

Air Pollution and Human Right Connections: An Analytical Snapshot with Special Reference to Brick Kiln Emissions in Jammu District

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ABSTRACT

The poor air quality that we are forced to inhale, particularly in heavily polluted areas, harms our health and well being. Air is an essential resource for the sustenance of all life forms. Still, various factors such as motorization, industrialisation, rapid population and urbanisation have deteriorated the air quality. Air pollution has both short term and long term adverse effects, and it is also acknowledged as a public health threat. Most notably, human life and dignity depend on a healthy environment. Simply put, environmental rights are the foundation from which all other human rights are made possible. The right to a healthy environment is also recognised as ‘third generation’ human rights in recent years. Further, cautioning and helping citizens from hazardous levels of air pollution is a question of good governance and a matter of social justice when it comes to people who are more vulnerable to this menace. It is thus not an overstatement to say that clean air is safe air. Beyond emissions from vehicles, another contributor to air pollution in the Jammu district is brick kilns primarily located on the peripheries of the cities to feed the rapid urbanisation. Most importantly, there are 153 brick kilns presently operating in the Jammu district alone. Most of them are in the Jammu district’s irrigated agricultural areas, including R.S. Pura, Bishnah, Badyal Brahmana, Akhnoor, Mishriwala and Marh Block. Despite a robust legal and institutional framework to regulate the emissions from Brick kilns, the problem is continuously increasing with no signs of abatement. Therefore, the current research seeks to analyse various environmental and health impacts due to the operation of these kilns. It further suggests the importance of highlighting whether framing air pollution as a human rights issue would motivate and direct actions more quickly and efficiently than what exists at present.

Keywords: Air Pollution, Human Rights, Brick Kilns, Health, Environment

“Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being, and he bears a solemn responsibility to protect and improve the environment for present and future generations.”

Stockholm Declaration (1972)

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Our cities are reeling under multiple problems, including environmental issues of grave concern. The most serious of them all is the issue of air pollution. The poor air quality that we are forced to inhale particularly in the heavily polluted areas harms our health and well being. Air is an important resource for the sustenance of all life forms. Still, various factors such as motorization, industrialisation, rapid population and urbanisation have deteriorated the air quality. Air pollution has both short term and long term adverse effects, and it is also acknowledged as a public health threat. Most notably, human life and dignity depend on a healthy environment. Without the clean air, water, and food necessary to sustain life, we cannot realize our potential as human beings. Simply put, environmental rights are the foundation from which all other human rights are made possible. The right to healthy environment is also recognised as ‘third generation’ human rights in recent years. Further, cautioning and helping citizens from hazardous levels of air pollution is a question of good governance and a matter of social justice when it comes to people who are more vulnerable to this menace. It is thus not an overstatement to say that the clean air is safe air. Regrettably, besides scientific warnings and numerous accords, there is substantially no reduction in the rate of global emissions. Beyond emissions from vehicles, another contributor to air pollution in Indian cities is brick kilns which are largely located on the peripheries of the cities to feed the rapid urbanisation. Most importantly, there are nearly 125000 kilns in India and we hold the position of world’s second largest brick kiln producing country. It is also estimated that annually, the brick industry produces over 200 billion bricks. Such estimates and figures may make a layman feel proud. Still, it comes at the altar of a huge environmental cost- from the emission of black carbon and local air pollution to the loss of valuable top-soil. Though a largely unorganised sector, the working conditions for the some 10 million labourers estimated to be engaged in brick making industry in India alone is abysmal and unacceptable.² The US Environmental Protection Agency (EPA) reports that the industrial sector in India accounts for approximately 15% of all black carbon emissions, with approximately two-thirds of those emissions, or 9%, attributable to brick kilns.

