

CDC/NIOSH CONFERENCE GRANT TO OCCUPATIONAL KNOWLEDGE INTERNATIONAL
FINAL PROGRESS REPORT

"Silica Hazards in Construction and Mining:
Reducing Exposures and Preventing Disease"

Held December 11-12, 2009

New Delhi, India

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Occupational Knowledge International

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Abstract

Occupational Knowledge International hosted a conference on "Silica Hazards in Construction and Mining: Reducing Exposures and Preventing Disease" on December 11-12, 2009 in New Delhi, India. Approximately 120 people attended the conference including representatives from National and State level governments, public health experts, multi-lateral aid agencies, nongovernmental organizations (NGOs), trade associations, and silicosis victims. The meeting resulted in a call for a national plan to identify and compensate silicosis victims and to promote the use of silica dust controls in these industries.

Airborne silica, generated from stone crushing mills, construction, and mining operations in India is causing an epidemic of silicosis, cancer, and other lung disease. Speakers at the conference indicated that thousands of workers and local residents are exposed to hazardous silica levels from these sources. Studies have shown increased morbidity and mortality among stone crushing mill workers and miners from silicosis, lung cancer, and other lung diseases.

One theme expressed throughout the conference was the importance of the link between silica exposure and Tuberculosis (TB) in the local context. Research has shown that silica exposures in stone crushing industries increases the risk of acquiring active TB by nearly seven-fold. Currently, India has the highest TB burden of any country globally, accounting for one fifth of all cases. A recent study in India of over a hundred stone crushing workers showed that 48% had TB alone or in combination with silicosis. In fact, TB is the most common cause of death in those with silicosis, The keynote speaker at the conference indicated that reducing worker exposure to respirable silica would reduce TB incidence among those exposed.

Several participants pointed out that construction and stone crushing industries in India are growing rapidly due to extensive development and the current emphasis on improving the country's infrastructure (e.g., road building) resulting in the proliferation of quarries small stone crushing mills. It is estimated that there are more than 12,000 stone crushing units in India, providing direct employment to 500,000. The organized mining industry provides employment to at least 10 million workers in India with thousands more employed in the illegal and informal sector. Many of those employed in these industries are minority migrant laborers and women and children.

To raise awareness among key stakeholders and formulate policy recommendations to reduce silica emissions OK International, in partnership with the Public Health Foundation of India, organized this international conference. Specific outcomes of the conference included:

A list of policy recommendations to promote the use of dust-control technologies and other means to reduce silica-related disease in India.

Increased awareness among Indian NGOs, health professionals, government, trade associations, and others of the need to encourage a multi-sector approach to address occupational silica exposures to prevent silicosis and other diseases.

The formation of an executive committee to coordinate efforts to encourage the implementation of conference recommendations and track progress in the future.

Section 1:

Highlights/Significant Findings

Through a series of discussions, conference participants emphasized the importance of raising this issue among key stakeholders in India. There was agreement on a conference resolution calling for the Indian Government to adopt a national silicosis plan to address this health crisis.

Union Minister of Labour and Employment, Mr. Harish Rawat, indicated that despite current initiatives and government programs, further action is needed to reduce exposures. A five-year national action plan is needed to initiate preventative strategies at the corporate level while also including worker participation.

Justice G.P. Mathur of the National Human Rights Commission (NHRC) highlighted the activities of the NHRC's silicosis prevention program, and how they are in the process of establishing a system to monitor the incidence of silicosis and ensuring that victims are compensated.

Dr. Habibullah Saiyed of the World Health Organization (WHO) stressed the need for medical surveillance and accurate reporting of silicosis. He suggested that the existing legal framework could be effective if properly enforced by the government. Surveillance may also be improved through training of medical professionals and linkage with the Revised National TB Programme.

M.C. Mehta Foundation Executive Director, Mr. M.C. Mehta further suggested that enforcement of the existing laws by the government would significantly decrease silica related disease. The compensation system for those affected must be simplified so that the workers are able to use the system to access treatment and compensation.

Perry Gottesfeld of OK International highlighted innovative strategies that may be used to prevent exposures, including preferred purchasing programs for stone crushers that met minimum standards, certification for crushed stone and economic incentives for facilities that control silica exposures.

In addition, participants proposed a series of improvements to better control silica exposures and compensate silicosis victims including the following:

- The enforcement agencies need training and equipment to monitor health surveillance and workplace exposure programs.
- A multi-agency task force should be established to adopt a national program for prevention and elimination of silicosis.
- Health and Safety legislation should cover all workplaces irrespective of size, number of employees and nature of employment.
- Awareness and training programmes on health hazards of silica should be organised for workers and employers.
- Facilities need to be created for diagnosis and treatment of silicosis.
- Guidelines on diagnostic and certification criteria need to be established for silicosis.
- Guidelines for compensation and rehabilitation of cases of silicosis need to be established.
- There is a need for training medical doctors in ILO Classification for Pneumoconiosis.

Translation of Findings

The conference handout material included a control banding fact sheet on reducing silica exposures and a longer safety manual for stone crushing industries that provide information and guidance to facility owners. These manuals are written in simple language and include diagrams, photographs and checklists developed to provide specific safety guidance. These manuals were distributed to all conference participants, including representatives of the National Human Rights Commission and NGOs working throughout India to create awareness and provide technical assistance to reduce silica exposures in stone crushing. Some participants requested additional copies of these materials and arrangements have been made for greater distribution.

