



I A REHMAN RESEARCH GRANT SERIES

FIGHTING TO BREATHE

OCCUPATIONAL SAFETY AND HEALTH
IN PUNJAB'S STONE-CRUSHING INDUSTRY

USAMA KHAWAR

I. A. Rehman Research Grant Series

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Occupational safety and health in
Punjab's stone-crushing industry



Human Rights Commission of Pakistan

About the I. A. Rehman Research Grant Series

The I. A. Rehman Research Grant was instituted in 2020 in honour of the veteran human rights defender, journalist and former secretary-general of HRCP, the late I. A. Rehman (1930-2021). HRCP awards one grant annually to an academic, journalist, or human rights defender or professional for original research carried out in any area of human rights—civil, political, economic, social, cultural, or environmental—in Pakistan.

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Introduction

A key area of the decent work deficit in Pakistan is poor occupational safety and health (OSH), which applies to both the formal and informal sectors. Most enterprises in the formal sector are not aware of OSH risks and hazards, nor are they inclined to view these with much sense of urgency.

According to reports from the International Labour Organization (ILO), 2.2 million people die every year globally due to work-related accidents or illness, more than 270 million workers are injured and an estimated 160 million suffer work-related illness.¹

In Pakistan, despite the Factories Act 1934 (last amended in 2012), the Hazardous Occupations Rules 1963 and subsequent provincially derived legislation following the devolution of labour to the provinces after the 18th Amendment to the Constitution, there is no independent legislation protecting OSH. Poor implementation of the laws that do exist, weak unionisation and inadequate—even absent—labour inspection mechanisms mean that Pakistan's OSH standards fall painfully short of internationally accepted benchmarks.

Nowhere is this more apparent than in the stone-crushing industry in Punjab, where thousands of workers—lacking protective equipment—inhale crystalline silica dust during industrial processes such as the manufacture of acid-lining mixtures for the metal industry. In the long term, they become vulnerable to silicosis, a terminal lung disease (Box 1).²

Given that an estimated 0.5 million people are directly employed by this industry in Pakistan, establishing the prevalence of silicosis and examining what OSH mechanisms are in place to prevent it, if any, is a key labour rights concern.³

Box 1: What happens in stone-crushing factories?

The high fatality rate observed in stone-crushing factories is attributed to the inhalation of silica dust.⁴ Labourers grind quartz or soft white stone and mix boric acid into the powdered stone with their bare hands. They then shovel the mixture into sacks.⁵ The grinding and mixing of the powdered stone causes dust particles to rise and become suspended in the air. The thinner the dust, the further it spreads out. When this quartz powder enters the lungs, it radically increases the chances of lung disease.⁶ Indeed, research has shown that labourers at stone-crushing factories have significantly lower pulmonary function than normal healthy males.⁷ Exposure to silica also increases the risk of other diseases, such as chronic obstructive pulmonary disease, including bronchitis and emphysema, pulmonary tuberculosis, airways diseases and lung cancer.⁸

In recent years, the Supreme Court of Pakistan has intervened in silicosis cases, directing the government and industry to take appropriate measures to address the problem.⁹ However, there is still a significant gap between the laws that exist and their implementation on the ground. Accordingly, this study seeks to assess the scale of the problem among labourers in Punjab from a rights-based perspective and make recommendations to the state and employers.

The second and third sections provide a brief overview of the study's scope and methodology and the literature consulted. The fourth section explains the international and domestic legal and policy framework relevant to OSH. This is followed by the study's key findings and an accompanying analysis of the most pressing problems in the stone-crushing industry. The study ends with a series of recommendations.

Scope and methodology

This study attempts to gauge the incidence of silicosis among labourers in stone-crushing factories in selected areas of southern and central Punjab (Dera Ghazi Khan, Gujranwala, Hafizabad and Sheikhpura). This includes the rate of fatality vis-à-vis victims' age, the duration for which they had worked at a certain factory and other factors affecting their exposure to the disease.

