result of family dissolutions or business partnership breakdowns. It has become customary to involve family members' offspring in business from a relatively young age. Young people typically acquire knowledge on the job and infrequently pursue professional or technical education. The workforce in this sector is divided into semi-skilled and unskilled workers. Although semi-skilled labourers lack a professional degree, they have enough experience to make the product. However, unskilled labourers lack the training and experience necessary to produce the good. They are only used to assist semi-skilled labour with supporting duties. Technical training is not something that anyone in the cluster has ever heard of.

However, only three or four of them are working efficiently and have adopted canning technology to export their products to international markets. Due to its low price, reputation for providing energy, and ability to keep the body cool in the heat, petha sweet is becoming more and more popular on the home market. Since there hasn't been much mechanisation done yet, this is a labour-intensive job. Production has been outsourced as a result of simple, inexpensive processing and an easy loan system through commission brokers. Many workers have started operating their businesses with a minimal working capital investment after gaining experience of two to three years, which is also easily accessible from commission agents. The State Government is concerned about the harm that manufacturing wastes are causing to the environment. The waste water from petha production facilities has greater levels of BOD and COD, as well as some suspended solids, dissolved solids, and other contaminants. Typically, this waste water is discharged into the Yamuna River, rendering the water unclean and useless. The State Government intends to relocate all of the petha manufacturing plants to Kalindi Vihar, where a shared wastewater treatment facility has been set up, but many of the firms are reluctant to do so because the area lacks other infrastructure amenities. In

addition, tiny manufacturers don't have enough money to own their plots of land.

II. STUDY AREA

Agra is a city in India's Uttar Pradesh state, located on the banks of the Yamuna River. It's 206 km (128 mi) south of the city of New Delhi, India's capital. Agra is the 4th most populated city in Uttar Pradesh and 24th most populous city in India. Agra is one of the western cities of Uttar Pradesh. The latitudinal and longitudinal extension of city lies between the 27.0554° north to 27.1430° north latitude and 77.5240° east to 78.0449° east longitude. The study area like Agra is economically forward where the level of development is as good as compare to the other city of the western up. Agra is a popular tourist city because to its several Mughal period structures, including the Taj Mahal, Agra Fort and Fatehpur Sikri, which are all UNESCO World Heritage Sites. Agra is one of the three cities that make up the Golden Triangle tourism circuit, which also includes Delhi and Jaipur, as well as the Heritage Arc of Uttar Pradesh, which includes Varanasi and Lucknow. The Braj cultural region includes Agra. The city has huge number of petha household industries to provide the livelihood condition. Therefore, the large number of nearby village people is migrating to city to earn the good amount of money and sustain the livelihood. As a result of this, the encouragement of household industries in Agra city is some extent to provide the employment for the city and rural people to sustain their livelihood.

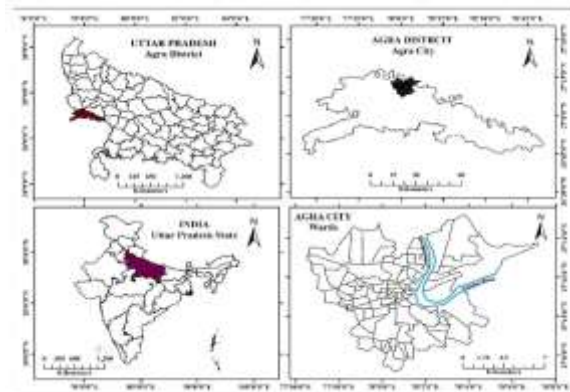


Fig. 1 Study Area Map drawn with the help of GIS Arc View 10.2.3

III. OBJECTIVES

The study set out the status of the household petha industries in the city with the objectives of to find out the present status of household petha industry in the



city; examine the nature of household petha industry development pattern in the city.

IV. METHOD OF DATA COLLECTION

This paper primarily based on the secondary source of data which is collected by government organizations like, Agra Development Authority (ADA), Agra Municipal Corporation, DIC-Agra, Ministry of SSI Report and online Published journals etc.

