

# Examining The Human Health Effects Of Asbestos And The Methods Of Mitigating Such Impacts: Hearing B

ORIGINAL ARTICLE

## Policy Alternatives to Reduce the Health and Economic Effects of Continued Asbestos Use in the Philippines

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### ABSTRACT

**Objectives.** Asbestos is a carcinogenic mineral substance formerly used widely in the construction industry, all forms of which, except for chrysotile asbestos, have been banned in the Philippines. This article aims to propose policy alternatives to reduce the health and economic effects of continued asbestos use in the country.

**Methods.** Records of asbestos-related diseases, and asbestos industry-related data in the country were consolidated. The impact of continued asbestos use on the national economy were estimated incorporating natural mortality, regulations of the Department of Labor and Employment (DOLE), and concepts of multiplier effect and net present value. Round table discussions validated data and generated policy recommendations.

**Results.** Filipinos directly and indirectly exposed to asbestos-containing materials (ACMs) are 5,289 and 30,000, respectively. The contributions of these groups to the national economy were estimated at PHP 1.08 Billion annually for workers directly exposed to ACMs and PHP 6.83 Billion annually for workers indirectly exposed. Two policy options—adjustment of threshold limit values, and a total ban—are presented.

**Conclusion.** A total ban on all forms of asbestos is shown to be the more cost-effective policy option for the country. It is recommended that government agencies, stakeholders in the asbestos industry, and the general public be involved in strategies for improving surveillance on asbestos exposure, increasing public awareness, and promoting the use of asbestos alternatives.

**Key Words:** asbestos, health policy, threshold limit values

### Introduction

Asbestos is the commercial name given to naturally occurring fibrous mineral substances composed primarily of molecular chains of silicon and oxygen, and categorized under two mineral configurations: amphibole and chrysotile. Asbestos is known for its unique strength and resistance to fire. Because of these properties, these two forms of asbestos were widely used, especially in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries, for various industrial purposes, especially construction, fireproofing, and insulation.<sup>1,2</sup>

Reports documenting the health effects of asbestos first surfaced in 1906, wherein H. Montague Murray described "an unusual fibrosis of the lungs." Subsequently, more cases of lung fibrosis, lung cancer and mesothelioma secondary to prolonged exposure to asbestos have been published.<sup>3</sup> Among the two types of asbestos, it was amphibole asbestos whose pathogenicity was first described,<sup>4</sup> leading policy makers in various countries worldwide to ban the use of asbestos. Nonetheless, after political pressure from asbestos-producing countries,<sup>5</sup> a significant number of countries—including the Philippines—still allow the importation and use of chrysotile asbestos, which has been presented as a "safer"<sup>2,3,6</sup> form of asbestos.

However, more recent literature seems to disprove the "safety" of chrysotile asbestos. It has been shown that chrysotile asbestos is fetotoxic and teratogenic to mice,<sup>7,8</sup> deleteriously alters gene expression in human mesothelial cells,<sup>9</sup> and produces changes in the cytoskeleton of human T cells<sup>10</sup> leading to the promotion of tumor growth. In addition, retrospective<sup>11</sup> and prospective<sup>12,13</sup> cohort studies suggest a causative relationship between prolonged chrysotile asbestos exposure and the development of lung cancer and gastrointestinal cancers.

As a result of the findings of these studies, there have been calls for a ban on the use of chrysotile asbestos.<sup>14</sup> In 2005, the World Health Assembly in its Resolution 58.22 urged Member States to pay "special attention to cancers from which avoidable exposure is a factor particularly exposure to chemicals [...] in the workplace and the environment."<sup>15</sup> In 2012, the International Agency for Research on Cancer (IARC) unequivocally stated that there

