Silicosis

Why in news?

The UK researchers suggest that stricter daily limits on silica dust exposure across various industries could save 13,000 lives worldwide.

What is silicosis?

- **Silicosis** – It is a *respiratory disease* which causes a *hardening of the lungs.*
- It is a type of ***pneumoconiosis***, which is a broader category of lung diseases caused by inhaling various types of dust.
- **Causes** – It is caused *by silica dust or silica crystals*, which are found in soil, sand, concrete, mortar, granite and artificial stone.
- **Vulnerable areas** - It is common in industries like construction, mining, oil and gas extraction, kitchen engineering, dentistry, pottery and sculpting.
- **Inhalation of dust** - When the materials are cut or drilled, crystalline silica is released into the air as a very fine dust.
- Workers breathe it in as they work, especially where industrial health and safety standards are poor.
- **Onset of symptoms** – It usually takes *10 to 20 years of exposure* to silica dust to develop the disease.
- It can lead to other serious diseases, including lung cancer, but scientists aren't sure exactly how this happens.
- **Treatment** – It is a progressive disease and *has no cure*.

The issue of silicosis was likely to be much worse in developing countries, where there are few or no safety measures for silica dust. Miners in developing countries are exposed to a lifetime's worth of dust in a year's work.

Global practice on silica dust exposure limits

Countries	Exposure Limits
UK and most European nations	0.1 mg/m^3
China	1 mg/m^3
USA	0.5 mg/m^3

• Australia has even banned engineered stone due to high silica dust levels.
• **Recent Study** – The researchers found that if average exposure over a 40-year working lifetime in mining was halved, from 0.1 mg/m3 to 0.05 mg/m3, there would be a reduction of silicosis cases by 77%.

How India controls silicosis?

The state of Rajasthan produces 70% of the sandstone in India. Much of it is exported overseas to countries like Germany and the United Kingdom for use in construction and landscaping.

Village of Widows in Rajasthan
• **Village of widows** - In the *village of Budhpura*, the majority of men have died from a lung disease called silicosis. - Mine Labour Protection Campaign (MLPC) - In Budhpura village, Rajasthan nearly 180 widows have been identified with silicosis since 2014. • Health experts say it is a result of inhaling small dust particles from the rocks. • **Challenges** - Many of the sandstone mines operate on a small scale, so the sector is *largely unorganised*. • That leaves millions of labourers with little to *no education or protection* vulnerable to silicosis. • But as the only industry in the area, villagers have no choice but to *work in these mines in order to feed their families*.

- **National Programme on Elimination of Silicosis** - is a policy document that aims to protect workers from silicosis, an incurable and often disabling disease.
- It is a part of the International Labour Organisation (ILO) and World Health Organisation's (WHO) Global Programme for the Elimination of Silicosis (GPES).
- It includes a feasible prevention strategy that considers local factors.
- The goal is to reduce the prevalence of silicosis and eliminate it from workplaces by a certain date.

Key areas of National Programme on Elimination of Silicosis
• **Prevention**- Implementing safety measures and best practices in industries where silica exposure is common, such as mining, construction, and manufacturing. • **Surveillance and Screening**- Conducting regular health check-ups and screenings for workers to detect early signs of silicosis. • **Treatment and Care**- Providing medical care and support for affected individuals, including treatment and rehabilitation. • **Awareness and Training**- Educating workers and employers about the risks of silicosis and how to mitigate them. • **Policy and Research**- Developing and enforcing regulations to reduce silica exposure and supporting research to better understand and address the disease.

- **Supreme Court** – It had directed the
  - **National Green Tribunal**– To oversee the impact of silicosis-prone industries and factories across India.
  - **National Human Rights Commission** - To oversee the compensation process across the respective States.
  - **Employees' State Insurance Corporation** and the Chief Secretaries of the respective States – To adhere to the directions of the NHRC and collaborate with them.
  - To ensure that the compensation distribution process is carried out efficiently

and without delay.

What lies ahead?

- Follow the established methods like
  - Using water suppression methods of foams and mists to precipitate dust out of air effectively
  - Better ventilation
  - Personal protective equipment

Quick Facts

Other Occupational Lung Diseases
• Work-related lung diseases are lung problems that are caused by certain work environments. • They are caused by breathing materials into the lungs. • **Incubation** – Disease conditions may develop slowly and can persist even after exposure ends. • **Asbestosis-** It is a lung disease from inhaling asbestos fibers, affecting plumbers, pipe fitters, steamfitters, shipbuilders, and construction workers. • **Lung diseases from bio dusts and bioaerosols-** These are caused by inhaling particles from plants, animals, and microbes, impacting agricultural workers, waste handlers, wood processors, and food processors. • **Chemical pneumonitis-** These results from inhaling toxic chemicals, with risks for workers handling certain metals and chemicals.

References

1. Indian Express | Silicosis is the new asbestos
2. ILO | National Programme on Elimination of Silicosis

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