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A perspective on silicosis in Indian construction industry and right to life in context of clean environment

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Abstract
Living in a healthy environment is a basic human need and is preferred by all. A healthy atmosphere is a gift from nature. For all living things to exist, air, water, and land are necessary. This is a very sensitive matter that calls for a more thoughtful approach and a selfless mindset. This essay emphasises the value of a healthy environment within the framework of the right to life, which is a fundamental assurance for the advancement of the individual, the community, and the country.
For many years, silicosis has been one of the most significant occupational public health issues in the world. Employees who experience symptoms often choose to ignore their conditions and carry on working in dusty environments because they are unaware of the significant health risks and have low incomes. The employees must be transferred to a different position in the same factory where they won't be exposed to silica dust in order to prevent any more dust exposure. Exposure to silica dust and its associated health effects are entirely avoidable, and the advantages of prevention far exceed those of treating silicosis patients.

Keywords: Environment, clean environment, silicosis, silica, mines

Introduction
Environmental issues are no longer only perceived as pollution affecting developed nations; rather, they are perceived as a global threat that endangers not just the planet but also all of humanity, including future generations. The advancement in our understanding of the phenomena that endanger the planet, jeopardise human well-being, and violate fundamental rights is evidence of the global nature of environmental problems. These phenomena affect not only the natural resources (desertification, deforestation, soil erosion, disappearance of certain species, deterioration of flora and fauna, exhaustion of non-renewable resources, etc.) and the natural environment (pollution of water, air, and atmosphere, seas, oceans, and rivers; depletion of the ozone layer; climatic changes) but also the population and human settlements (housing, town planning, demography, etc.) and human rights (the human environment, living, working, and health conditions; conditions for their exercise and the enjoyment of fundamental rights). It is now feasible to transition from environmental law to environmental rights, as stated by the Stockholm Declaration of 1972, by using a global approach to these phenomena that considers their multifaceted aspects, including their human aspects. People were not as aware of the negative effects of environmental damage when the UDHR was formed in 1948. The countries' main concerns were economic growth and industrialization.
The growing support for the right to a healthy environment is indicative of the recognition of the environmental dimension of human rights. Since 1968, an increasing number of international declarations and statements have specifically acknowledged the fundamental link between environmental protection and respect for human rights.
There are several studies that list these constitutional clauses. In general, they show that environmental human rights are included in legal traditions beyond national constitutions.

Hurdle of Silcosis in Clean Environment
The construction sector is essential to a country's economic expansion and is a key component of its development strategies. About 32 million people are employed in India's construction sector, which has a market capitalization of approximately Rs. 248,000 crores. After the agricultural sector, it is the second largest contributor to the GDP. Significant employment is produced by it, and other manufacturing sectors such as cement, bitumen, iron and steel, chemicals, bricks, paints, tiles, etc., with a combined yearly value of Rs. 192,000 crores, benefit from its growth impetus. Today's construction industry is a vortex of opportunities and technological advancements that move very quickly. The urgent need for infrastructure development makes it essential. An infrastructure's state of development is indicative of a nation. One could argue that the building sector serves as the infrastructure sector's infrastructure.
This article addresses the prevalence of silicosis among construction industry workers in this nation and provides strategies for mitigating its effects. Inhaling airborne crystalline silica and being exposed to dust at work can lead to silicosis, a debilitating lung disease. If materials with even trace amounts of crystalline silica are used in ways that result in high dust concentrations, they could be dangerous. Depending on how long an individual is exposed to the disease, silicosis can progress and frequently be fatal. There is a lack of precise documentation regarding the extent of this issue in terms of illnesses and deaths. However, among those employed in the construction industry, it is a leading cause of illness, death, and missed work.

Silica
Minerals classified as silica have the general formula SiO2, which is a combination of silicon and oxygen. It can be combined, meaning that SiO2 is chemically combined with another atom or molecule, or free, meaning that only SiO2

is present. It is crucial to understand the distinction because free silica is the only source of the silica issue. The main ingredients of crystalline silica are quartz, granite, and sand.
There are two types of free silica: crystalline-free silica, which has five main forms, and amorphous-free silica, which has numerous forms. Both crystalline-free and amorphous silica are present in some materials. Only crystalline-free silica is linked to diseases related to silica. Sands from beaches and banks are the most prevalent sources of silica that lacks crystals. Fused silica, which can be made by heating either the amorphous or crystalline forms, is a third type of free silica. Tridymite and cristobalite are two more forms.
In terms of geology, quartz—a major form of silica—is the second most prevalent mineral in the crust of the earth. It is easy to find quartz in igneous and sedimentary rocks. The percentage of quartz in various types of rock can vary; for instance, the percentage of quartz in granite can range from 10 to 40 percent; the average quartz content of shales has been reported to be 22 percent; and the average quartz content of sandstones is 70 percent.

