

Sarojganj, the Largest Date Molasses Market (Khejurer Gorer Hat) in Bangladesh: How Did it Become a Rural Economy's Sustainable Local-Regional Hub?



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<https://doi.org/10.18280/ijstdp.180103>

ABSTRACT

Received: 17 September 2022

Accepted: 16 December 2022

Keywords:

buying and selling, characteristics, date molasses, formation, infrastructure, rural economy, trade

Among the minor crops of Bangladesh, the sugar crop is significant. Among them, date palm juice is deeply intertwined with the country's culture and traditions. Date molasses made from it occupies an important place in the micro-level market system, though it has not caught the attention of all nationally. Therefore, since Sarojganj is Bangladesh's largest and oldest date molasses market, this study looks at its history. Researchers have also looked into how it became a local-regional sustainable economic hub and its nature and traits. In addition to historical research methods, techniques like oral history interviews, interviews with key informants, and sustained observation have been used to meet the research goals. The research results show that a ganj called Maharajaganj was established here in the late eighteenth century and was changed to Sarojganj in the second decade of the twentieth century. Moreover, since then, seasonal date molasses hat has started to be established here. Within a hundred years, this hat became a mixed hub where some characteristics of financial, trade, and industrial hubs exist. It is expected that if the existing problems—the lack of planting date trees and decreasing the production of date juice, and the production of adulterated molasses—are solved, this hat can play a more effective and sustainable role in improving the quality of life of the people in the area in the coming days. At the same time, a small crop sector that has been ignored can help Bangladesh's economy grow in a big way at the micro level.

1. INTRODUCTION

Bangladesh is a developing country with an agricultural economy. More than 70 percent of the population and 77 percent of the labor force reside in rural areas. Approximately 87 percent of rural households depend on agriculture for at least a portion of their income. Exactly 51.88 percent of Bangladesh's workforce and two-thirds in rural regions are directly employed by agriculture [1, 2]. However, some crops are not highlighted much, even though they generate income for the rural people, especially for the poor and marginalized. Among the minor crops, the wild date palm (scientific name is *Phoenix sylvestris* Roxb), locally known as Khejur, is a horticultural crop that is an important source of income for many rural people in south-western Bangladesh.

The overall objective of this study is how the date molasses market of Sarojganj in remote areas of Bangladesh became a local-regional economic center. Its emergence as an economic hub is significant at the micro level but has never been discussed as much at the national level. However, it has been vitalizing the region's rural economy for hundreds of years. Being a non-major crop, date molasses, the main product of this hat, has not shed much light on the national economy. Moreover, being a seasonal product, it is still somewhat neglected in the economic arena. In recent years, when many people learned about the Sarojganj date molasses market through the media, many became interested in this market.

Business people and government officials have started talking about how this hat, in a remote part of Bangladesh, has become a local economic hub for the region.

It is essential to know about the establishment and development of this hat since its marketing is inextricably linked with date molasses production. However, as far as is known, no independent scholarly research has been conducted on this topic. Therefore, there is a need for independent research on this, from which the history of this hat can be known, the barriers identified, and ways of overcoming them can be found. In Rajib Ahmed's book, date molasses or the hat is mentioned in a minimal space, which is insufficient [3]. Moreover, in one of the most critical reports on date molasses in East Bengal, especially Jessore, Westland described everything in detail, but still, the production of date molasses had not started in the Chuadanga district [4]. Later, Mitra described date molasses in 'Jashohar-Khulnar Itihas', but date molasses did not find many places in the Chuadanga district [5]. In 2013, District Statistics 2011: Chuadanga was published, but the matter mentioned was not given any importance [6]. Based on the above analysis, it can be said that the evaluated literature does not answer the research questions in the debate. So, this study has been conducted on valid grounds.

The study has anchored mixed-methods approach to meet the objectives. The writers have exasperated all the issues in five sections of this paper. In the introduction part, they talk

about the goals, pointing out how important they are, and going over the relevant materials. The second section defines the terms used in this study, where ‘hat or bazaar,’ ‘rural economy,’ ‘economic hub,’ and ‘date molasses’ have been defined and analyzed in line with this study. The third part discusses about research method. Here, the historical research method has been used with a perspective approach. Information has also been gathered and analyzed through oral history interviews (OHI), key informant interviews (KII), and sustained observation. Overall, a mixed-methods approach has been used in this study. Results and discussion have been elaborately presented in the fourth section. It is found that, in the early second half of the eighteenth century, the hat started its journey as Maharajganj and was renamed Sarojganj in the 1920s. After that, the hat became a local-regional economic hub for nearly 100 years. In the last section, it is presented that the myth among the local people regarding this hat is not entirely accurate. However, with the gradual development of the hat over a hundred years, it is currently playing a role in improving the living standards of the area’s people as a center of the local-regional economy.

Through the findings of this study, the country’s people will know how the Sarojganj hat became the country’s largest date molasses hat. By letting people know what makes this market a local-regional economic hub, people will be able to take full advantage of as many opportunities as possible from this market. As a result, their quality of life can be improved.

2. KEY TERMS DEFINITIONS

2.1 Hat or bazaar

Bazaar is originally a Persian term that spread in Arabia through the folktales of The Thousand and One Nights. After that, it became familiar to Turkey and North Africa. During the Mughal period, in India, it came to refer to a single store, and in modern English, it refers to both a single store and concession selling various items as well as a fair where such items are sold, occasionally for charitable purposes [7]. However, in Bengal, a law indicates that a hat or Bazaar sits once a week [8]. Before that, Boru-Chandidas first used the term ‘hat’ in the Bengali language in 1450. He meant the area where buying and selling can be done on certain days and within certain times [9]. In Bengali, Brindaban Das first used the word bazaar in 1580 to refer to a place where goods are bought and sold. Nevertheless, he did not elaborate on this [9]. In Bangladesh, in general, people sometimes use the word hat-bazaar together, meaning a place of buying and selling. They also use the words hat and Bazaar interchangeably. However, in general, ‘hat’ or ‘bazaar’ refers to any location where people regularly congregate, such as daily or on specific days of the week, primarily to buy or sell agricultural or horticultural products, livestock, poultry, hides, skins, fish, eggs, milk, milk products, or any other food or drink items or other necessities of life. This definition also includes all stores containing such items or manufactured goods. In this study, ‘hat’ means a market held only on certain days in the week, and ‘bazaar’ means a daily market with some permanent establishment. In this sense, Sarojganj is mainly a bazaar, and Sarojganj hat is a part of this Bazaar where date molasses is bought and sold on two specific days (Monday and Friday) in the week during winter season.