THE PERIPHERALIZATION OF BRICK KILNS IN JAMMU DISTRICT

As far as the operation of brick kilns are concerned, there are 153 brick kilns presently operating in the Jammu district alone. Most of them are in the Jammu district’s irrigated agricultural areas, including R.S. Pura, Bishnah, Badyal Brahmana, Akhnoor, Mishriwala and Marh Block.³ Further, among the above areas where they are operating, they are largely concentrated in the Mishriwala area where one can easily find a chain of brick kilns on both sides of the road. What is more threatening is the fact that the concerned area is close to Jammu City. No doubt there is persistent effort to establish kilns outside the city while at the same time negotiating the need for bricks in the city.

At this juncture, it is important to mention that brick kilns come under red- category industries because of their high-polluting character. In the Jammu district alone, nearly 154 brick kilns are working. As far as city of Jammu in the UT of J&K is concerned, the air quality standards are

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1. Can polluting brick kilns be cleaned up? – Down To Earth, available at: <https://www.downtoearth.org.in/news/can-polluting-brick-kilns-be-cleaned-up-48953> (last visited on March 9, 2021).
 2. All brick kilns flouting norms with impunity, available at: <http://www.earlytimes.in/m/newsdet.aspx?q=104406> (last visited on March 9, 2021).

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much alarming. The study conducted by the World Health Organization is an eye opener in this regard. As per the Ambient Air Pollution Database released by WHO, out of the 20 most polluted cities of the World, 13 are from India, and Jammu is one among them as its acceptable particulate matter levels are higher than the prescribed limits.⁴ Most notably, worsening air quality has also pushed the Jammu city into the category of non-attainment cities.⁵ As per the Central Pollution Control Board, Jammu and Srinagar cities have air pollutants towards the higher side as such violates the standard permissible limits. Due to this, these cities figure at Serial No.28 and 29 respectively in the list of 104 non-attainment cities across the country.⁶

In the area under discussion, besides vehicular pollution, the emissions from brick kilns industries are the main contributor to deteriorating air quality. There is number of other industries too operating in the area mentioned above. Still, they largely fall under Green and Orange category list and thus are less responsible for causing air pollution in the district. There are several other issues entwined with the operation of these brick kilns i.e. whether they are operating near the residential area, whether they are following the guidelines regarding emission standards, whether law enforcement agencies inspect these units at regular intervals, condition of the brick kiln workers and the perception and attitude of the people living in the adjoining area regarding their impact upon the environment and their health. In some areas, agricultural land has been reduced to large pond-like structures with deep-digging. Experts like Shakil Romshoo of Kashmir University's Earth Sciences Department say that the land in agricultural belts cannot be dug beyond two to three feet whereas the brick kiln owners dig the land as deep as 15 to 25 feet.⁷

We can gauge the intensity of the problem from the fact that despite numerous pollution control laws in place to regulate the pollution caused by these brick kilns in the region, the J&K government has also passed the Jammu and Kashmir Brick Kilns (Regulation) Act in 2010 in order to regulate and control the emissions from brick kilns in its territory. As per the rules of the Jammu and Kashmir Brick Kilns Regulation Act 2010, a brick kiln cannot be established on agricultural land. Further, securing no objection certificates (NOCs) from departments such as forest, agriculture, health and education is a must besides the permission from the concerned deputy commissioner. However, it has been observed that almost majority of brick kilns are functioning without proper environmental clearances and violating the regulations with impunity. A story published in the leading newspaper of the J&K, Daily Excelsior, highlighted how brick kilns in RS Pura violate rules by digging out of agricultural land to the extent of

3. Alarming! Jammu figures in WHO list of 20 Cities with dirtiest air, available at: <http://www.earlytimes.in/m/newsdet.aspx?q=124493> (last visited on March 10, 2021).

4. Air Quality Worsens in Jammu, Srinagar, available at: tribuneindia.com/news/archive/j-k/air-quality-worsens-in-jammu-srinagar-747057 (last visited on March 10, 2021).