A. Processing

After completion of data collection, the individual slip was processed and data were converted into the tabular form for categorization of data and preparing thematic maps.

B. Analysis

Processed data were statistically presented for logical analysis. Both quantitative and qualitative methods were used in the present study. M.S. Office and other computer-based techniques were used for mapping, analyses. The finding was obtained on the basis of analysis.

C. Problems Face During Data Collection

It is very difficult task to collect the data from government organizations. They always said this data has no access to third party. After many visits, they provide data.

V. CHARACTERISTICS OF PETHA AND THEIR COMPONENTS

The petha fruit is primarily processed using two types of raw materials: raw fruit (Ash Pumpkin) and sugar. Farmers from the districts of Etha, Etawah, Aligarh, Meerut, Mujaffar nagar, and Bulandshahar bring the fruit to the petha Mandis to sell (wholesale markets). It is also transported from a portion of Madhya Pradesh and Maharashtra. Due to a petha Fruit shortage during the height of summer, the latter is even shipped from south India, specifically Bangalore, Mangalore, and Pune.

Maharashtra and Uttar Pradesh's Daurala and Rampur both supply sugar. 90% of the total units are so small and underfunded that they are fully reliant on commission agents to provide them with raw materials. The market trends are therefore dominated by commission agents.

Calcium, minerals, and carbohydrates are greatly abundant in the vegetable "petha" or ash gourd. Due to their richness in minerals and carbohydrates, all petha products are strongly advised for growing children, breastfeeding mothers, and during jaundice. It aids in improving the nerve system and nourishing the brain. Since no fat cooking oils are used in the petha preparation, it has a very low-fat content and no cholesterol. It is wholesome and nourishing, known to serve as a blood coagulant, and used to treat obesity and gastric ulcers. It is used to make delectable sweet remedies that are used to cure anaemia, heart weakness, and tuberculosis. Despite having a high sugar content, this filling treat has a wealth of health advantages, is an inexpensive source of quick energy, and shields consumers from summer heat thanks to its cooling qualities.

With an estimated daily capacity of 900–1000 tonnes of petha sweet, around 1588 such household units are engaged in the manufacture of petha in the city of Agra. Fig. 2 depicts the numerous procedures needed to produce petha the old-fashioned way. Raw fruit and sugar are the two primary raw materials utilised in the preparation of petha fruit. It's interesting to note that the petha fruit is not indigenous to Agra; rather, it is imported from several regions of Uttar Pradesh (Etah, Etawah, Aligarh, Meerut, etc.), Maharashtra, Madhya Pradesh, Banglore, Pune, etc. The other basic element, sugar, is often supplied from Maharashtra and Daurala and Rampur in Uttar Pradesh. The petha sweet is dried and boxed because it is perishable. However, producers have begun "canning" petha sweet without drying it because of its rising demand in other nations, making export to remote areas easier.



PROCESS FLOW CHART – PETHA SWEET



Fig. 2

IV. TEMPORAL ANALYSIS OF THE PETHA INDUSTRY

Agra’s petha is so famous that even though other varieties are available in most of the Indian markets, the Agra variant is the most sought-after. In 2019, almost 1588 Household industries in Agra city (mostly concentrated in the Noori Darwaza area) produce almost 700-800 tonnes. Agra petha units have shown both decreasing and increasing growth during 2000-2001 to 2018- 2019. (Table, 1 & Fig. 3).