2.2 Rural economy

Before understanding the rural economy, we have to get an idea about the concept of ‘rural.’ A rural area is an undeveloped territory with few houses or other structures and few inhabitants. There are few people living in rural areas. On other hand, many people reside in a city or urban region. They are situated relatively close to one another in their residences and companies. The population is lower and dispersed farther apart in rural areas, where people live and work [10]. However, in Bangladesh, the population density is higher than in any other country. In 2022, the overall density of the country is 1,119 people per square kilometer. At the same time, among the total population, 31.51 percent live in urban areas, whereas 68.49 percent live in rural areas [11]. However, in the study area (Chuadanga), almost 75.62 percent of people live in rural areas, whereas only 24.38 percent live in urban areas. It should be mentioned that in this district, urban and rural people are closely connected to one another’s economic activities.

The term ‘rural economy’ refers to the economic activities that provide income and well-being for those who live in rural areas [12]. In this study, ‘rural economy’ means all the activities that deliver income to the people who come to Sarojganj Bazaar to buy or sell agricultural, industrial, or service-related products.

2.3 Economic hub

‘Economic hub’ is a broad idea. In the broadest sense, an economic hub is a nation or area that acts as the network’s focal point for a certain area. In keeping with network theory, trade lines, trade closeness, information and communication infrastructure, financial networks, social networks, and logistical infrastructure are only a few of the several components that come together at network aggregation sites [13]. In this study, the rural economy’s local-regional hub is a center providing economic support to the micro-level stakeholders. Considering the characteristics of Sarojganj date molasses market, this economic hub can be termed a mixed hub, where offshore financial hub, trade hub, and industry hub exist altogether. It is situated in the rural western part of Bangladesh.

2.4 Date molasses

Khejur palm is a vital source of ungranulated sugar in India, Sri Lanka, and Bangladesh [14]. In Bangladesh, a palm tree is generally called khejur gach. It is also an essential component of Bengali culture and heritage. People use its juice to make goor. This goor is known worldwide as date molasses. Towards the end of Aগ্রহায়ণ, when the rainy season has ultimately passed, and there is no fear of rain, the cultivator cuts off the lateral leaves for one-half of the circumference and thus leaves bare a surface measuring about ten or twelve inches each way. After six or seven days of drying rest, the raw surface is cleaned or shaved again. Then, six or seven days later, the taping is done by making a cut in the shape of a V into the exposed surface. From this surface, exudation of the sap takes place and is caught by the sides of the V. It runs down to the angle, where a bamboo, the size of a lead pencil is inserted in the tree to catch the dropping sap and carry it out by a spout [4]. Then, two poles used to hang earthen pots are buried, one on either side of the spout. So that the juice flows directly through the spout and into the pot, the barrier rope in

the pot is linked to two poles and draped along the spout. The juice can be classified into three types: Jiraan, Dokat, and Jhara or Ula juice. The climate influences the quality and quantity of date juice. The juice is best when the weather is chilly and clear. Even though juice extraction begins in November, the most juice is available in December and January, and it dwindles as the warm days of March come.

The people who cultivate trees and extract date juice are called ‘Gachi’ or ‘Shewli.’ These people gather the juice every morning and bring it with jar or gharra. Next, the juice is filtered. The filtered juice is put into a big pan, tafala, or tin, and boiled. As you keep burning, the fluid thickens and is produced as molasses in this manner. This molasses is categorized into Patali goor, Dana goor, Jhola goor, and Chitiya goor based on their kind. Among the patali goor, Nolen patali is prepared from the juice of the first few cuts, and it tastes different from Dana goor, Jhola goor, and Chitiya Goor. Nolen patali costs two-to-three times more than other types of molasses or goor. Molasses and date juice both have great flavor.

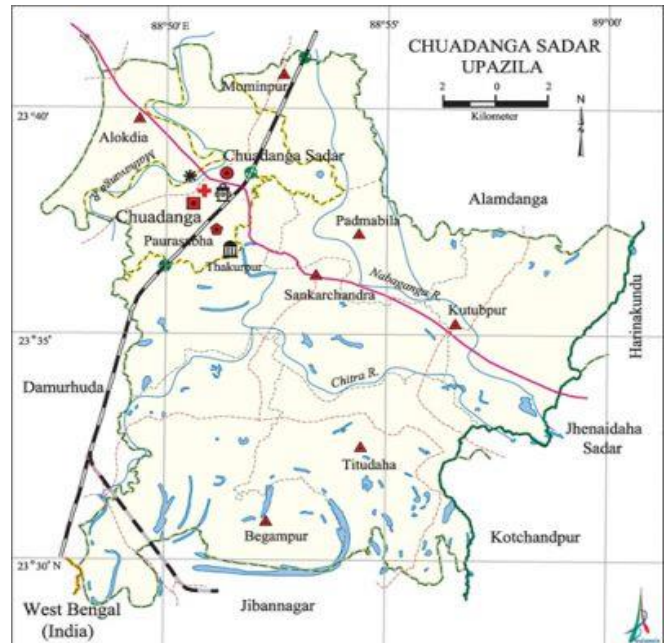
3. METHODS

This study has three specific objectives. Firstly, when was the largest date molasses market (Khejurer Goorer Hat) founded for the first time in Bangladesh? Secondly, how was the hat formed as a local-regional economic hub? And thirdly, what are the nature and characteristics of this hat as a sustainable local-regional economic hub? In order to meet the first objective, this study deploys historical research methods. Here, a perspective approach has been anchored on studying past events and proceeding to recent events [15]. The researchers have primarily focused on the historical development of the bazaar from the early formative years to the present day. They also use the oral history method to support secondary documents, especially books, reports, journal articles, etc. To materialize the method, oral history interviews were conducted with six people from three groups. These are date palm tree owners, local traders, and social observers.

