



INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

An Analysis Of Contribution Of Metals And Minerals To The Mughal's Economy

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The Mughal economy, which flourished from the 16th to the 18th century, was characterized by a complex system of agriculture, trade, various industries and manufacturing. At one time economy of the Mughals was one of the world's largest economies. The robust economy of the Mughals was chiefly based upon agriculture and allied industries however the economy was boosted by the metals and minerals-based industries. Mughal economy pushed the economy not only South Asia's but also its effect was on global economy. during the period India was rich in mineral deposits. Among the metals mined diamond occupied the foremost place. that time India was also known for its iron and steel. However, gold and silver were generally imported.

Keywords: Mughal, Economy, Metal, Minerals, Industries, Diamond

The industries during the Mughal Period may be divided into two main categories— agricultural-based industries and non-agricultural industries. In Mughal India machines and tools-oriented workshops were almost non-existent. Hence most of the Mughal period industrial products were hand-made, and designed by indigenous craftsmen and carpenters. Food processing industries were getting raw material from agriculture and allied sector¹ but several metal and mineral based industries were prevailing in different parts of the country. In Akbar's reign, the system of Palace-workshop (Karkhanas) expanded. The state became producer of heavily everything it required. Apart from the capital there were state factories in other places such as Agra, Lahore, Fatehpur and Ahmedabad. During the Mughal rule, India was industrially prosperous but not so advanced in terms of technology. There were the royal Karkhanas which had been set up on the Persian model. They catered to the needs of the royalty and the nobles. Iron was produced

in Golkonda while Saltpeter was manufactured in different parts of the country, especially Bihar. Gold and silver industry reached its excellence in the time of Akbar and Shahajahan. The craftsmen of Banaras, Delhi, Gujrat and Agra specialized themselves in the manufacture of gold ornaments and silver vessels. The industries were generally run by urban craftsman for purpose of trade.² The articles such as jewellery used in temples, particularly in the South were many and varied. Important metals and minerals contributed to the economy of the Mughals and can be better understood in the following manners:

Gold was not produced during Mughal period on a considerable scale but Ralph Fitch mentions that people find gold by digging sand deposits at Patna. Gold was extracted from the sands of river Ganga and its tributaries³. However, extraction process was very expensive and the margin of profit was almost negligible. As for silver mines, references to its extraction are very meagre. Though Abul Fazl mentions the presence of silver mines in Kumaun hills and there were some traces of silver mines in Sirmour hills, largely gold and silver were pumped to India through favourable balance of trade⁵. Nonetheless, craft of jewellery making was a flourishing one. Bernier remarks, "it may be doubted if the exquisite workmanship of those articles can be exceeded by any European goldsmith." In Karnataka they were called akkasaliga⁶. They are mentioned in the inscriptions as taxpayers, receiver of grants and even as donors. They even constructed temples.

India during Mughal rule has produced many legendary gems, including the Koh-i-Noor, Hope Diamond, Regent Diamond, Great Mogul Diamond, and the Orlov Diamond.⁷ Particularly from the Diamond mining activities in Golconda, where, After the Siege of Golconda, Badshah Aurangzeb has acquired the diamond mining of Golconda.⁸ During the Mughal period Chhotanagpur plateau of the Gondwana region, which was in central India was known for its diamond that tempted Jahangir He sent two contingents there and collected huge booty of diamonds from Durjan Sal. Tavernier also talks about diamond mining in the Lohardaga district of Chhotanagpur. Apart from mentioned above Kokradesh of Bihar was famous for diamond mines. here it is pertinent to mention that Ibrahim Fatah Jang the governor of Bihar sent nine diamonds to the emperor. But with the advance of time after 1612, all glory regarding the diamond industry is lost. in this context, Golconda mines were very noteworthy regarding diamonds. Diamond mining was a state monopoly and was leased out by the kings to merchants.⁹ In Kulur mine alone the workers employed during the seventeenth century were approximately 30-60,000. The expected revenues from the diamond mines of Golconda in 1680 was one crore and twenty lakhs of rupees. These Mines were placed under the direct control of a faujdar.¹⁰ The private contractors were arranged to mine the diamond. Contractor, who with the help of hired labour mined specified plots of land for diamonds. Diamonds over the weight of a gold (3/8th of an ounce) belonged to the