Outcomes/Relevance/Impact

This conference successfully brought together representatives from relevant sectors to develop an action plan to prevent silicosis and silica related disease and to better identify and

compensate silicosis victims in India. The conference further contributed to improvements in occupational health and safety through the following:

- Raised the profile of silica-related disease and the connection to TB;
- Highlighted successful pilot projects that are practical and inexpensive; and
- Established an executive committee to encourage the implementation of recommendations coming from the conference and track future progress.

Current plans call for OK International to staff an executive committee that will monitor the adoption of specific initiatives and relative occupational and public health impacts over the coming year. The conference provided an important forum to initiate positive change that will benefit stone crusher and mining workers, their families, and communities surrounding these facilities. We estimate that if recommended dust controls are adopted just in stone crushing mills, that it will prevent 90,000 cases of silicosis and 35,000 deaths from cancer and TB over the next 15 years.

The following is a list of speakers that addressed the conference along with their affiliation:

Bipin Pattnaik, Orissa Stone Crusher Association David Rees, National Institute of

Occupational Health, South Africa

G.P. Mathur, National Human Rights Commission

Habibullah Saiyed, World Health Organization

Harish Rawat, Union Minister of Labour and Employment

Jagdish Patel, Peoples' Training and Research Centre K.

S. Baghotia, Silicosis Programme, New Delhi K. Srinath

Reddy, Public Health Foundation of India Krishnendu

Mukhopadhyay, Sri Ramachandra University M.C. Mehta,

M.C. Mehta Environmental Foundation M.J. Pervez,

National Productivity Council Manoranjan Mishra,

Jeevan Rekha Parishad Neha Vyas, World Bank

Norbert Wagner, University of Illinois, University of South Florida

P.K. Sishodiya, National Institute of Miners' Health

Perry Gottesfeld, OK International

R.R. Tiwari, National Institute of Occupational Health

Rana Sengupta, Mine Labour Protection Campaign

Ravi Agarwal, Toxics Link

Richard Rinehart, National Institute for Occupational Safety and Health

S.A. Azad, Peoples' Rights and Social Research Centre S.

S. Chadha, Revised National Tuberculosis Programme 5.

5. Waghe, Central Labour Institute

Salma Burton, World Health Organization

Sanjay Zodpey, Public Health Foundation of India

Shyam Pingle, Indian Association of Occupational Health

Swati Sircar, Uthnau

T.K. Joshi, Maulana Azad Medical College

Section 2:

Scientific Report

Background

Conference speakers emphasized that silica dust, generated from stone crushing mills and mining operations is causing an epidemic of silicosis, cancer, and other lung disease. The primary cause of this deadly disease is exposure to silica dust in mining, construction, and stone crushing. Although reliable statistics are not available in India, it is known that thousands of workers and local residents are exposed to hazardous silica levels during stone crushing operations. Studies have shown increased morbidity and mortality among stone crushing mill workers from silicosis, lung cancer, and other lung diseases.

Goals and Activities

OK International convened a national level workshop in India to encourage the adoption of pollution control technologies in mining, construction and stone crushing operations in order to reduce the risk of silicosis, cancer and tuberculosis (TB) among exposed workers. Pilot studies presented at the meeting documented the extent of exposures and measured the success of dust control equipment. The conference provided a forum to take this research to a national audience to help influence the development of new policy initiatives.

Methodology

A conference was held in New Delhi on December 11-12, 2009 bringing together national and international experts on silicosis, TB and dust control systems. The workshop raised awareness among key stakeholders and encouraged the adoption equipment to control silica emissions in construction, mining and stone crushing industries.

Results and Discussion

The link between silicosis, TB and HIV infection were emphasized in the keynote address and discussed throughout the conference. A speaker from the National Institute of Occupational Health, South Africa, explained the synergistic relationship observed in studies among HIV positive individuals with silicosis, who have a significantly higher risk of contracting TB. Reducing worker exposure to respirable silica would reduce TB incidence among those exposed.

Case studies of successful silica exposure reduction programs were presented by the National Institute of Occupational Health of India, the National Productivity Council of India, Sri Ramachandra University, OK International and other NGOs. All demonstrated significant reductions in respirable silica levels using both wet and dry engineering control devices. Reductions in respirable silica reported in these case studies ranged from approximately 50 to 80 percent. All of the projects presented reduced silica dust using low cost technology available in the local market. The results of the pilot projects generated discussion among participants on how these projects may be taken to scale and replicated throughout India and other countries.

Conclusion

Approximately 120 people participated in the conference including representatives from National and State level government, the public health sector, multi-lateral organizations, NGOs, and silicosis victims. Discussion included recommendations on creating effective awareness and worker training programs, training in occupational medicine for physicians, extending current legislation to protect workers in the informal sector, and creating multi-sector partnerships to eliminate silicosis.

This conference facilitated the exchange of scientific information, results of case studies and policy recommendations. The conference emphasized practical strategies to encourage more stone crushing mills to install water spray controls and reduce health risks. Case studies of demonstration projects from several regions of India were presented. The outcome of the conference is to further the development of national policies to reduce pulmonary disease among thousands of exposed workers and near-by residents.

Publications

A pre-conference working paper outlining the current regulatory mechanisms and shortcomings was prepared to better inform discussions at the meeting. This paper was distributed to conference participants and was used to frame discussions at the meeting and to facilitate the development of policy recommendations.

A final conference report was prepared. This will be distributed to all participants and circulated to others in the occupational health community, appropriate industry representatives, and government authorities in India.

Additionally, the conference was documented through video and still photography. If additional funding can be raised, this video footage may be incorporated into a future documentary film on silica exposures in the India in the future.