To meet the second objective, a descriptive model has been used where Cooper et al. identified that if four things exist, an economic hub is automatically formed [16]. To identify the things in Sarojganj hat, few secondary works have been consulted to pinpoint the matters. Besides this, oral history method has been used to reach the goals. Because they bear witness, how was the hat formed over a long time? Again, Key Informant Interviews (KII) have been used to support the argument.

To achieve the last objective of this study, researchers have tried to depict the nature and characteristics of the hat as a hub. In this regard, secondary sources from the present and recent past have been used to frame the claims, and Key Informant Interviews (KII) has been mainly used to support the arguments. The purposive sampling technique was chosen for Key Informant Interviews, when six people were considered the critical information providers in knowing the formation of the hat from different angles and perspectives. Key informant interviewees consist of three different groups: Sarojganj bazaar committee member, gachi (as a retailer), and trader (outside from Chuadanga)—data collection techniques comprised of interviews, documentation, and discussion. Moreover, through sustained observations of the authors in the

last five years, recent data has been collected directly from the hat. So, it can be said that a mixed-method approach has been anchored to accomplish this study, where qualitative data mainly dominate and quantitative data strongly supports the claim. The following figure (Figure 1) indicates the study area of this research. It is the map of Chuadanga Sadar Upazila.



Source: S. Islam (Ed.), *Banglapedia* (Vol. 4. pp. 61-63). Asiatic Society of Bangladesh.

Figure 1. Map of the chuadanga sadar upazila as a study area

4. RESULTS AND DISCUSSION

4.1 From Maharajaganj to Sarojganj: Origin and development

Sarojganj date molasses hat is famous and is situated in Kutubpur Union of Chuadanga Sadar Upazila in Bangladesh. It should be mentioned that Chuadanga was a subdivision and a part of the Nadia district during the eighteenth century. Except for Krishganj Thana, the entirety of Chuadanga Subdivision was a part of Kushtia District in 1947, prior to the partition of India. It was constituted into a district in 1984. Its total size is 1177.40 sq km, and its latitude and longitude range from 23°22 to 23°50 north and 88°39 to 89°00 east, respectively. It is bordered on the north by the districts of Kushtia and Meherpur, on the south and east by the district of Jhenaidah, and on the west by the district of Meherpur and the Indian state of West Bengal [17]. Sarojganj Bazar is spread between Kutubpur and Shankar Chandra Union of Chuadanga Sadar Upazila. That is, the market spans both the northern and southern parts of the Chuadanga-Jhenaidah Highway. The road divides the two unions.

However, on the north side of the bazaar, where Sarojganj High School is located, long ago, there used to be sited a date-molasses hat. The hat currently sits on the ground of this school every Friday and Monday of the week. The total land area of the school is 4.77 acres, which is in Boalia mouza of Chuadanga Sadar [18]. It may be noted that the school was established in 1948, but this hat has been running since much earlier. Local people claim that this is the largest date molasses

hat in Bangladesh, which has flourished for nearly 300 years. According to their claim, the hat started its journey about the first half of the eighteenth century.

Nevertheless, they cannot mention the exact time of founding the hat. Based on oral history, two social observers claim that, during the zamindari of Nadia, especially Raja Krishnachandra Roy (1710-1782), there was a 'Kacharibari' at Subdia village under Padmabila union, just two kilometers west of Sarojganj bazaar. It was established for zamindar's administrative purpose [19, 20]. It should be mentioned that 'Kachari' is a Hindi word that means an office where a zamindar, Nayeab, or Kazi performs his work. Bijoy Gupta used this term in Bangla in 1650 for the first time. 'Kacharibari' is also a Hindi word that means a meeting place and is synonymous to 'Kachari'. In Bangla, Shahidulla Kaiser used this word 'Kacharibari' for the first time in 1965 to mean the meeting place or bothak khana [9].

A small-scale 'ganj' was first established around this Kacharibari. Ganj is a Persian word, and in the Bengali language, the Calcutta Gazette used the word 'ganj' for the first time in 1785 to refer to the place of trade and commerce [9]. Since then, people in the Bengali area have used the word a lot as a synonym for hat-bazaar. From the beginning, local farmers used to appear in this ganj to sell their products. Since there was a Kacharibari, they used to pay the land rent by selling their products. The local farmers named it Maharajaganj because they paid rent to the Maharaja Krishnachandra Roy. From this discussion, it can be concluded that although Kachari was established in the area early in the reign of Krishnachandra Roy, a ganj was established there at the end of his reign.

Towards the end of the 'House of Krishnanagar,' many parganas and mahals were lost to him due to his liberal policy toward higher-class Hindus. Then, in the early nineteenth century, these parganas and mahals passed into the hands of new zamindars [21]. Therefore, the people of the area assume that two of the heirs who got the zamindari after Krishnachandra spread influence in this area. One is Sarot Bhusan Bandapoddhay, and the other is Saroj Chattopoddhay or Chatterjee. Sarot Bhusan's zamindari was at the then Kalupole, situated on the southern side of the present Jhenaidah-Chuadanga road. And Saroj Chatterjee's zamindari was in the then Boalia, which was situated on the northern part of the present Jhenaidah-Chuadanga highway. People in this locality claim that they were primary zamindars, and there was serious competition and rivalry over the control and dominion of their zamindaris. But the statement is not beyond debate and controversy. At that time, there were eighteen parganas in Chuadanga. And all the Parganas were under the zamindari of Nadia (Krishnanagar). At this moment, there is no way whether the two rival elites of that locality were Zamindar or Parganait/Parganadar or not. On the basis of information obtained from local people, it is assumed that they were maybe intermediary zamindar, not superior. Because, at that time, 'the house of Krishnanagar' probably enjoyed superior intermediaries over a large number of intermediary zamindars.

