

////Title: Revitalising Attention on the Global Asbestos Disaster

////Stand-first:

In developed countries, we are broadly aware of the dangers of asbestos and the risks it poses if discovered in our living or working environments. It may be shocking to learn that asbestos still causes an estimated 255,000 deaths annually worldwide, with the vast majority – 89% – from work-related exposure. Although asbestos is banned in 55 countries, it is still widely used in the developing world, and over two million tonnes are consumed annually, leading to what Dr Jukka [yook-ka] Takala [Tak-ar-la], President of the International Commission of Occupational Health, and an international team of authors describe as a global asbestos disaster.

////Body text:

Asbestos is a naturally occurring mineral, mined predominantly in Russia, Kazakhstan [Kaz-ak-stan], and China, but was once widely mined across North America. Its soft and flexible fibres are resistant to heat, electricity and corrosion, making it an excellent insulating material and strengthening component in cloth, paper, plastics, ceramics and cement. The Industrial Revolution saw a marked increase in asbestos production, and as far back as 1918, abnormally high early deaths of asbestos workers were reported.

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Microscopic asbestos fibres are easily inhaled when airborne and become permanently trapped in the body tissues. Over decades, they begin to cause inflammation and scarring, and long-term inflammatory or epigenetic damage can lead to an aggressive cancer known as mesothelioma [mezo-thee-lee-oma]. Mesothelioma is almost exclusively caused by asbestos exposure, but asbestos also causes lung and laryngeal cancers, and progressive lung diseases such as asbestosis, pleuritis [plur-i-tis], and chronic obstructive pulmonary disease. The majority of individuals with asbestos-related diseases are men aged in their 60s or older. This is because asbestos-related diseases have a long latency period and can take decades to develop, usually tracing back to occupational exposure at workplaces that were historically staffed by men.

Asbestos was formally identified as an occupational health hazard in 1938, with the publication of criteria for action in asbestos-related workplaces. This was the first time the International Labour Organization (ILO) noted the risk of cancer resulting from occupational exposure to asbestos. However, it was more than 40 years later that the ILO Asbestos Convention No. 162 was adopted. This represented a compromise between the strict measures to stop asbestos use entirely as advocated by the medical and health profession and the pro-asbestos parties but was misrepresented out of context as allowing the 'safe use of asbestos'.

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Only since 2000 has the true magnitude of asbestos-linked cancer deaths started to emerge. The International Agency for Research on Cancer, of the World Health Organization (WHO), has classified all types of asbestos as causing mesothelioma, lung, ovary and larynx cancers, and possibly other cancers and diseases as well. The ILO Resolution of 2006 finally updated and strengthened the original convention, recognising all forms of asbestos as known human carcinogens, and calling for the elimination of the future use of asbestos, the identification and proper management of asbestos still in place, and the utilisation of the most effective means to protect workers from asbestos exposure.

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Dr Jukka Takala, President of the International Commission of Occupational Health, and an international team of researchers recently set out to ascertain the magnitude of asbestos-related diseases. A key aim was to revitalise the ILO and the WHO's Joint Programme on Asbestos-related Diseases by reviewing extensive international evidence on asbestos-related deaths in different populations and countries. As a result, a Joint ILO-WHO Programme on the Elimination of Asbestos-related Diseases was established in 2003.

Dr Takala and the team noted significant challenges due to the serious prevalence of the under-diagnosis and non-diagnosis of asbestos-related disease. This was particularly true for lung cancer cases potentially linked to asbestos, where the necessary post-mortem checks for fibres in the lungs may not be routinely conducted. In addition, recorded lung, ovarian, and larynx cancers generally do not indicate asbestos as a cause of death, even when this was a major factor.

As a consequence, the asbestos-related deaths had to be estimated, based on modelled asbestos exposure and the number of workers exposed. However, by studying mesothelioma incidence, where almost 100% of cases are asbestos-related, the data could be used as a proxy for estimating asbestos exposure for a given location, and estimates of other linked asbestos-caused cancers could be deduced from this information.

The cost-impact of asbestos was compared using the estimated disability-adjusted life years, or DALYs, [Dalliz] caused by asbestos, compared to an ideal case, where no asbestos-related deaths or exposure occurred. The DALY is based on the years of life lost from premature death, and years of life lived in less than full health.

The evidence collected by Dr Takala and his team clearly demonstrated that asbestos remains a serious worldwide public health concern. Based on two different methods, mesothelioma deaths were estimated to be between approximately 30,000 to 38,000 per year. Lung cancer, a much more common disease may cause an average of around six times more deaths than mesothelioma, but in most countries, it may not be recognised as an occupational disease and thus does not result in compensation for either victims or their families.

Overall, the data suggest, that worldwide deaths from mesothelioma are consistently increasing, and therefore, if mesothelioma is used as a proxy of asbestos exposure, then all asbestos-related cancer deaths are also increasing. The 27 countries of the European Union have a high regional exposure to asbestos historically in counting the estimated numbers of cases, although China, India and the USA have a very high exposure when looking at the amounts (millions of tonnes) of asbestos consumed, and such consumption continues in many parts of the world. The UK, with the fourth-highest mesothelioma death rate worldwide, is likely to start showing a decrease in deaths in the 2020s, as a result of implementing a gradual reduction of asbestos exposure, followed by a complete ban by the European Union in 2005. A downturn in the incidence in younger groups of workers is already happening in Sweden and The Netherlands due to early action taken in the 1980s. Taking an overall perspective, the team concluded that every 20 tonnes of asbestos produced and consumed kills one person somewhere in the world approximately 37 years later.

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International agencies have estimated that the costs of poor health and safety at work globally represent 3.9% of the global domestic product. Asbestos is very likely to be one of the most significant occupational risk factors contributing to this figure. In the European Union, a loss of 0.7% productive output is caused by asbestos at work and this percentage is roughly the share of loss of the gross domestic product of the region. Unfortunately, these figures represent a significant underestimation of the problem, as most asbestos-caused cancers go unrecorded and unrecognised in the workforce. Where smoking is also involved, the death rate is invariably higher, but smoking often masks the

identification of asbestos-related causes. Lung cancers are usually indicative of multiple and simultaneous exposures, and again, asbestos-related diagnoses may be missed.

The conclusions from the work of Dr Takala on the global asbestos disaster are clear. The present efforts to eradicate exposure to this man-made problem are insufficient in most countries across the world. The simple act of banning asbestos production would stop future occupational exposure. However, asbestos producing countries continue to lobby against such measures and are adept at muddying the scientific and political waters. We could also manage existing asbestos by removing it from buildings and infrastructure and significantly reduce the existing exposure limits from the current 100,000 asbestos fibres in one cubic metre to just 1,000 fibres. Dr Takala has identified that the present policies and practices need strengthening and revision, as well as financial support to poorer parts of the world for implementation. It is essential that the ILO and WHO Joint Programme for the Elimination of Asbestos-related Diseases is revitalised for this to be achieved.

This SciPod is a summary of the paper 'Global Asbestos Disaster', from the International Journal of Environmental Research and Public Health. <https://doi.org/10.3390/ijerph15051000>.

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