emperor as was the case earlier. Around 1665, Aurangzeb showed the stone to the famous jeweler and world traveler Jean Baptiste Tavernier. At that time Tavernier wrote in his Six Voyages: "The first piece that Akel Khan the Chief Keeper of the King's jewels placed in my hands was the great diamond, which is rose cut, round and very high on one side. On the lower edge there is a slight crack, and a little flaw in it."¹¹ According to modern scholars, Great Mughal was actually having the Orlov Diamond, today it is part of Catherine the Great's imperial Russian scepter in the Kremlin.¹²

During the Mughal period, Copper was extensively used for coinage, utensils, and arms. In the north copper mines were located amidst the spurs of Aravalli's. Basically¹³, Rajasthan was known for its copper mines. The copper mine tracts in Rajasthan were Sojat, Toda Bhim, Bairat, Singhana, Udaipur, Kotputli, and Narnaul. South-east Bihar was also rich in copper ores. Raja Bahroz of Kharagpur exploited the rich mineral deposits for his benefit. It is also heard the presence of copper and iron mines in Suket-Mandi.

During the Mughal period, Iron ores were largely located in the hilly tracts extending from Gwalior to down south¹⁴. The neighboring spurs of Himalaya (Kumaun and Siwalik hills) also possessed iron mines. Iron was exported from the Deccan to the Middle East area. Masulipatanam and modern Negapatnam Pulicat, etc. were major centres of iron export¹⁵. The sea coast town Surat also possessed a number of iron mines. The smelting process was highly labour intensive, using rudimentary furnaces and implements. No underground mining was practiced; instead, deposits were tapped near the surface level. Around Bangalore sand mixed with iron deposits was collected during the rainy season. Later the sand was washed to remove the earth.¹⁶ Then it was smelted. Among the iron products, India enjoyed great reputation for its finest varieties of swords. Kumaun was known for its swords and daggers.¹⁷ The famous korij swords were made of Kutch iron. Indalwai (near Nizamabad) was an important centre for production of swords, daggers and lances.¹⁸ It largely used the raw material from Kalaghat hills.

During the Mughal period the chief mineral products mined were-salt, saltpeter, Sulphur, and borax. Borax was procured from the hills of north Bihar. Thanesar was known for its production of ammoniac; while Sulphur springs were scattered all over. Among the above salt and saltpeter were the prime minerals which helped the economy of that period.

Today Gujrat is the biggest producer of salt in India¹⁹ and India is the third largest producer of salt in the world after China and America²⁰, it is universally known salt is one of the very important ingredients of our food intake according to World Health Organization every person should take at least five-gram salt every day²¹. Thus, salt is very important and necessary food item of our diet.

The history of the salt production is very old, there was a salt mine named Khewra which was found on Koh Hill.²² This is still considered to be the largest mine in the world. this huge source of salt basically came in to light at the time of Alexander's invasion of India when the army of Alexander was crossing over the Jhelum River. However, during the period of Mughals, the production of salt started from this soil. Further, salt production probably continued uninterrupted from Huan Chwang to till date, but it got a strong edge at the time of the Mughals²³. In respect to salt production, Abul Fazal mentions that out of the excavated salt, 3/4 belonged to the worker, while 1/4th remained with the carrier. The owner's charge was 10 dams (40 dams=1 Rupee) per carrier. During the period Didwana, Sambhar, and Pachpadra up to the Rann of Kutch were important places for producing salt in Rajasthan²⁴. Nainsi reports there were 300-325 salt pits alone in the Pachparda region. In the Marwar region, the Kharwal community is involved in the manufacture of salt. In western Rajasthan, two methods were employed to extract salt 'either by digging pits (agar) or obtaining it by spreading water over a patch of land (partal). Banjaras used to transport the salt from Marwar to different regions of Rajasthan²⁵. According to Bhadani's calculation there were nearly 3000 salt workers involved in the region in the 1660s however it was just 828 in 1891. Salt was traded in huge from Agra to Bengal.²⁶ On Gujarat coast Makbulabad and Sarkar Broach, were the centre of salt production. Konkan region was also known for its salt production. Pen, Panvel, Nagothane, Revdanda, and Thana were famous centres of salt production during the said period. Here largely peasants/cultivators were the salt makers. Thus, it worked as a subsidiary to agriculture²⁷. In Karnataka, salt manufacturers were known as uppiligas and upilakara and their organisation was called besavokkalu. Thus, it is clear that salt production was one of the main professions during the Mughal which pushed the economy positively.