Local people assume that Sarot Bhusan and Saroj Chatterjee may be the descendants of the zamindars of Maharajaganj. But the locals' claim about the establishment of Sarojganj date molasses hat is not logical. Because the two rivals were the descendants but not the immediate zamindars, it can be decided that Maharajaganj turned into Sarojganj during the second decade of the twentieth century. A few people also admit that maybe it was the 1920s when Sarojganj bazaar was

named after Maharajaganj. Until then, the bazaar was running its functions in the name of Sarojganj [22, 23].

However, the two rivals adopted some unique policies to establish control over the locality. Both of their strategies propagated and inspired their followers to control their respective territories. It should be mentioned that their territory was adjacent to each other. During their rivalry, both call on their ryots and supporters to run their bazaars in their respective areas. It continued until the death of Sarot Bhusan. After that, Saroj Chatterjee established his dominance over the whole area of the bazaar, which meant both sides of the Jhenaidah-Chuadanga road. But, no one can provide the exact year when Sarot Bhusan died, and Saroj Chatterjee became the unparalleled lord of that area. But, a few people assume that it was during the 1920s [19, 20].

It is clear from the above discussion that, Maharajaganj started its journey as a ganj or bazaar during the life of Maharaja Krishnachandra Roy and was renamed 'Sarojganj' during the early first half of the twentieth century.

4.2 The formation of Sarojganj hat as a local-regional economic hub

When did the date molasses hat first appear in Sarojganj? In answer to this question, an interviewee informed that, "Saroj Chatterjee likely arranged to set up a date molasses hat here soon after renaming the entire area. He took the initiative to do something new there [19]." But it is complicated to identify how the hat grew up and when it did become the heart of the local-regional economy based on date molasses. The researchers have tried to answer this question in the following ways, based on a model of Cooper et al., where they used four points [16].

4.2.1 Geographical economics through the cluster of economic activities

To form regional economic activities that lead to an economic hub, geographical economics plays a crucial role. Geographical economics is a "genre of economic analysis that tries to explain the spatial structure of the economy using technical tricks to produce models in which there are increasing returns and markets characterized by imperfect competition [24]." According to Krugman, small-scale producers frequently choose locations with high input supplies or demand when analyzing the implications of geographical economics on regional development. The cost of transportation and acquiring industrial inputs decreases as a result. Additionally, the demand for services rises when they are located close to customers. Because of this, regional economic centers tend to grow over time and become important places to get goods and services [25]. In his explanation, he focuses on three issues; geography, which means location or space, localization, and trade, with particular reference to market characteristics.

A few things naturally come to mind if we look back at the timing of date palm planting. Firstly, as indigo cultivation was at a loss during the British period, rebel farmers became interested in the production of jute and date molasses. They first sowed indigo seed on half of the land and cultivated jute on the other half. Later, thousands of date palm seedlings were planted on land that could be used to produce date molasses [26]. There is a strong correlation between space and geography. The surface of the district's soil, which is made up of recent alluvium, is made up of sandy clay and sand along

the paths of the rivers and fine silt that eventually turns into clay in the plain's flatter regions, including the Kalantar tract. The district's weather is also suitable for khejur palm and the production of date molasses. Analysis from the historical period found that the khejur palm grows naturally in India, Bangladesh, and Pakistan, especially through different flying birds. Generally, indigenous palm trees are widespread in East Asia, especially west of the Himalayas, from India to Nepal and Myanmar. Palm trees grow sporadically almost everywhere in Bangladesh. Palm trees have been seen in the Sundarbans, i.e., coastal areas. But more and better date trees are grown in Jessore, Natore, Rajshahi, and Faridpur districts [27]. Here the name of Chuadanga is missing. Because Chuadanga couldn't take its place during the golden time for making sugar from date molasses.

During the first half of the nineteenth century, the sugar trade based on date molasses became a major branch of industry. After that, date (khejur palm) cultivation began in the district of Jessore (then greater Jessore, including Jhenaidah, Magura, Narail, and Jessore, including Khulna). After 1860, when the rebel farmers of Chuadanga revolted against indigo cultivation, they logically chose to plant the seedlings of the khejur palm, following the path of Jessore, as their land and weather were perfectly suited to grow this. However, it took many years to go into production. Within a period of fifty to sixty years, after getting individual training from the molasses cultivators and producers of Jessore, the people of Chuadanga and its surrounding areas became fully prepared to produce date molasses in full swing. Finally, after the 1920s, they just became familiar as date molasses cultivators and producers among the consumers of then-East Bengal and West Bengal.

Secondly, the sugar trade was becoming weaker day by day as European business people and traders withdrew from the sugar business, especially from the sugar refinery industry. The sugar industry in Jessore District had seen much growth in the 1840s and 1850s; the area has a long history of being a central sugar-growing area. At that time, the district started to see European manufacturers' establishments, and these factories sparked commerce. The first sugar factory was set up by Mr. Blake at Dhoba, in Burdwan. Afterward, hundreds of factories were established in the district of Jessore. English machinery was set up and applied to the English system in almost all the factories. When they provided sugar farming with a significant boost, local traders stepped in and seized control of the trade that the factories had sparked. If the European market had stayed open, the European factories might have been able to compete with the native ones. The factories at Cossipore and Bally, which were set up near Calcutta, seem to have dominated the European market there because they were in better locations, and the taxes that were put in place in Europe seem to have been enough to stop the growth of the export trade [4]. In such a situation, the Europeans had withdrawn them almost entirely by creating the opportunity to flourish in this sector. Shortly after their withdrawal, the indigenous factories revived.

Meanwhile, date trees in Chuadanga have grown in abundance, and the people have learned a lot from the date molasses producers of Jessore. Two of the Oral History Interviewees informed the researchers that, Chuadanga is an area where date trees were planted in an organized way, in regular rows, with each tree being about twelve feet from its neighbor. Almost every village is thickly studded with these trees, and a substantial amount of cultivation is on land especially set aside for it [28, 29].