The study's findings rely on primary data in the form of (a) the medical records of labourers who contracted and died of silicosis, and (b) interviews with their families, co-workers and employers. It also draws on secondary sources, including official reports from the federal Law and Justice Commission of Pakistan (LJCP) and the Punjab Environmental Protection Agency; data collected by the provincial labour department, mines department and Punjab Workers' Welfare Board; and reports requisitioned by the Supreme Court of Pakistan taking notice of silicosis and labourers' occupational safety and health.

The scarcity of data, however, means that the study's findings are a *projection* rather than an approximation of the scale of silicosis in Punjab. The lack of reliable factory employment records, low levels of workers' registration with the relevant government departments, and lack of complete hospital records are important limitations to consider and imply that the extent of this disease is significantly under-diagnosed and underreported.

Literature review

Several studies have attempted to calculate the incidence of silicosis in Pakistan. Rasheed (2010) finds that 14 percent of the deaths that occurred among a sample of 221 labourers in stone-crushing factories in Sargodha, Punjab, were due to chest infections.¹⁰ However, barely a third of these labourers had taken protective measures such as covering their faces with a mask or wearing protective glasses. Ikramullah et al. (2018) observe a strong correlation between job duration and rates of silicosis among labourers in stone-crushing factories in Peshawar.¹¹ Additionally, a survey of 16 districts by the Labour and Human Resource Department (2018) in Punjab finds that only 38 percent of workers across 211 factories (including but not limited to stone-crushing factories) reported even having any information on silicosis.

International and domestic legal and policy framework

Although an extensive legal and policy framework governs OSH in Pakistan, as described below, implementation remains weak (Box 2), primarily because the bodies empowered to enforce such laws—by carrying out labour inspections at establishments and devising effective complaint redressal mechanisms—do not exist.

Box 2: What steps have been taken to implement the OSH legal and policy framework?

Although an LJCP report submitted to the Supreme Court in 2018 (under Human Rights Case No. 16143-P/2014) claims that OSH councils have been established in Punjab, this could not be confirmed through primary research.¹²

The Punjab Labour Department has, however, devised an OSH checklist to be used by district officers during labour inspections, in compliance with Chapter 3 of the Factories Act 1934. Other initiatives documented by the LJCP report include a toll-free helpline that has been established at the Punjab Employees Social Security Institution where labourers can report offenses related to OSH.

The Pakistan Electronic Media Regulatory Authority has prepared and disseminated public service messages and documentaries on the risks of silicosis. Additional measures include workplace instructional leaflets, safety signs and posters on OSH. The Directorate General Public Relations has also published an

advertisement addressing workplace occupational diseases in the daily *Jang* and *Dawn*. Data collection on registered shops, factories and establishments is also underway. Finally, the Punjab Labour Department website now lists general hazards and safety precautions regarding silica exposure.

International policy framework

In 1995, the International Labour Organization (ILO) and World Health Organization (WHO) began a campaign to eliminate silicosis globally by 2030 and established the ILO/WHO Global Program for the Elimination of Silicosis (GPES) on the recommendation of the Joint ILO/WHO Committee on Occupational Health.¹³ The GPES is an international technical cooperation programme designed to assist countries in preventing and eliminating the disease. The ILO also advises countries to institute a National Programme for the Elimination of Silicosis (NPES), a two-tiered approach to controlling silicosis as an occupational disease.¹⁴ The NPES is based on a preventive strategy to control silica hazard at source by using appropriate technologies and substituting less hazardous materials for silica-containing materials. The strategy also includes the surveillance of working environments to assess health risks and detect workers' symptoms early.

Domestic legal and policy framework

Historically, the primary domestic legislation governing OSH nationally and provincially has been the **Factories Act 1934**. More recently, this was followed by the **Factories (Amendment) Act 2022**. The 1934 act includes comprehensive, but dated, OSH provisions that are applicable to any factory that employs ten or more people. Section 16 provides that effective measures against the accumulation and inhalation of dust and injurious fumes must be put in place.

However, specific detailed rules under the **Factories Act 1934** were not framed until 2015, when the Government of Punjab notified the **Punjab Hazardous Occupation (Silicon Rules) 2015**. Under these rules, the occupier of a factory must provide and maintain protective clothing for his workers (Rule 12). The occupier is further responsible for replacing crystallized silica materials with safer substitutes where possible, providing engineering controls such as exhaust ventilation where feasible, and using all available work practices to control dust exposure (Rule 14). Moreover, employees must undergo training and health screening to monitor any adverse health effects caused by exposure to crystalline silica (Rule 14). The factory itself must also carry signs warning employees of the hazards of exposure (Rule 14).