5. Jammu, Srinagar cities' worsening air quality is nobody's concern, available at: <https://www.dailyexcelsior.com/jammu-srinagar-cities-worsening-air-quality-is-nobodys-concern/> (last visited on March 10, 2021).

6. Kilns add to Jammu and Kashmir's air and land pollution, brick by brick, available at: <https://india.mongabay.com/2019/08/kilns-add-to-jammu-and-kashmirs-air-and-land-pollution-brick-by-brick/> (last visited on March 10, 2021).

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creating carters like cavities and deep shallows. Still, the revenue and police authorities are acting in the manner as if nothing of the sort was going in the concerned area.⁸

Apart from being the centres of demographic growth, Jammu City is considered to be centres of economic activity and increased consumption of resources. As a consequence, rapid urbanization requires a rigid integrated approach able to foster urgent synergies between different sectors to limit adverse consequences of urbanization, mitigate pollutants emissions, and ensure sustainable urban development.

BRICK KILN – WORKING AND EMISSIONS

A brick kiln is generally 120 ft high (part of which is under the earth) and around 100 ft chimney and space, around 12 ft high, 32 ft in length and 10 ft in breadth, where the bricks are placed. In this space, there are around 36 chambers in which 13 lakh clay bricks are placed for drying or hardening, for which around 234-250 tonnes of coal (old technology) and 130-156 tonnes (new technology) are needed for a single operation, which continues for a month 24×7. Every kiln is operated 5-6 times a year. In new technology, 5 per cent ash is left after burning coal, while in old technology, 15 per cent ash is generated. Nearly 200 to 250 people are dependent on each kiln for a living.⁹

The brick kiln industry is a booming industry as the demand for bricks increases almost universally due to fast economic growth and rapid urbanisation. The raw materials used for brick productions are soil clay or sediments from river, which are rich in fine particles. Most brick kilns use Assam coal, Slack coal or lignite, which contain a high level of sulphur and high ash content (25-30%).¹⁰ The burning of coal produces a high level of sulphur dioxide and black carbon. In certain areas, low grade carbonaceous materials such as rice husk, bagasse and wood/saw dust are also used as a part or full replacement of coal.

A report on Type Study “Consumption of Coal for Production of One Lakh Bricks” conducted by Directorate of Economics & Statistics Planning & Development Department, Government of J&K (2006-07) conducted during 2005-2006 is relevant. The study selected 5% of the brick kilns from five districts of the Jammu division and four districts of the Kashmir division to determine the quantity of coal used and production of bricks made during the reference period 2003-2004. On average, 14.45 tons of coal was used for production of one lakh bricks in the sample kilns in the State. Jammu being a hotter climatic region, the consumption rate is less than Kashmir division, a temperate zone. This can be visualized from the fact that only 13.19 tonnes of coal are used for production of one lakh bricks in Jammu division compared to 18.62 tonnes used in the Kashmir division to produce similar bricks. On average, 75.16 quintals of firewood were consumed to produce one lakh bricks; the brick kilns of the Jammu division consumed 76.52

7. Brick kilns in RS Pura violate rules, available at: <https://www.dailyexcelsior.com/brick-kilns-in-rs-pura-violate-rules/> (last visited on March 10, 2021)

8. Anju Agnihotri Chaba, “Explained: How brick kilns contribute to rising pollution”, The Indian Express, November 18, 2019.

9. A.D. Bhanarkar et al, Assessment of Air Pollution from Small Scale Industry, Environmental Monitoring and Assessment 80, pp.125-133 (2002).