Table 1: The Growth in Number of Units from 2001 to 2019

Year	No of Units
2001	500
2006	400
2011	950
2016	1300
2019	1588

Source: DIC, Agra 2019, Computed by Author

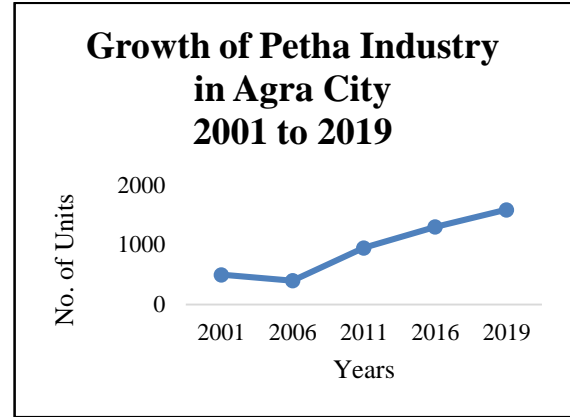


Fig. 3

Fig. 3 shows, that the number of petha units in the year 2000-2001 was recorded at 500. In 2005-2006 this number decreased to 400. It further recorded the increased number of units as 950 in the year 2010-2011. In 2015-16, an increased number of petha units was recorded at 1300. This total number suddenly increased in 2018- 2019 to 1588.

VII. Spatial Distribution of Petha Industry

The production unit in highly concentrated in 4 localities spread over 15-20 major areas. Apart from these concentrated areas, the production units are also spread in different areas of the city with less concentration. The Fig. 4 shows that the petha industry is highly concentrated in the central part of Agra city Which consist of Noori Darwaza (above 700 units), Sitla Gali (above 250 units), Bagh Mujaffar Khan (above 200 units), Chippitola and Moti Katra. There are some other places/localities in Agra like Sikandra, jagdishpura, Lal Masjid, Kajipada, Etma-dola, Tajganj, Dhanoli, Nandipura etc. whereas these units are concentrated. The concentration of petha industry decreases from the central part towards all directions of Agra City. The North-West and South-East part of the city is less concentrated as compared to the North-East and South-East part of the city.

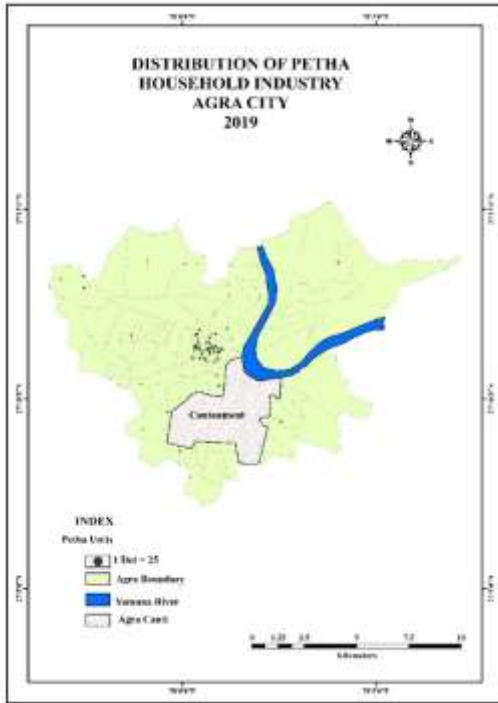


Fig. 4

VIII. WASTE GENERATED FROM PETHA HOUSEHOLD INDUSTRY

Agra is famous for its petha sweet and petha making produces a substantial quantity of organic waste. It also produces about 700 million tons per day of ash gourd waste mainly peelings of fleshy parts around the seeds and seeds which attracts mosquitoes, flies, and strays too. In some wards, waste is openly dumped along the road, vacant plots and placed on the main highway road.