The **Punjab Occupational Safety and Health Act 2019** was drafted by the LJCP under the supervision of the Supreme Court. It applies to any factory with one or more employees in which a manufacturing process is to be carried out or is ordinarily carried out. Under Section 3, the employer is obligated to take reasonably practicable measures to ensure workers' health and safety onsite. Moreover, the employer must also arrange for health and safety training approved by the government every year.

Further, arrangements must be made to control and prevent physical, chemical and biological hazards to employees, who must also be informed of the hazards associated with their work as well as the protective measures that should be taken. Importantly, if these hazards cannot be eliminated, the employer is obligated to provide protective clothing and equipment as approved by the Occupational Safety and Health Council. In addition, a register containing the particulars of all suspected cases of occupational disease at the workplace must be maintained and submitted to the council.

The 2019 law was amended by the **Punjab Occupational Safety and Health (Amendment) Act 2022**, which weakened the effectiveness of certain provisions. Section 20 of the law previously provided that any

offense committed under the Act would be cognizable by the police on a complaint in writing made by the chief inspector, inspector or any aggrieved person. The amendment has made cognizance difficult both for enforcement officials and aggrieved persons by (a) requiring that only an aggrieved person can initiate the process for prosecution, that is, the chief inspector or inspector can no longer take cognizance on their own; and (b) the aggrieved person—ordinarily, a labourer—has to first obtain prior sanction by the chief inspector or inspector before lodging a complaint with the police for cognizance of criminal offenses under the law. The latter requirement has created an obstacle to complaints.

Moreover, the original provision allowing for penalties imposed under the Act to be recovered as arrears of land revenue by the district collector, has been omitted by the amendment. It appears that there is no mechanism to facilitate the payment of financial penalties under the amended law.

Key findings

According to data from the 2018 LJCP report, the provincial labour departments have reported very few cases of silicosis in their jurisdictions: 54 in Punjab, 2 in Khyber Pakhtunkhwa, and 0 in Balochistan, Islamabad and Sindh.¹⁵ However, the primary data collected for this study suggests that the situation is far worse.

Table 1 lists the number of likely silicosis-related deaths we have documented in Punjab among labourers in stone-crushing (acid-lining) factories.

The assumption that these were silicosis-related deaths is based on three factors: (a) the symptoms they reported while sick, (b) the fact that respiratory failure was given as the cause of death, and (c) their likely vulnerability to silicosis given their exposure to silica at the workplace.

Based on the ages of a subsample of 69 workers at the time of their death, the average age of death was only 29. The youngest death recorded was at the age of 15. The most common age at which labourers died was 25.

Table 1: Number of silicosis-related deaths in Punjab, 2008–22

| <i>District</i> | <i>Number of likely silicosis-related deaths</i> |
|--------------------------|--|
| Dera Ghazi Khan | 91 |
| Gujranwala | 46 |
| Hafizabad and Sheikhpura | 28 |
| Total | 165 |

Source: Author's data, available on request.

Table 2 gives the number of labourers who reported suffering from symptoms of the disease in various stages of progression.

Table 2: Number of labourers who reported suffering from symptoms of silicosis in Punjab, 2022/23

| <i>District</i> | <i>Number of labourers reporting silicosis-related symptoms</i> |
|--------------------------|---|
| Hafizabad and Sheikhpura | 300 |
| Gujranwala | 14 |
| Dera Ghazi Khan | 4 |
| Total | 318 |

Source: Author's data, available on request.

Our interviews with these labourers revealed that deaths tended to occur in clusters and mostly among migrant workers, overwhelmingly peasants from South Punjab, who cited the lack of economic opportunities in their own areas as their main reason for seeking employment in stone-crushing factories.

It also meant that men from the same family often ended up working at the same factory, with a correspondingly high incidence of such deaths. Khalid Hanjra, a 45-year-old labourer from the village of Nutt Kallar in Gujranwala who has been battling silicosis for over a decade, said that he had lost two brothers and four cousins to lung disease. Although unlike him, they had never received a formal diagnosis, he believed they were likely victims of silicosis.