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quintals per one lakh bricks, while 70.64 quintals per one lakh bricks were consumed in the brick kilns of Kashmir division.¹¹

Using thermally low efficient kilns, outdated technology such as Bull's Trench kilns and inefficient firing technologies contributes to particulate and gaseous emissions. Brick kilns emission consists of mainly fine particles of coal, dust particles, organic matters and small amount of gases such as SO₂, NO_x, H₂S, CO etc. The quantum of the dust evolved from non-chimney sources in brick kiln area is very high. This runaway dust in the workplace contributes to the highly dusty conditions in and around the brick kilns and is further aggravated when the wind speed is high. According to the Science and Technology department, if a kiln runs on the old technology, its emission levels are 500 to 1500 mg/Nm³ (carbon, sulphur and several other harmful metals in the air). Meanwhile, an upgraded brick kiln's emission levels were found to be in the range of 105 to 195 mg/Nm³, and it can check particulate matter in air upto 70%.¹²

HEALTH AND ENVIRONMENTAL IMPACTS

Brick kilns may look innocuous from space, but kilns are outsized threats on the ground, catastrophic effects for health and global warming. Emissions from brick kilns comprise fine dust particles, hydrocarbons, SO_x, NO_x, fluoride compounds, CO, and small amount of carcinogenic dioxins. SO₂ is a water soluble, irritant gas, which predominantly affects the upper airways. Infiltration of the air pollutants is larger through mouth inhalation than with nose inhalation while working. Acute exposure to SO₂ produces instant bronchial constriction, contraction of the airways, amplified pulmonary resistance, increased airway reactivity and changes in metabolism while chronic exposure consequences in inflammation of the mucosal tissues and increased secretions. Mutilation of lung function and condensed life span in humans has been attributed to long standing exposure to urban air pollution. Children, the elderly and those previously suffering from respiratory ailments, such as asthmatics, are mostly at risk. The brick kiln industry plays an important role in the development of respiratory- related diseases as has been investigated by Zuskin et al. (1998); there was a significantly higher prevalence of chronic cough (31.8%), chronic phlegm (26.2%), and chest tightness (24.0%) in exposed workers, compared with control workers (20.1, 18.1 and 0%) (P < 0.05) and this increased symptom frequency was also documented among non-smokers studied by age and by length of employment, suggesting a work-related effect in brick kilns.¹³

In addition to contaminated air, the kilns degrade the soil around them as workers dig it up to be made into the clay that will be moulded, heated and dried into bricks. Runoff from stripped patches of land damages the fertility of nearby cropland, making it harder to grow food and compounding the kilns' health effects. All the brick kiln operations right from digging of earth to unloading fired bricks from the kiln are accompanied by dust, leaving the whole nearby and workplace dusty. Air pollution in a brick kiln is produced both through stack emission and

10. Government of Jammu and Kashmir "Consumption of Coal For Production of One Lakh Bricks" 2006-07, available at: http://mospi.nic.in/sites/default/files/publication_reports/J%26K_Coal.pdf (last visited on March 18, 2021).

11. *Supra note 8*.

12. Mohd Skinder Bhat et al, "Brick Kiln emissions and its environmental impact: A Review", Journal of Ecology and the Natural Environment 6 pp.1-11 (2014).

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fugitive emissions. Moreover the long- term brick kiln industrial activity affected the soil characteristics, structure of plant biomass and species diversity. This structural alteration is indicative of adjustment implications for plant communities in anthropogenic ecosystems.¹⁴

Air pollution has both short-term and long-term adverse health effects. As observed by the Forum of International Respiratory Societies, “Breathing unhealthy air is a cause or contributor to most respiratory conditions.”¹⁵ On a global scale, greenhouse gas pollution has led to climate change with serious direct and indirect consequences for human and planetary health. At this moment it is important to highlight whether framing air pollution as a human rights issue would both motivate and direct actions more quickly and efficiently than what exists at present. Air pollution has long been an acknowledged public health threat and viewed as an inevitable consequence of energy use and industrial production. Its consequences and costs are merely an externality for polluters, whether individuals or corporations. However, drawing on Hardin’s analogy of the “tragedy of the commons”, the collective actions of polluters have created a situation that threatens the health of all, and governments have human rights obligations which have been inadequately invoked to protect the public’s health from air pollution. The legal basis for action can be derived from the right to health and related rights. The apex court has made it clear in the catena of judgements¹⁶ that the right to live is a fundamental right under Article 21 of the Constitution. It includes the right to the enjoyment of pollution-free water and air for full enjoyment of life. All citizens have a right to breathe unpolluted air. Further, it has been underlined in several cases that the proper implementation and enforcement of anti-pollution laws is of prime importance to avoid ecological degradations and their adverse effects.¹⁷