Table 2: Generation of Solid Waste in the Petha Household Industry (2001 to 2019)

years	Waste Generated (MT)
2001	46500
2006	69000
2011	93000

2016	116000
2019	250500

Source: Agra Nagar Nigam, 2019, Computed by Author

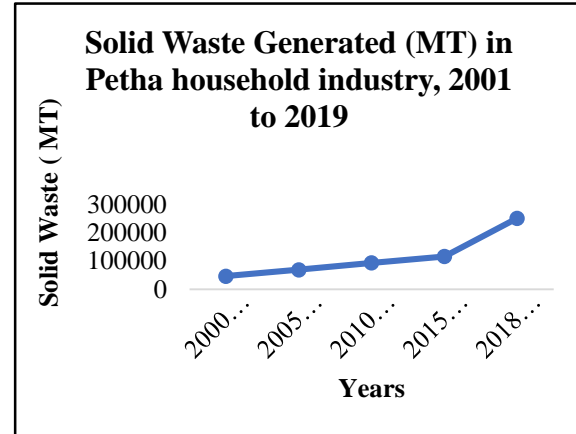


Fig. 5

Table 2 given above shows the waste generated in tons in the petha household industry of Agra city. It is evident from Fig. 5 shows that the waste generated in Agra city is about 46500 million tons in 2001. The generation of waste continuously increased from 2001-2019. The year 2019 recorded the highest waste generation i.e., 250500 million tons.

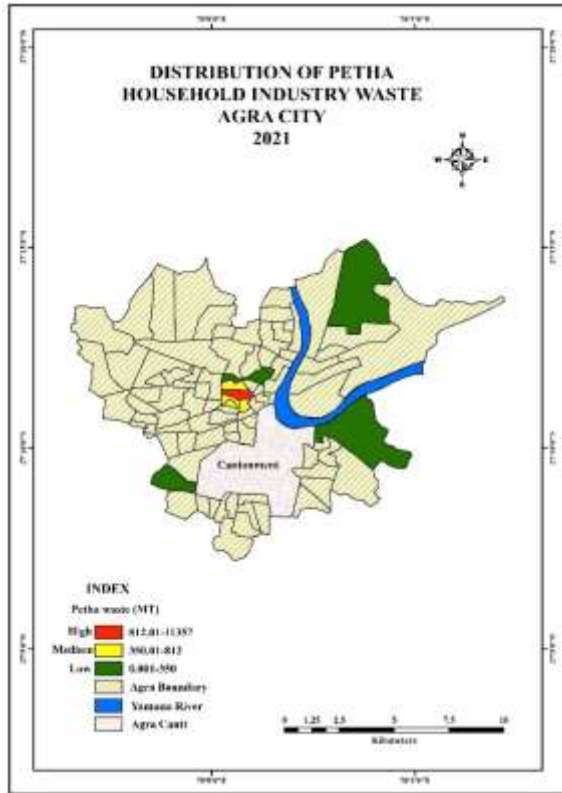


Fig. 6

The highest waste-generating ward is Noori Darwaza followed by medium waste-generating wards Moti Katra, Mantola, Dera Saras, and Bagh Mujffar, and the lowest waste-generating wards are Nai ki Sarai, Freeganj, Charsu Darwaja, Dhadhupura and Mustafa Quarter (Fig. 6).

CONCLUSION AND SUGGESTIONS

Analysis reveals that presently the growth of petha household industry is increasing. The new entrepreneur and workers want to engage in petha work due to high demand. This industry presently run by the old and young workers but the present units cause for a huge solid waste generation. This solid waste dumped in the drains and along the road due to improper dumping facility. To maintain the growth of Agra petha household industry and make this industry environment friendly there are some suggestions discussed below.

(1) It is proposed that all of the units follow environment friendly rules and regulation and should be made accessible to entrepreneurs as needed, along with the necessary infrastructure. (2) Proper

management of petha solid waste because in present the waste dump in the drains cause for various health issues. (3) Environmental awareness in workers is also important because workers and family members of the household petha industry suffer from diseases. (4) Training, marketing, a test facility, and the raw materials and components are readily available, among other things, should all be available so that they don't waste time and have access to all of the resources in one place. (5) This will improve their spirit, and the layer will undoubtedly visit them because they will be in a united form. Thus, all the suggestion has been demarcating the future orientation of the research that will be done the other researchers by going through this literature work. And government has intended to take their interest with their best regards for the complete implementation of the scheme, whatever, left out in the former implementation pattern.

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