Siliocosis

One of the earliest occupational diseases in history, silicosis dates back to ancient Greece. ever since the 1800s. The terms consumption, ganister disease, grinders' asthma, grinders' dust consumption, grinders' rot, masons' disease, miner's asthma, miner's phthisis, potters' rot, sewer disease, stonemason's disease, chalicosis, and shistosis are used to refer to various health issues linked to exposure to crystalline silica dust.
When silica dust is inhaled, the body reacts by producing silica toxicity (silicosis). The innermost layers, or alveoli, or air sacs, are where the exchange of carbon dioxide and oxygen takes place. The respirable fraction of the dust, which is generally defined as particles smaller than five millionth of a metre, can reach these depths. Crystalline silica is inhaled by workers and settles on the alveoli, where macrophages, which are white blood cells, attempt to remove it. Nevertheless, the macrophages rupture due to the free crystalline silica particles. In response, the lung tissues scar and form fibrotic nodules around the silica particles that have become trapped.
The formation of numerous "scars" after extended exposure results in a decrease in the elasticity of the alveolar surface. This manifests as dyspnea after physical activity. It is rare for symptoms to appear in less than five years, and in many situations, it may take longer than two years for them to become incapacitating or fatal.
Freshly fractured silica sand (sawed, hammered, or treated in a way that produces airborne dust) may cause a worker's lungs to react more severely. This element could play a role in the emergence of accelerated and acute silicosis.

Factors Influencing the Development of Silicosis

A number of factors influence the development of silicosis, including

- Form of the silica
- Content of crystalline-free silica in the dust
- Amount and kind of dust inhaled
- Relative size of the inhaled particles
- Length of exposure
- Individual resistance
- Smoking habits
- Disease status
- Age

Types of Silicosis

Depending on the amount of airborne silica, workers may contract any one of three forms of silicosis:

- Chronic silicosis usually develops after ten or more years of exposure to relatively low concentrations of crystalline silica.
- Fast-tracked silicosis, arising from prolonged exposure to elevated levels of crystalline silica, manifests five to ten years following the primary exposure.

Acute silicosis can manifest symptoms anywhere from a few weeks to four or five years after the initial exposure and happens where exposure concentrations are highest.

Symptoms and Effects of Silicosis

The disease may not be noticed in its early stages. Prolonged exposure can lead to dyspnea during physical exertion, potential fever, and infrequently, blueish patches on the lips or earlobes. A person with silicosis is more vulnerable to infectious lung diseases like tuberculosis. As silicosis progresses, symptoms include exhaustion, severe dyspnea, appetite loss, chest pains, and respiratory failure, which can be fatal.
According to medical examinations, silica crystals and a protein substance are typically found in the lungs of silicosis patients. Depending on how long it takes between exposure and the onset of symptoms, pulmonary fibrosis—fibrous tissue in the lung may or may not develop in acute cases of silicosis. Moreover, there is evidence suggesting that crystalline silica may be carcinogenic at work.

Diagnosis of Silicosis

Silica dust exposure at work is disclosed in the patient's medical history. In cases of simple silicosis, the physical examination is normal. However, in cases of chronic silicosis with conglomerate lesions, it may show signs of tachypnea, fine to medium crackles, areas of hyporesonance and hyperresonance, and decreased chest expansion.
The hilar lung nodes may be enlarged and show "eggshell" calcification; chest X-rays in simple silicosis typically show small, discrete, nodular lesions distributed throughout both lung fields but usually concentrated in the upper lung zones. X-rays reveal one or more conglomerate masses of dense tissue in cases of complicated silicosis.
The majority of silicosis diagnoses are made using subjective testing and imaging. These are frequently misdiagnosed since several other illnesses, such as military tuberculosis, can also resemble such an x-ray image. Moreover, alterations in lung function are not particularly diagnostic.
Research on particular biochemical markers for early illness detection is still ongoing. The industry and occupational health specialists in our nation have not yet fully surmounted this challenge, which is compounded by the logistics of radiological examination and interpretation.

Prevalence of Silicosis in India

There have been reports of cases of silicosis among construction and mining workers in Gujarat, Rajasthan, Pondicherry, Haryana, Uttar Pradesh, and Bihar, India. The prevalence of silicosis varies from 5.2% to 35.0%

depending on the sector of the construction industry, according to data from published studies.

In the Indian context, information about the number of diagnosed cases, subjects who received compensation in accordance with the Factories Act, those at risk, and industry-specific details of cases and those at high risk is simply unavailable. Therefore, it is a serious issue that requires immediate attention.