LEGAL FRAMEWORK TO REGULATE POLLUTION FROM BRICK KILNS

- The Air (Prevention and Control of Pollution) Act, 1981 was enacted under Art. 253 of the Constitution to implement the decisions taken at the Stockholm Conference in 1972 in which India participated. The Act aims to provide for the prevention, control and abatement of air pollution and the establishment of Central and State Boards to effectively implement the act. As per the mandate of the Air Act, the Central Board may advise the Central government on any matter concerning the improvement of the quality of air and the prevention, control or abatement of air pollution. It may provide technical assistance and guidance to the State Boards, carry out and sponsor investigations and research relating to problems of air pollution and prevention, control or abatement of air pollution.¹⁸ Likewise, State Board shall advise the State government on any matter concerning the prevention, control and abatement of air pollution. One of the important function of the State Board is to lay down in consultation with the Central Board and having regard to the standards for the quality of air laid down by the Central Board,

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13. S. Gupta and R. Narayan, Brick Kiln industry in long-term impacts biomass and diversity structure of plant communities, Curr. Sci. 99(1) pp.72-79 (2010).
 14. Forum of International Respiratory Societies. Respiratory diseases in the World. Realities of today - opportunities for tomorrow. European Respiratory Society; Sheffield, UK: 2013.
 15. M.C. Mehta v. Union of India, (2003) 5 SCC 376; M.C. Mehta v. Union of India (Matter regarding diesel emissions), (1999) 6 SCC 9; Subhash Kumar v. State of Bihar, (1991) 1 SCC 598.
 16. Indian Council for Enviro-Legal Action v. Union of India (1996) 5 SCC 281.
 17. The Air (Prevention and Control of Pollution) Act, 1981, Section 16 (2).

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standards for emission of air pollutants into the atmosphere from industrial plants and automobiles or for the discharge of any air pollutant into the atmosphere from any other source excluding ship or an aircraft. However, different standards may be laid down for different industrial plants having regard to the quality and composition of emission of air pollutants into the atmosphere from such industrial plants.¹⁹ Besides, it also has the power to inspect at all reasonable times any control equipment, industrial plant or manufacturing process and air pollution areas to assess the quality of air therein and take steps necessary steps for the prevention, control or abatement of air pollution in such areas.²⁰ Further the State Government may, after consultation with the State Pollution Board declare any area or areas within the state as air pollution control area or areas for the purpose of prevention, control and abatement of air pollution.²¹ A person operating any industrial plant in any air pollution control area are prohibited from allowing air pollutants above the standards laid down by the State Board.²² The State Board is also authorized to take preventive action if there is any apprehension that emission of any pollutant, over the standards laid down by the board under Sec. 17(1)(g) is likely to occur because of any person operating an industrial plant. The board may make an application to the court to restrain such person from emitting such air pollutant.²³

A State Board or any officer empowered by it can take samples of air or emission from any chimney, flue or duct or any other outlet for the purpose of analysis²⁴ and submit it to the State Air laboratory²⁵ established under the act. The act also empowers the State Boards to put restrictions on use of certain industrial plants without the previous consent of the State Board.²⁶

- Environment Protection Act, 1986 : Central Government has also given the powers to take all necessary measures for purpose of protecting and improving the quality of environment and preventing, controlling and abating environmental pollution under the Environment Protection Act, 1986.²⁷ The Act's purpose is to act as an 'umbrella' legislation designed to provide a framework for Central government co-ordination of the activities of various central and state authorities established under the previous laws related to environmental protection, such as Water Act 1974 and Air Act, 1981. The Environment (Protection) Rules lay down procedures for setting standards of emission or discharge of environmental pollutants.²⁸ The act's scope is wider, with 'environment' defined to include water, air and land and the inter-relationships which exist among water, air and land, and human beings and other living creatures, plants, micro-organisms and property.²⁹

18. *Id.*, Section 17(1)(g).