Furthermore, thirdly, the nature of communication and infrastructure went through a significant shift. After meeting the local consumption, most of the sugar produced from date molasses was exported to two top destinations, Calcutta and Nalchitti. Backerganj's Nalchitti is a significant commercial hub for business in the southern areas. Dhulua sugar is in demand there since it is used for local consumption. Calcutta has two demands: one for pukka sugar for export to Europe and other countries, and the other for dhulua sugar for consumption in Calcutta and other regions where it sends the sugar. The trade was made by using waterways. However, the withdrawal of the Europeans from the trade scenario and the establishment of the Eastern Bengal Railway put a milestone in the sugar trade in this region including Chuadanga.

In 1857, the Eastern Bengal Railway Company was founded in London. A new agreement was made on July 30, 1858, between the Eastern Bengal Railway Company and the East India Company to build a railway line between Calcutta on the eastern bank of the Hughli and Kushtia opposite Pabna, passing through the Ganges and one of its tributaries, Gorai, in between. As part of this project, a 53.11 km broad gauge line from Jagati of Kushtia to Darshana was inaugurated on November 15, 1862. Later, on January 1, 1871, the Eastern Bengal Railway made the Darsana-Jagti railway line go to Goalanda. The Darshana-Jagati railway line brought about a significant change in the connectivity of East Bengal with West Bengal, especially Calcutta and Hughly [30]. After that, this railway was used to export most of the sugar and date molasses to Calcutta. So it was very usual for the people of Chuadanga, especially the middlemen (byaparis) and traders of Sarojganj hat, to grab the opportunity and export the products they got from date juice. As the Sarojganj became familiar to the middlemen, buyers, and sellers, they became able to grab the opportunity. Even after that, Jessore's sugar and date molasses were brought to Sarojganj and subsequently sent to Hughli and Calcutta. At the same time, the people of east Bengal who bought date molasses from the markets of Jessore began to move to Sarojganj, as there was the availability of different kinds of date molasses products. The flow was growing gradually till the partition of India in 1947 AD. After that, Chuadanga became part of Pakistan and got a different identity. Since the export to Calcutta and Hughli became, to some extent, difficult, the Sarojganj bazaar began to flourish day by day. After getting independence from Pakistan, the hat began to develop according to its own pace, and in the first decade of the 21st century, it began to dominate the date molasses market all over the country.

4.2.2 Geographic distance and size

In the world of international trade and commerce, The Gravity model of international trade is a viral theory that claims that trade tends to fall with distance. The term derives from an analogy with Newton's Law of Gravitation, which states that the gravitational force between two objects is proportional to the product of their masses and inversely proportional to the square of their distance. In writers' words, "Strictly applying the analogy to the economic setting, the Gravity Model assumes that a 'mass' S_i of goods (or services, or factors of production such as labor) supplied at an origin i is 'attracted' to a mass D_j of demand for such goods located at a destination j . This attraction generates a flow F_{ij} of goods, but the flow is reduced by the geographic distance d_{ij} between origin and destination as follows:

$$F_{ij} = K \frac{S_i D_j}{d_{ij}^2}$$

where, K is a global free parameter to be fitted to real data. The Gravity Model predicts larger fluxes between closer and ‘bigger’ (in terms of the size of supply and demand) locations, exactly in the same way as the gravitational force is stronger between closer and more massive objects [31].”

Though the model is applied to international trade, we can see that when the European refiners or factory holders withdrew from the sugar market of Jessore region, and the trading route shifted from the waterway to the railway, a new market named Sarojganj arose. It reduced the geographic distance, saving the traders and intermediaries time and money. Meanwhile, the older sugar market was becoming weaker year by year. On the other hand, new places turned into market or hat, like Alamdanga, Badarganj, Noimile, Joyrampur Station hat, Karpashdanga, Damurhuda, Gobindahuda, Jagannathpur, Bhagirathpur, Kuralgachi, Thakurpur, Boroboldia of Chuadanga district. If the supply size is large, the trade significantly increases gradually. In this process, other markets, meaning the hat or bazaar, were growing gradually, and the date molasses products had been supplied to Sarojganj hat through intermediaries and traders. Among the other hat or bazaar of the adjacent districts that made the supply chain stronger were Harinakundo general hat, Parbotipur general hat, Mokimpur-Amtola hat, Doribinni, Chulkani, Mandia, Charatola, Valki, Rishkhali, and Ramnagar hat of Jhenaidah district; Borobazaar, Sholmari, Buripota, Rajapur, Shalika, Baribaka, Amjhupi, Shyampur, Komorpur and Mohajonpur hat of Mehepur district; Puratan Kushtia, Barokhada, Kupdaha, Jogati Board Office, Bottoil, Vadalia, Dohokula, Alampur, Komalapur, Kanchanpur, Jhawdia, Hatia, and Shankardia hat of Kushtia district.

4.2.3 Network effects

As local-regional hubs grow, they become network aggregation locations categorized by the convergence of features, including trade lines, trade proximity, information and communication frame, financial linkages, social networks, and logistical arrangements. Some experts point out that connectivity has made international cooperation much more likely, which has benefited business and economic growth [32]. Though they mentioned these factors in the case of international trade and economy, it also fits to some extent to any locality. Trade refers to the act or instance of purchasing and selling goods and services on local (wholesale and retail) or international markets. Moreover, links refer to a connection or relationship between two things or situations. If we want to explore that, is there a trade link? Yes, parties inside and outside Chuadanga are involved in buying and selling date molasses from Sarojganj hat. Trade proximity means the state of being near in space or time to do trade. Considering the internal networks, the expected demand for products in the hat has proximity. Because all types of date molasses comes here from the districts of Jessore, Jhenaidah, Magura, Narail, Kushtia, Meherpur, Pabna, and Rajshahi. Meeting the local demands, these products are bought and sold to different areas of the country, and a small amount of products is exported to different countries. Information and Communication Infrastructure refers to the information and communications infrastructure and systems that are or have been used in the business. Some basic communication tools are available in Bangladesh. Cell phones, smartphones, internet calling, social