Abdullah Khushi Muhammad had a similar story to tell. Like many others in Nutt Kallar, the 45-year-old labourer had found himself battling shortness of breath, recurring fever and severe chest pain.

He had spent two years working in a stone-crushing factory. His younger brother and cousin, employed at the same factory earlier, had complained of similar symptoms but died before they could be diagnosed.

Muhammad Baksh, an elderly labourer from Dera Ghazi Khan, saw

silicosis devastate his entire family before passing away himself. Baksh had four sons, all of whom worked in stone-crushing factories, fell sick and were eventually diagnosed with silicosis. All four died within a few years of each other.

Analysis

This section outlines some of the key obstacles to securing labour rights for workers in stone-crushing factories.

Absence of OSH councils

Although the mechanisms prescribed under the Punjab Occupational Safety and Health Act 2019 are meant to enhance the province's capacity to secure better and safer working conditions, the provisions of the Act are not implemented properly. In the last four years since the Act was passed, no OSH councils have been established. It is worth noting that the Act does not envisage a timeframe within which the councils were to have been established, which implies that the intention was to establish them immediately.

Under-resourced labour inspectorates and lack of institutional support

The inspectors required to be appointed under the Act to ensure compliances in factories and investigate complaints by aggrieved persons are severely understaffed and under-resourced. There also appears to be a lack of institutional support from the government.¹⁶ In one case documented for this study, a team comprising the Director Labour, Gujranwala (the highest executive labour officer in the division), accompanied by an official of the Supreme Court, was denied access to the Master Tiles Acid Lining Unit near Kamoki when attempting to carry out an inspection on the orders of the apex court in 2015.¹⁷ Despite this, the court did not take any action in the form of contempt proceedings or by ordering the production of records.

Lack of practical implementation of laws

The rules that were to have been promulgated under the 2019 Act have been pending approval for the last three years, with the government oscillating between banning factory inspections altogether¹⁸—citing the likelihood of corruption and the need to liberalize the industrial sector—and imposing strict inspectorial checks and balances to obtain international accreditations for the country's industry. Consequently, there is no reliable system in place to implement the legal regime.¹⁹

Hurdles in recovery of compensation awarded by labour authorities

It is crucial to note that the rate of recovery of compensation and fines on establishments is close to zero. In 2014, for example, on the orders of the Supreme Court, the labour authorities reported having passed over 30 compensation decrees against four establishments in Sheikhpura; to date, none of these decrees have been enforced.

Absence of prosecution of factory owners

Lack of political will to protect labour rights, a severely under-resourced labour department, lack of attention given to prosecution, and nonfunctional state machinery means that factory owners are not prosecuted when workers are found to have died as a result of silicosis contracted while working at these establishments.

Onerous legal requirements for obtaining compensation

The law in place entails complex registration and documentation to obtain compensation, which fails to consider that most stone-crushing industrial units operate very informally. The procedure for obtaining compensation is made harder for workers' heirs under the death grant procedure laid out by the Punjab Workers' Welfare Board, which requires the deceased worker

to (a) have been registered with the EOBI, (b) have died while serving in a company registered under the Factories Act 1934 or the Punjab Mines Concession Rules 2002 and (c) meet the definition of ‘worker’ given in the Punjab Industrial Relations Act 2010.²⁰

In practice, most workers lack such documentation—another consequence of insufficient checks and balances on factory owners by inspectors who allow employment to go undocumented.

Poor execution of compensation awards

Apart from the low rate of recoveries, there is no formal mechanism to ensure disbursement or to hold factory owners accountable for paying compensation in cases of death or illness.

Absence of labour unions

There is reportedly no unionization in the stone-crushing industry in Punjab because most factories are not registered and workers are unable to provide proof of employment. As a result, workers have no collective bargaining power and cannot demand safer working conditions or hold factory owners accountable for cases of workplace-related illness or death.

Recommendations

At the macro level, there needs to be a legal and regulatory framework at the national level that imposes technical standards, technical advisory services, effective inspection mechanisms, and proper reporting systems. This must be supported by authorities established and empowered to carry out these functions and give labourers legal recourse in cases of ineffective implementation.