19. *Id.*, Section 17(1)(e) & (f).

20. *Id.*, Section 19.

21. *Id.*, Section 22.

22. *Id.*, Section 22-A.

23. *Id.*, Section 26 (1).

24. *Id.*, Section 28.

25. *Id.*, Section 21.

26. Environment (Protection) Act, 1986, Section 3.

27. Environment (Protection) Rules, 1989.

28. *Supra note* 26, Section 2(a).

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- Jammu and Kashmir Brick Kilns (Regulation) Act, 2010

The intensity of the problem can be gauged from the fact that despite numerous pollution control laws in place to regulate the pollution caused by these brick kilns in the UT of J&K, the government has also passed the *Jammu and Kashmir Brick Kilns (Regulation) Act* in 2010 in order to regulate and control the establishment of brick kilns in the State. The Act enjoins upon the licensee of every brick Kiln holder to abide by the pollution control laws in force. It shall take all precautions, adopt such measures, and install such devices as prescribed to protect the environment and control pollution. Air pollution due to dust, exhaust emissions or fumes shall be controlled and kept within permissible limits specified under the relevant laws in force from time to time. But the menace of unregulated brick kilns is still looming thereby damaging the fragile environment of our state. It has even been observed that most of the brick kilns use firewood for baking the bricks, thus denuding the area of green cover.

CONCLUDING OBSERVATIONS

It is a matter of common observation that the existing regulations are imperfectly enforced at best. Violation of anti-pollution laws adversely affects the existing quality of life. Still, the non-enforcement of the legal provision often results in ecological imbalance and degradation of environment, the adverse effect of which will be borne by the future generations. The operation of brick kilns results in environmental degradation due to emissions of significant quantities of particulates and gaseous pollutants. The level of gaseous and dust pollutants may be reduced by providing better quality coal. The use of pulverized coal of 10 mm sizes may facilitate better combustion and lesser emission of smoke. Mechanical feeders should be used for coal feeding. These would ensure most effective burning of the coal and lower the emission and introduction of cleaner technologies such as Vertical Shaft Brick Kilns (VSBK) in place of Bull trench kilns. Air pollution control equipment consisting of baffle arrangement inside the chimney with a gas bypass system may be installed in the chimney to arrest pollution. Utilization of fly-ash for brick manufacture through cost effective technology will save the precious topsoil required for agricultural production. The development of a green belt around the brick kilns may be an effective mitigation mechanism for fugitive emissions. Proper health facilities should be provided to the workers. At the same time environmental awareness programs should be organized. People need to be sensitised regarding various health and environmental hazards attributable to ineffective air quality management. However, by asking for regulating the operation of brick kiln industries shall not be taken to mean that anyone's livelihood should get affected but at the same time violating rules regarding agricultural land and requisite environmental clearances also cannot be condoned. Most notably, human laws need to be reformulated to keep human activities in harmony with the unchanging and universal laws of nature.³⁰ Thus, unless air pollution, an externality, is seen as a moral, ethical and legal concern, any action will be half baked.³¹

29. World Commission on Environment and Development, 'Our Common Future' 1987, Oxford University Press, Oxford at p.330.

30. Arvind Jasrotia, "My Right to Existence- The Sordid saga of Future Generations Through a Child", *available at*: <http://www.livelaw.in/right-existence-sordid-saga-future-generations-child> (last visited on March 18, 2021).

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Conflict of Interest

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