

REVIEW ARTICLE

# Impact of Brass Industry on the Natural Resources of Moradabad City

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## Abstract

India is going through rapid industrialization from past few decades. Some cities are major hotspot of industrial activities and their economy depends on those activities. Moradabad is one of such cities, known as the 'Brass City' of India. This has hailed the city to make an identity at the global level and maintain a place in the international market. But the industrial development has affected the natural flora, fauna and landscape of the city to a large extent. Polishing of brass goods uses hazardous chemicals which directly affect the health of labourers and fumes dissolve in the air and increase the pollution level. The residue is discharged into the river like ramganga which again causes water pollution and effects marine life. Overall it causes diseases like asthma, diarrhoea, tuberculosis and so on. Rapid Industrialization has caused the increment in the groundwater level along with the dissolution of harmful substances such as arsenic. Contamination of ground water is a serious concern for the survival of the species of both flora and fauna. This research paper is an effort to point out such hazardous environmental implications and put an effort to save this valuable environment.

**Keywords:** Flora, Fauna, Contamination, Residue, Hazardous

## Study Area

Moradabad is a historic city that traces its origins back to Rustam Khan, the governor of Katehar under the Mughal emperor Shah Jahan. Initially known as Chaupala, it was a part of the Katehar region before it was taken over by Rustam Khan in 1624. He initially renamed the city "Rustamnagar" after himself. However, this name was short-lived. Following a summons from Emperor Shah Jahan, Rustam Khan was instructed to explain his actions. To appease the emperor, Rustam Khan renamed the city in honor of Prince Murad Baksh, the youngest son of Shah Jahan. The new name, Muradabad (later Moradabad), was accepted, and the city replaced Sambhal as the capital of the Katehar region under Mughal governance.

Politically, Moradabad functions as a commissionerate and Municipal Corporation within the Moradabad District of Uttar Pradesh. It is located at coordinates 28°49' 55"N, 78°46' 35"E, about 670 feet above sea level. The city is approximately 192 kilometers from New Delhi and 356 kilometers northwest of Lucknow, the state capital. According to the 2011 census, it ranks as the 10th most populous city in Uttar Pradesh and the 54th most populous city in India. Moradabad is one of the largest cities in western Uttar Pradesh and serves

as an important center for employment, education, industry, culture, and administration.

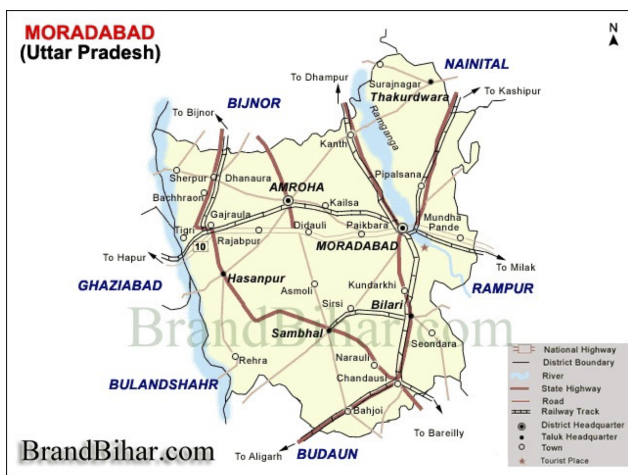
## Methodology used

The research paper uses both Qualitative and Quantitative data. Majorly secondary data is used, based on the reports of certain NGOs, Export Promotion and Council of Handicraft (EPCH) and data from Moradabad Regional Pollution Board (ITPO), District Hospital, Magazines, Journals and official websites. Primary data is used in minor amount, obtained through interview (in flexible format) of 55 labourers working in brass industries and 80 residents's settled in the colonies of Peetal Nagri and Gaagan. 5 interviews of doctors were organised with the help of phone calls to question about increasing health risks due to pollution.