NGOs and labour activists have brought attention to the issue on numerous occasions. Stone quarrying in Lal Quan, close to Delhi, glass factories in Pondicherry, stone cutting in Madhya Pradesh, stone and limestone mines in Rajasthan, etc., are a few of the significant areas highlighted in relation to the construction industries. The National Human Rights Commission has also taken action to guarantee that victims receive justice, that the industry takes steps to stop the disease from spreading, and that it offers appropriate relief and compensation to its employees.

The Constitution of India and Clean Environment

Regarding the category of fundamental rights, the most important one is the "right of life," which is protected by Article 21 of the Indian Constitution and which the document states cannot be taken away unless a court order is followed. We do have a very special feature in the Indian Constitution called the right to constitutional remedies to protect this right and other fundamental rights. The supreme court may issue writs of mandamus, certiorari, prohibition, or quo wanranto in a proper proceeding, as well as any other directive, order, or writ for the enforcement of fundamental rights, according to Article 32 of the constitution. Article 226 of the Constitution gives the High Courts the same authority. By using this judicial review power, the courts are able to determine whether any state agency, instrumentality, or organ has overreached its authority and to make sure that the government and public officials uphold the laws that govern their existence and operations as well as the obligations outlined in the Constitution.

The Indian Constitution includes a Chapter on Directive Principles of State Policy in addition to the Chapter on Fundamental Rights. This chapter emphasises, in a more simplified version of the preamble, that the objective of Indian politics is not laissez-faire but rather a welfare state, in which the state has a proactive duty to guarantee social and economic justice as well as individual dignity.

"The State should strive to protect and improve the environment as well as to safeguard forests and wildlife," states Article 48A of the Directive Principles. Furthermore, every Indian citizen has an obligation to preserve and enhance the natural environment, according to Article 51A(g) of Part IV-A of the Fundamental Duties. Living entails having human dignity, but all civil, political, social, and economic rights are meaningless if one cannot breathe clean air, drink safe water, or eat healthfully. Owing to the horrifying state of environmental pollution in our nation, the Supreme Court honed its tactics in the middle of the 1980s and early 1990s by toying with the notion of 'locus standi' and discarding all formal procedural rules in an effort to ease the suffering of those affected by pollution through Public Interest Litigation (PIL). The courts have interpreted Article 21 of the Constitution, which guarantees the right to life, to include all fundamental rights that are necessary to enjoy a high standard of living free from environmental contamination and other risks to one's health and safety.

Conclusion

Man is not meant to live in solitude. His basic psychology is one of dependency; people rely on the State overall as well as on each other. According to Ernest Barker, a state has an organism-like collective existence. Therefore, the achievement of the shared goal depends on each person carrying out his or her responsibilities and functions correctly. Each and every citizen owes social duties to the society that comprises him, his family, his neighbours, and himself. Therefore, based on the discussion above, we can state that "if the sacredness of this claim is not accepted, human life would be nowhere. Since life is the essence of humanity, it is therefore the most fundamental of all rights. It denotes a declaration that one's life does not endanger the lives of others. Individuals bear responsibility alone; the state plays a larger role as a partner in protecting the environment and upholding the right to life with dignity. In order for each nation to contribute to the achievement of these shared long-term objectives, it is imperative that an international framework be established. Economic development and environmental conservation should coexist. Only when consumption standards worldwide take long-term sustainability into consideration can living standards above the basic minimum be considered sustainable. By adopting sustainable development paths that would result in a large reduction in greenhouse gas emissions, promoting aggressive research on environmentally sustainable technologies, transferring such technologies to developing countries, and making significant investments in climate-friendly technologies in developing countries, industrialised countries have an obligation to lead developing countries. A mechanism for reporting and monitoring should be in place to offer a repository for data regarding adherence to generally recognised norms, along with an ongoing, open endeavour.

For the nation's construction workers, respirable crystalline silica exposure at work poses a major but avoidable health risk. Each year, an undetermined number of worker fatalities from silicosis and other silica-related illnesses like scleroderma, lung cancer, and pulmonary tuberculosis (TB) go unreported or undiagnosed.

The Planning Commission, the Government of India, and the Indian construction industry came together to form the Construction Industry Development Council (CIDC) (14). For the first time in the nation, the Council offers the organisational framework and the motivation to improve industry-wide standards of quality. This would contribute to the government, industry, and social groups' broader understanding of the interests of the construction industry. In order to help the Indian construction industry meet the challenges of the future, CIDC aims to be a change agent by starting and accelerating a process of self-reform. In addition to handling the technical, social, and economic concerns, CICD may serve as a focal point for the prevention and management of illnesses linked to silica exposure among its employees.

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