Saltpeter can be found naturally in three forms ordinary saltpeter, or potassium nitrate; Chile saltpeter, cubic niter, or sodium nitrate; and lime saltpeter, wall saltpeter, or calcium nitrate. In medieval period saltpeter was used for gunpowder and refrigeration. On account of its high cost, it seems highly unlikely that its use for refrigeration was available for the commoner. Saltpetre from Bihar was considered to be the best for gun powder. Patna and Saran in Bihar were famous for its production²⁸.

During the Mughal period, saltpeter industry developed in Bihar.²⁹ Saltpeter was used to make gunpowder, medicines, preserve meat and fish and to dye animals. The description of foreign traveller Peter Moody gives information that saltpeter was produced in Bihar³⁰. According to W.H. Moreland, "Saltpeter has been discussed a lot in the military history of Europe³¹. In India too, saltpeter was used to cool hot drinking water and other liquids in the 16th and 17th centuries.³²

According to foreign traveller Tavernier, Chhapra was an important centre of saltpeter production³³. Here the Portuguese and the French had established factories to produce saltpeter in which saltpeter was purified³⁴. Regarding saltpeter production, foreign traveler Pelsert writes, "Saltpeter was generally produced in places which were previously populated areas but due to some reasons had become uninhabited for some years. Saltpeter was produced from black, yellow and white soil.³⁵ In this, black soil gave the best quality because it was free from the salinity of salt.³⁶

Bihar's saltpeter was considered the best for making gunpowder.³⁷ This was the reason that various foreign trading companies had made Patna city an important center of saltpeter industry. It is known from the letters of the East India Company that the British had given the first place to the saltpeter trade.³⁸ This company had to procure 800 to 1000 tons of saltpeter from Patna every year. It is mentioned that in clear weather, about fifteen thousand people of Bihar got employment for six months from this industry.³⁹

Ahmedabad and Agra were other important centres of its production. Chala-Babra and Malpur, sarkar Ahmedabad were important centres of production of saltpeter. In western Rajasthan it was an item of state expenditure.⁴⁰ It was extracted from Jalor. Pelsaert provides a detail description of the processing of saltpeter: With the introduction of fine cementing material (lime mortar) and new techniques one finds fast growth of brick houses in the cities. They were involved in tank and temple constructions. Stone and bricks, both baked and dried, constituted prime building material. Next in importance was the lime/lime mortar. Red sandstone was quarried from Fatehpur Sikri and Rupbas. Bihar was known for cutting and polishing of stone. Phalodi in Rajasthan had two stone quarries. Abul Fazl records presence of two marble quarries at Rajgir and Gaya in Bihar used for making ornaments. Marble was quarried from Marwar. For Taj Mahal marble was brought from Udaipur region. The stones were transported on cart-loads.⁴¹ Lime was quarried from Broach and Patiali. Limestones were used for white washing. For making lime mortar surkhi was used. Lime from sea-shell was prepared in the region of Bengal.

Glass was also important mineral during the Mughal period and Various types of glass items were made during the period. Meenakari plates, spittoons, cups, mirrors, bottles etc. were made from glass. Glass bangles and jewellery were also made. The area of this industry was Patna, Tirhut and Shahabad in Bihar. Mirampur near Hajipur was the centre of pottery. Abul Fazal says that gilded glass was made in Bihar. Artisans of Patna used to make bangles and toys from glass. Glass jars made in Muzaffarpur and Tirhut were famous.⁴² Glass products were used by rich family while ordinary people did not use glass products.

While on close examination of the above fact, it can be concluded that agriculture and allied sectors were the prime base of the economy of the Mughals however economy of aforesaid period was nicely supported by metals and minerals prevalent there.

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