networking sites, etc., are very ordinary and handy in this country. In this regard, a member of the bazaar committee asserts that “by using Facebook and YouTube, people, especially the traders, wholesalers, and retailers throughout the country, can learn about the bazaar [33].” In this regard, two byaparies as well as traders from Dhaka and Gazipur told the authors that, “in 2001, we first learned about the hat through our trade partners over mobile phones and Facebook. After that, we regularly come here to buy date molasses every season and make a handsome amount of profit from this business [34, 35].” A financial network is a term that describes any group of financial institutions (such as traders, corporations, banks, and financial exchanges) and their links, perfectly through direct transactions or the capacity to intermediate a deal [36]. As a local hub, Sarojganj has some entities. Here, traders from all around the nation congregate. Though the firms directly do not come in the hat, they collect date molasses through byaparis, and wholesalers. During the field survey, it is found that, almost all the prominent banks in Bangladesh have branches in Chuadanga, which is very near to the hat. Moreover, almost all the micro-credit companies are working in Sarojganj or all over the district of Chuadanga. So it is identified that, there exists a very moderate financial network which is promoting trade. Generally, social networking means using internet-based social media platforms to maintain relationships with friends, family members, coworkers, customers, and clients. However, in businesses it has different goals. In the context of Internet business, social networking is using social media websites to communicate with current and prospective consumers to improve revenue and expand business. Facebook, YouTube, WhatsApp, imo and viber are the most regularly utilized social networking platforms in Bangladesh. LinkedIn, Instagram, Pinterest, and Snapchat are well-liked social networking services in business arena throughout the world but not in Bangladesh. The proper use of social networks can reduce marketing costs, obtain immediate and reliable customer feedback, boost brand loyalty and help increase visits to your company website, and rise sales and proceeds in a couple of ways [37]. In Bangladesh, there are 184.45 million mobile subscribers till July 2022. Besides, there are 126.21 million Internet subscribers in Bangladesh. Among them, 85.97 percent and 41.73 percent of males of the Khulna division use mobile phones and the internet, respectively [38]. Since Chuadanga is in the Khulna division, it can be said that most stakeholders use mobile phones and social networks. Moreover, during the field observation, it is noticed that almost every buyer, seller, trader, gachi, and date palm tree owner possesses either a cellphone or a smartphone. The last tool of network effects is logistic infrastructure. In a broad sense, infrastructure could be characterized as physical facilities, institutions, and organizational structures, i.e., as the social and economic foundation upon which a society operates. Transportation and communication infrastructure are included in the idea of logistic infrastructure. Information and communication technology (ICT) is integral to modern logistic systems. Customers have access to more options for global intermodal transportation networks thanks to computerized goods flow management systems [39, 40]. Regarding this, Banomyong points out that:

“a regional logistics system is formed from four elements: (1) human resources and capabilities; (2) public and private sector logistics and transport service providers; (3) provincial and national institutions, policies, and rules; and (4) the transport and communications infrastructure [41].”

Now we can justify how much the Sarojganj hat is adorned with logistic infrastructure. Hundreds of laborers, buyers, sellers, and different types of traders come in this hat and do all kinds of necessary work to run the business. The field study finds that necessary human resources are available here, capable of doing the supporting works in full swing. Many government financial institutions, Sonali, Janata, Rupali, Agrani, Pubali, Uttara, Krishi, and Co-operative bank, are doing their activities in Chuadanga. Moreover, many commercial private banks are working in that area. Almost, all the banks provide loans to farmers, date palm tree owners, traders, and wholesalers. The district's transportation system is very convenient, especially the Sarojganj hat. It has been mentioned that, the hat is situated just on the north side of the Chuadanga-Jhenaidah-Dhaka highway. Besides, there are lots of connecting roads around the hat. At the same time, rail communication is also very convenient for this hat. It is just nineteen and a half kilometers away from Chudanga Rail Station. Before the partition of India, the Darsana-Jagati train route had been used extensively for the date palm-based sugar trade. Traditional indigenous vehicles, like vans, auto-rickshaws, nosimon, korimon, and loto humber, carry date molasses to the hat. On the other hand, trucks, pickups, and covered vans are used broadly by mediators, wholesalers, or byaparies to carry out their products. Necessary policies and rules are being made and implemented by the government authority. In order to boost the date molasses production, the District Agricultural Extension Department does many things, such as provide training to the date palm owners, to the gachies, provide seedlings of the date palm to the farmers, and plantation the date palm tree on the road side, canal side, etc. The last tool of logistic infrastructure is transporting and communications infrastructure, which is smooth and convenient in the surrounding of the hat discussed earlier.

4.2.4 Level of integration

Regional economic integration is an arrangement among two or more nations to eliminate economic barriers, improve productivity, and generate greater economic interdependence. It might range from a modest preferential trade zone to the most complex monetary or fiscal union [42]. However, local-regional economic integration is somewhat different, where some of the characteristics of regional economic integration are missing. Economic integration can take several forms, where a common market aims to provide enriched economic benefits to all kinds of stakeholders of the common market. Generally, a common market has four freedoms [43]. Considering this, Sarojganj hat enjoys the kinds of 'four freedoms' that boost the local-regional economy and increase productivity. The four freedoms are goods, labor, services, and capital. Sufficient goods are presented, bought, and sold here. There is no labor scarcity in, near, and around the hat. All the services are provided by the local government institutions and bazaar committee that ease the trading in the hat. To run the hat, there is no lack of capital flow; instead, all kinds of

supports and services are available [44]. So, it is found that local-regional economic integration is taking the form of a common market.

4.3 Identifying the nature and characteristics of Sarojganj hat as a local-regional hub

Within the comprehensive perception of a regional economic hub, other sorts of hubs might exist, including financial hub, trade hub, and industrial hub. Considering this criterion, researchers have tried to find out the nature and kinds of the hub from the local-regional context. They identified Sarojganj hat as a mixed hub, where some characteristics of a trade hub, financial hub, and industrial hub prevail.