At the micro level, there need to be controls instituted at the enterprise level. For this, the ILO recommends adopting appropriate technologies to avoid the formation of silica-containing dust, the use of dust control mechanisms, compliance with regulatory standards for exposure limits, and surveillance of the work environment to assess the effectiveness of preventive mechanisms and detect exposure to the disease early.²¹ More specific recommendations are outlined below.

Preventive measures

1. The OSH councils envisaged under the Punjab Occupational Safety and Health Act 2019 must be instituted immediately and provided the human and financial resources they need to enforce the provisions of the law. The rules and regulations needed to govern the process of carrying out inspections at establishments and devising effective complaint redressal mechanisms must also be promulgated as soon as possible.
2. Awareness **and advocacy campaigns** that seek to mobilize communities and neighbourhoods need to be initiated by the provincial government to strengthen labour unions and bargaining collectives. These should also include community education programmes and

large-scale training and information dissemination programmes on risk factors for silicosis. The existing National Tuberculosis Programme and its associated technical working group could initially be merged with the envisaged silicosis programme to utilize the resources in hand. Such programmes should be directed at the target groups at highest risk for this disease, that is, all factory workers exposed to stone-crushing processes.

3. It is critical to establish an effective **system that documents and reports cases of silicosis** in Punjab as a form of tertiary intervention. This would help assess the scale of the disease. For this, the government needs to establish screening and monitoring units close to areas where stone-crushing factories operate, with routine screening and reporting of new cases.
4. The government should actively encourage the **establishment of labour unions** by empowering trade union registrars and imposing penal consequences on such officials if they fail to uphold their mandate. There must be a positive obligation on stone-crushing enterprises to facilitate and encourage labour unions, not only to protect workers against exploitation by according them greater collective bargaining power, but also to serve as avenues of OSH education and training.²²

Remedial measures

1. **Screening centres** should be set up in areas close to stone-crushing units to facilitate early diagnosis of silicosis among workers.
2. Silicosis patients lose their ability to work and procure sustainable means of income. There is also the added pressure of access to healthcare facilities for terminally ill persons from disadvantaged backgrounds. For this, the government must set up **welfare foundations** that seek to mitigate the financial, social and physical burden on patients' families

3. Employers must be required to provide **free health insurance** to all workers in stone-crushing factories so that families can avail financial relief and easier access to healthcare. This serves as a remedial as well as preventive measure as it allows workers to get tested earlier and, if diagnosed with silicosis, treated with a better chance of survival.

Rehabilitative measures

1. The technical working group mentioned above should devise awareness **campaigns relating to ancillary problems that increase the risk of disease**, for example, with respect to better protective practices and appropriate counselling and guidance on treatment and the consequences of the disease.
2. Workers who contract silicosis should be **removed from factory premises** immediately. Globally, silicosis is said to show symptoms 10–15 years after exposure, but in Pakistan, this timeframe appears to be shorter. This means that many workers who may have contracted the disease already are still working at these factories; it is therefore crucial to inhibit their exposure as soon as possible.

Compensatory measures

1. The government needs to establish a **special commission to proactively identify all victims of silicosis** and their legal heirs and determine the quantum of compensation to which they are entitled. This commission should be directed to consider factors such as loss of earning capacity, number of dependent family members and all other factors based on the disability-adjusted life years formula developed by the WHO.

2. Inspectors should **fine factory owners** for not following the proper protective guidelines and exposing their workers to the disease. Individual factory owners must be held liable to pay for the treatment of workers who have contracted silicosis.
3. The law should prescribe proper enforceable mechanisms for the recovery of compensation damages, especially since the brief labour inspection and evaluation manual developed by the labour department glosses over the topic of compensation.²³
4. Pakistan could consider entrusting the task of investigating individual claims of silicosis to a national human rights institution that could look at different factors leading up to the victim having contracted silicosis and award damages accordingly, instead of adhering to strict evidentiary requirements, most of which are not complied with in the informal sector (which leads to the exclusion of victims who fall outside the net of those who can successfully claim compensation).

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