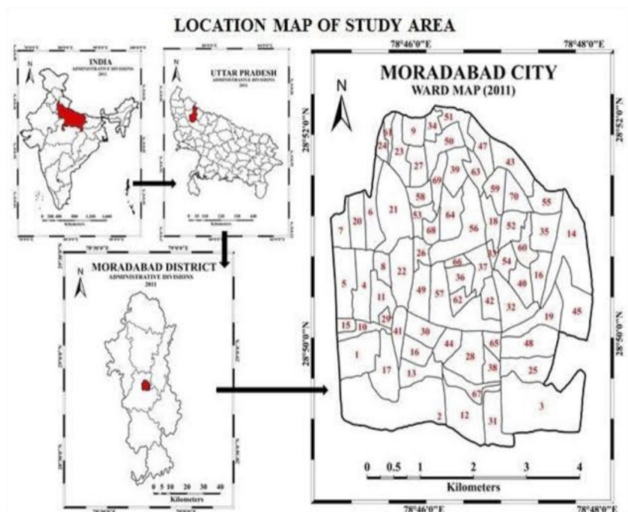
## Industrial Extinction in Moradabad

Moradabad is famous worldwide for its brass work, establishing itself as a significant player in the global handicraft industry. Skilled artisans produce beautiful brassware, jewelry, and trophies, which are highly sought after in various international markets. These products are exported to countries such as the USA, UK, Canada,





Source: brandbihar.com



Source: uploaded by Nazim Ali on Wikipedia

Germany, and the Middle East. The region boasts around 600 export units and 5,000 industries, with annual exports valued at approximately Rs. 2200 crores. Recently, additional items such as Iron Sheet Metal wares, Aluminum Artworks, and Glassware have been introduced to meet the demands of international buyers. Mentha (menthol) is also a major export from Moradabad, contributing significantly to the local economy. These products enjoy immense popularity in foreign markets, with exports reaching thousands of crores annually. Due to increasing exports and rising demand, particularly in Europe, America, and Italy, more exporters are setting up operations in the region.

Moradabad is one of the seven industrial corridors identified by the State Government under the Industrial Policy 1999-2002. In addition to the well-established Brass Handicraft Cluster, a Mentha Cluster is also emerging rapidly. The cultivation of Menthol in Moradabad, Sambhal, Chandausi, and surrounding districts is expanding, leading to the establishment of numerous industrial units. As menthol exports continue to grow, there is significant potential for further development in this sector. To support technological advancements and assist entrepreneurs, a Menthol Research & Development Center is essential in Sambhal, though it is now a separate district.

Apart from the brass and handicraft sectors, Moradabad is home to around 8,000 other MSME units, including those involved in producing Mentha oil, rice mills, sugar mills, cement, building materials, agricultural instruments, animal feed, coal bricks, and oil mills. These small-scale units employ approximately 30,000 people. The

district also hosts several medium and large-scale industries, such as distilleries, sugar mills, pulp and paper, and pharmaceutical and chemical factories, providing jobs to an additional 40,000 people.

### Environmental Impacts

Industries lead to a long time of environmental degradation. Many industrial units depends upon non-renewable energy resources such as coal, natural gas, wood and oil which not only deplete these resources but also contribute in the emission of green house gases like Carbon dioxide, Sulphur dioxide, oxides of nitrites etc.



Source: Wikipedia

Sand mining on the bank of the Ramganga River is causing soil erosion and can destroy the landscape. On the other hand, human settlement in the encroachment area has increased the vulnerability of flood-prone areas.

Industries fascinate a large population to seek employment and settle in the nearby areas which has resulted in the creation of slums and encouraged deforestation to develop colonies, especially in the areas of Milak and Afganpur. Industrial development has put forward the construction of highways, over bridges, and railway lines, which has depredated the forest cover of this area.