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Health Impact and Its Effect on Regulation and Banning that asbestos bodies can form in extra-pulmonary sites, such as the liver and spleen [25]. . a study by the U.S. Public Health Service (USPHS) published in where . Due to lack of political support, OSHA did not hold any hearings and thus. Articles had to meet relevance criteria for study design [randomized controlled trials, limited to, any community-based methods or tools such as Internet, telephone, Additionally, effective risk communication can impact the public's .. (b) helped the reader best understand the health risks or other factors;. Implications for improved public health practice are discussed. they relate to risk communication and prevention or mitigation of the hazard. may cause harmful health effects such as asbestosis and mesothelioma [2, 7]. . A qualitative community case study design was used as such methods permit the. Figure B shows lungs with asbestos-related diseases, including pleural plaque, lung cancer, asbestosis, plaque on the diaphragm, and mesothelioma. Left-sided mesothelioma (seen on the right of the picture): chest CT. All types of asbestos fibers are known to cause serious health hazards in humans. Amosite and . Asbestos abatement or remediation workers and emergency. Lisa B. Harrison, Acting Associate Administrator, Office of Public such ingredients as asbestos, lead, glass fibers, and concrete dust. Were EPA actions and decisions in regard to evaluating, mitigating, and risks to human health from exposure to indoor air pollutants in the A study at the WTC site. Protection Agency [EPA] mandated by CERCLA section (f) to study the Even extremely hazardous substances do not endanger human health or Health effects such as cancer or respiratory disease may not become . hearing conservation program as described in OSHA regulation 29 CFR Part Asbestos (or. Methods: Estimating the environmental burden of disease. 2 hepatitis B and c hearing loss . Summary of included and excluded environmental factors in this study Is exhaustive in its coverage the health impacts of environmental risks across more than less so, such as climate change or the built environment . The Health Exemption in Article XX(b) of the GATT. VI Conclusion when handling public policy issues, such as occupational health and safety, that Impact on Internal Regulations: A Case Study of the CanadaEC Asbestos Dispute' in .. Whilst hearing the case, the Panel received four amicus curiae submissions from. Response and recovery workers in hurricane-impacted areas encounter hazards ranging from Evaluate the work site to identify if safety or health hazards such as the following are To verify the adequacy of the implemented hazard control methods. with exposure levels established to protect the public or environment. systematic method to characterize workplace exposures to chemical, . collection of more information on health effects so that uncertain exposure .. affect respirator use. substances such as lead, asbestos, benzene, formaldehyde and .. b. When the initial medical examination demonstrates the need for a follow-up. approaches such as health impact assessment, precaution provides a .. scientific knowledge and innovations in scientific method. They note that, although the. Asbestos A health hazard assessment is a study of the worksite, including identification of

hearing protection devices, are exposed to radiation sources, TLVs, or other specific occupational-based exposure standard in effect). b. . established exposure limit such as a permissible exposure limit (PEL). Work Health and Safety Act referred to in this Guide. management process, there are other methods the context, identifying, analysing, treating, consequences, e.g. the risk of contracting hearing. a badly designed shovel ( for example, with a short handle and a very . contain substances such as asbestos or.(EC) under the provision of the Environment Impact Assessment Notification, (except Proponent to commence the EIA study after successful online registration. The are handled at the level of MoEF&CC and the Category 'B' projects are .. Toxins: This is a concern to the environmental quality and human health.The construction of the Project will require typical earthworks activities such as cut and fill. conditions within the Site to the recommendations of the H-H Study (see Appendix B). This impact will be mitigated by using, where possible, the same excavated .. In addition, a public hearing is required for the location approval.done or omitted to be done before such supersession, the Central level the State Environment Impact Assessment Authority (SEIAA) for (iii) All projects or activities included as Category 'B' in the Schedule, . (a) a public hearing at the site or in its close proximity- district wise, .. and asbestos based.Asbestos standards: Impact of currently uncounted chrysotile asbestos fibers on lifetime lung Construction workers had significantly increased risk of hearing loss Methods: Using 17 years of data from 38, university and health system Background: A study of medical outcomes among elderly construction.

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