4.3.1 Trade hub

Trade is the selling and purchasing of products and services, either domestically or internationally. As a market maker, traders can execute trades on their account. Additionally, they can ease transactions between purchasers and sellers. In this study, 'trade hub' means domestic trade where a considerable amount of date molasses is bought and sold. Molasses producers come to this hat, and most sell their products to the byaparies or mediators. After purchasing a mentionable amount of molasses, these middlemen sell it to the wholesalers coming from other parts of the country. Wholesalers of Sylhet, Chittagong, Barisal, Patuakhali, Noakhali, Parojpur, Gazipur, Dhaka, and other districts where date molasses is not produced enough, come to Sarojganj hat to buy date molasses of good quality. Though a mentionable amount of date palm trees are cut down and sold to brick kilns every year, the total volume of trade is increasing gradually [44]. Although the total trade volume in this market increases seasonally, the number of palm trees decreases year after year. Because of how well-known the hat is, the amount of business here is growing, but after a while, the supply of molasses may also go down. So now the time has come to determine whether palm trees are being cut down only because of their use as fuel in brick kilns or if there is any other reason behind it. In this context, two tree owners point that,

"There are many reasons behind the decrease in trees. Firstly, the number of cultivators (in local language a person who cultivate the trees for producing sap is called gachi or shewly) is decreasing day by day, so there needs to be more cultivators available for cultivating the trees. Secondly, men in present generation are no longer going into the same risky and odd jobs as their fathers and grandfathers did. Instead, they are choosing decent jobs that are easier to do. Thirdly, farmers are becoming interested in producing other cash crops in areas where date palm cultivation used to be less profitable. Fourthly, even if the old palm trees die or are cut down, people plant other trees instead of replanting them. Fifthly, at present, people no longer consider date molasses as a heritage and tradition. Instead, they only want to grow other fruits or crops for money [28, 29]."

Table 1. Transaction volume of date molasses during the last five Seasons in Sarojganj hat

Transaction season	Transaction volume (in metric tons)	Difference between the seasons (in metric tons)
2017-18	5650	-
2018-19	6230	+580
2019-20	4450	-1780
2020-21	4980	+530
2021-22	5750	+770

Source: Observation through field study

As a trade hub, one of the challenges this hat will face in the coming days is the dwindling production of date palm juice. There needs to be more research on why juice production is decreasing year over year. However, cultivators say that climate change in Bangladesh is mainly responsible for this. This is their guess. Indeed, between 1901 and 2020, Bangladesh's minimum winter temperatures increased slightly. The data shows that the minimum average temperature in January, February, and March in Bangladesh from 1901 to 1930 was 12.84 degree Celsius, reaching 13.40 degree Celsius from 1990 to 2020 [45]. The question is whether the 0.56 degree Celsius increase in minimum average temperature over the last 120 years is to blame for the drop in date juice. Therefore, independent research is required to determine the causes of date juice loss.

The researchers have presented an estimated amount of transactions that occurred in the last five seasons.

The above mentioned table 1 indicates that, the average transaction volume of the last five seasons is 5,412 metric tons. If the Covid-19 pandemic had not occurred, this average would have been higher. During the Covid-19 pandemic, trade became slow. However, in the post-pandemic period, it is regaining the increasing trends. During the seasons mentioned above, it was estimated by the district agriculture extension department that, on average, almost 2,400 metric tons of date molasses are produced only in the Chuadanga district [46]. Local producers also provided almost the same figure. But the excessive trade was significant, and the supply came here from the other molasses-producing districts, like Jessore, Jhenaidah, Magura, and Narail. Exporters buy molasses from this hat through wholesalers in order to export. Among the importing countries, India, Sweden, Canada, Italy, Saudi Arabia, Iran, Iraq, Indonesia, Great Britain, USA, Singapore, and Thailand are mentionable.

Many believe that any bazaar or hat must have a permanent infrastructure to develop into a sustainable trade hub. During the winter, people face difficulty trading under the open sky. According to market characteristics, many believe there is no need for permanent infrastructure here. Instead, trading is enjoyable and handy under the open sky. Regarding this, the bazaar committee's president notes that "Bazaar committee can afford it but does not need permanent infrastructure [44]."

Since 1947, agricultural products have been bought and sold here, except during the molasses season, on the same days. These are lentil (masur), mug, and maize crops, pulse, potato, oil seeds, pepper, onion; garlic, turmeric; and ginger, tomato, radish, bean, pumpkin, parble (potol), and cabbage, brinjal, lady's finger; arum, cauliflowers, and cucumbers; papaya, guava, lime; and lemon, jackfruit, banana; and pineapple, mango, litchi, and blackberry, watermelon, bangi [6]. Meeting the demand of Chuadanga, excessive products are being sent to the capital city of Dhaka.

4.3.2 Financial hub

The phrase 'financial hub' is derived from the hub-and-spoke arrangement, denoting the significance of a financial center to the economy of a region. The concept is also applicable to a local-regional hub like Sarojganj hat. Not only is date molasses is bought and sold seasonally, but many other agricultural products are also bought and sold throughout the year except the winter.

Figure 2 shows that, the average amount of transaction of the date molasses of the last five seasons is 703 million in Bangladeshi Taka. If the Covid-19 pandemic had not occurred,

this average would have been higher. Four types of date molasses are sold here; 'Nolen Patali,' 'Dana Goor,' 'Pure Jhola Goor or Ula Goor', and 'Chitiya Goor'. 'Nolen Patali' is produced at the beginning of the tapping period and is very expensive. During the last season, the price of it was between 350/- and 500/- BDT Per kilogram. These items are stored throughout the year and used to manufacture a variety of sweets and pithas (cakes). The money from the hat generally moves to producers of molasses and other agricultural goods through brokers (byaparies) or mediators. It helps get marginalized people engaged in the whole production process. Hundreds of thousands of taka from other agricultural products go directly to the farmers' pockets.

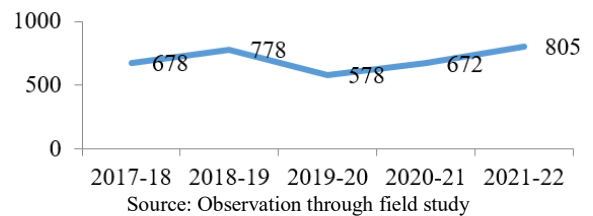


Figure 2. Amount (million in BDT) of transaction of date molasses during the last five seasons in Sarojganj hat

It should be noted that the price of date molasses is increasing every year. The base price for the last five-year calculation shown here is an average of Bangladeshi Taka 120 per kilogram. After that, it increased year over year and reached an average of Bangladeshi Taka 140 per kg. That is an average increase of five takas per kilogram per year. However, it is predicted that this rate of price increase will be much higher in the coming years.