Source: Wikipedia

Huge population and industrial development generate about 250 TPD of solid waste on a daily basis which currently is thrown at the landfill area and vacant plots in the city. Improper disposal of solid waste over several decades and open burning of garbage have led to environmental pollution and health problems.

Manufacturing processes generate large amounts of wastewater, which often contains harmful chemicals, heavy metals, and toxins. These pollutants are discharged into rivers, lakes, and oceans, contaminating freshwater sources that are essential for drinking,



agriculture, and sanitation.



Source: Wikipedia

## Conclusion

The effect of industrial development on the environment has been a subject of increasing concern and research for centuries, as the world continues to industrialize. While industrialization has undoubtedly led to economic growth, technological advancements, and improvements in living standards, it has also resulted in significant environmental degradation. The relationship between industrial development and environmental change is complex and multifaceted, involving a variety of factors such as resource extraction, energy consumption, pollution, and waste generation. The rapid expansion of industrial development has placed immense pressure on the Earth's natural resources. As industries grew, so did the demand for raw materials, such as fossil fuels, metals, minerals, timber, and water. This demand has led to the over-exploitation of natural resources, resulting in resource depletion and ecosystem degradation. As fossil fuel reserves continue to dwindle, it becomes increasingly clear that relying on these non-renewable resources is not a sustainable path for future industrial growth. The combustion of fossil fuels for energy production, transportation, and industrial processes has been the primary source of these greenhouse gases. As a result, the Earth's average temperature has increased, leading to rising sea levels, more frequent and intense heat waves, droughts, and floods, as well as shifts in weather patterns.

The effects of climate change are already being felt around the world, with low-lying coastal areas, small island nations, and vulnerable populations being particularly at risk. The consequences of climate change are not only environmental but also social and economic, as they can lead to food and water shortages, displacement, and economic instability. Despite the extensive environmental damage caused by industrial development, there is hope for a more sustainable future. The growing awareness of environmental issues has led to the development of technologies and practices that aim to reduce the ecological footprint of industrial activities. One of the most promising solutions to reducing industrial pollution and mitigating climate change is the transition to renewable energy sources, such as solar, wind, hydro, and geothermal power. These energy sources produce little to no greenhouse gas emissions and can help reduce dependence on fossil fuels. In addition, renewable energy technologies are becoming more affordable and efficient, making them increasingly viable for large-scale industrial applications. The development and adoption of green technologies can help industries reduce their environmental impact. For example, energy-efficient manufacturing processes, waste reduction strategies, and cleaner production methods can minimize the consumption of resources and the generation of pollutants. In addition, advances in materials science, such as the use of biodegradable plastics and sustainable building materials, can help reduce the environmental

harm caused by industrial products.

Apart from it, the concept of a circular economy aims to reduce waste and maximize the reuse and recycling of materials. In a circular economy, products are designed to be reused, refurbished, or recycled at the end of their life cycle, rather than being discarded as waste. This approach reduces the demand for raw materials and minimizes environmental pollution. Industries can adopt circular economy principles by designing products with longer lifespan, using recyclable materials, and reducing waste in production processes. On the other side, Governments play a crucial role in regulating industrial practices to protect the environment. Environmental policies and regulations, such as emission standards, pollution controls, and conservation laws, can help reduce the negative impacts of industrial development. International agreements, such as the Paris Agreement on climate change, also provide a framework for global cooperation in addressing environmental challenges. In the nutshell, industrial development has had a profound and often detrimental impact on the environment. Pollution, resource depletion, climate change, and biodiversity loss are some of the most significant consequences of industrialization. However, there is growing recognition of the need to adopt more sustainable practices that can reduce the environmental harm caused by industrial activities. The transition to renewable energy, the adoption of green technologies, the promotion of a circular economy, and the implementation of strong environmental policies are all essential steps toward a more sustainable future. By prioritizing environmental sustainability alongside economic growth, it is possible to create a world where industrial development and environmental protection coexist in harmony, ensuring a healthier planet for future generations.

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