Many financial organizations, either public or private, have been established to run financial transactions. Besides this, virtual transactions are being held through internet banking apps like Cellfin, City Touch, Astha, etc., and mobile banking apps like bKash, Nagad, Rocket, etc. At the same time, cash transactions are done physically. But no account of its amount has been found. At the same time, hundreds of workers are engaged in different types of work here. They are transport workers, laborers in the preparation of molasses jars, mutts or porters who carry goods, women workers in cleaning the hat, and others. During the molasses season, these hard-core poor workers get more cash on hat days than on other working days except the season. Moreover, several hundred people get cash all year round by working in the hat on certain days. Thus, this hat has become a local-regional financial hub in the context of the country's micro level economic activities.

4.3.3 Industry hub

The greater Jessore district of Bangladesh is famous for date molasses. A large section of the rural population of this area has been involved in the production and marketing of date molasses since ancient times. Especially after the occupation of Bengal by the East India Company, after the introduction of modern methods of sugar production from date palm molasses, this domestic industry in the agricultural sector faced a challenge. However, when sugarcane production started, the British lost interest in the date molasses-based sugar industry in the area. After 1890, indigenous methods of sugar-making from date molasses regained popularity. As a result, due to the expansion of the domestic industry, date palm tree owners from other parts of the country hired palm molasses makers

from Jessore for high wages. Thus, the cultivators of the Jhenaidah, Chuadanga, Magura, Narail, Khulna, Satkhira, Faridpur, Madaripur, Natore, and Rajshahi areas became skilled in making date molasses. At the end of the nineteenth century, palm tree owners and growers in the Chuadanga region became molasses gurus.

In Chuadanga, date molasses started to replace indigo as a significant source of income at the end of the nineteenth century. The area's soil, air, and water are all suitable for date palm trees. Because of the change of era, the region's artisans proved their skill when the Sarojganj date molasses market was established. When people from other parts of the country started mixing sugar with molasses in the hope of more profit, they still made delicious molasses with an original taste, sold it in this market, and delivered it to the surrounding districts. Gradually, when the reputation of their molasses spread to other parts of the country, wholesalers, byaparies (mediators), and seasonal traders from different parts of the country started coming to this market. Due to the steady growth of wholesalers in the market and the demand for molasses, the supply of molasses through plantation owners and traders from other nearby districts also increased. Seeing this hat of Chuadanga, others focus on making good quality molasses. Thus a thriving horticulture industry based on date molasses developed. In this regard, two gachies claim that, "We try to make good quality molasses with pure date juice so that the original taste of it can be obtained. Not everyone can make good molasses. So those who can make good quality molasses are more fortunate [47, 48]." Also, the pottery industry developed in and around Chuadanga to supply the pots, pitchers, jars, etc. required for marketing and preserving molasses, and this industry will continue to flourish until the date palm is lost. This is how agro-based indigenous industry has developed, which is still flourishing.

However, many new problems arise every year, such as availability of adulterated molasses instead of pure molasses in this hat. Usually, adulterated molasses is made by mixing harmful chemicals like soda, dye, and 'phitkari' (alum). In some parts of the country, adulterated molasses is made by mixing sugarcane juice with flour, sugar, hydrogen, and 'phitkari' (alum). Even a few years ago, adulterated molasses was not sold in the Sarojganj hat. However, some dishonest traders are now trying to sell adulterated molasses in this hat to make more profit. However, it is frequently impossible due to bazaar committee's observations, activities, and efforts [33, 44]. The market's reputation is being shattered and harmed for their misdeeds. A class of dishonest traders buy molasses from palm tree owners, growers, or producers. These dishonest traders' attempts are not stopped by inadequately enforcing the law. If that happens, the country's date molasses market may lose its tradition and heritage since molasses that has been messed with does not taste very good.

Moreover, such chemically mixed contaminated molasses poses a severe threat to health. If this keeps up, date molasses will lose its reputation as an indigenous and traditional industry. As a result, if consumers avoid the market and find an alternative to molasses, this industry hub may face threat of extinction or vanish.

5. CONCLUSIONS

There is a myth among the locals about the inception and development of the Sarojganj date molasses market (Khejurer

Goorer Hat), which is said to be three hundred years old. However, it is evident from the research that a ganj, or bazaar, was established there in the late eighteenth century, known as Maharajaganj. Later, in the second decade of the twentieth century, it was renamed Sarojganj, and within one or two years, the date molasses hat was established there. It has gradually become a focal point of economic activity in the Chuadanga district. The molasses business of many surrounding districts started coming here based on this hat. As a result, as a local-regional economic hub, it continues to affect the economic life of the area's people. Traders from regions of Bangladesh where date molasses is not produced started coming here, and it is still growing years over years. Molasses purchased from here is being exported to different countries around the world. Almost a hundred years, a mixed hub has developed with a balanced combination of financial, trade, and industrial hubs.

Because of this, the government has comprehended how vital date molasses is to the economy. Taking inspiration from this and using what they have learned, the country's people can establish similar markets in other places where date molasses is produced abundantly. Analyzing the characteristics of this hat as a local-regional economic hub, necessary steps can be taken on how to strengthen this hat. One problem with this study is that it does not look at how this hat affects individuals. So more research is suggested to measure the hat's effect on this region's individuals. It is suggested that research be done on how projects like planting date trees can go faster and be more successful in the Chuadanga district and other nearby areas. Research is required on how to extract more sap from existing palm trees. Again, research is also required to maintain the quality and flavor of actual date molasses. If these can be done effectively, it will be possible to get the most benefit from this somewhat neglected horticultural product like date molasses.

ACKNOWLEDGMENT

We would like express our gratitude to the study participants of this study.

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