

ASBESTOS CANCER IN THE EASTERN MEDITERRANEAN (EM) REGION¹

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1. Introduction

Exposure to asbestos causes mesothelioma and lung cancer. It is estimated that:

“The asbestos cancer epidemic may take as many as 10 million lives before asbestos is banned worldwide and exposures are brought to an end. In many developed countries, in the most affected age groups, mesothelioma may account for 1% of all deaths. In addition to mesotheliomas, 5-7% of all lung cancer can be attributed to occupational exposures to asbestos.”²

Between 1900 and 2003, 182.2 million tonnes (mt) of asbestos were mined, with global production peaking at 4.8 mt in 1977.³ Output remained at over 4 mt a year until 1991 and in 2004, the latest year for which production data are available, 2.23 mt were mined. A correlation between asbestos consumption and the national incidence of asbestos-related disease, such as mesothelioma, exists. Research by Dr. Antti Tossavainen found that “170 tons of produced and consumed asbestos will cause at least one death from mesothelioma, most often as a consequence of occupational exposure.”⁴

While detailed information about current and historical asbestos consumption in North America and Europe is available, little is known about use in the EM region. A report in the 2002 Canadian Minerals Yearbook, however, noted that:

“In Africa, Canadian exports (of chrysotile asbestos) in 2002 improved significantly and reached more than 12 500 t, compared to a level of slightly more than 7750 t in 2001. This was essentially achieved through higher exports to Algeria, Angola, Morocco and Senegal, whereas exports to Nigeria fell significantly. Canadian exports to the Middle East, mostly to the United Arab Emirates and Iran, increased substantially while those to Egypt dropped. Varying Canadian export levels to Africa and Middle Eastern countries in recent years are a result of a number of factors such as social unrest, competitive Russian exports⁵ to these regions, and the influence of European policy changes.”⁶

Within 12 months, the Canadian Minerals Yearbook was highlighting the importance of the asbestos market in some parts of the EM: “Chrysotile use in the Middle East (mostly in the United Arab Emirates, Iran and Egypt) and in Africa (essentially in Algeria, Angola, Morocco and Senegal) accounts for about 20% of world demand.”⁷

Data on regional asbestos imports in 2003 (the latest year for which figures were available) are given below.

Value of Asbestos Imports (2003)

Country	US \$
Iran	26,019,000
United Arab Emirates	10,787,000
Pakistan	1,357,000
Lebanon	1,123,000
Oman	590,000
Iraq	194,000
Saudi Arabia	161,000
Syrian Arab Republic	6,000

Current asbestos consumption in Iran, the United Arab Emirates and elsewhere in the EM is likely to produce an elevated incidence of asbestos-related disease such as that now being documented in Pakistan (see section 5) in decades to come. A ban on asbestos use and measures to minimise hazardous exposures to asbestos and other carcinogens in the EM would slash future levels of mesothelioma and asbestos-related lung cancer.

2. The Human Cost of Asbestos Use

No one knows how many people have died from the widespread and uncontrolled use of asbestos around the globe. In January 2006, Dr. Jukka Takala, Director of the International Labor Organization (ILO) SafeWork Program, wrote:

“Asbestos is one of the most if not the most important single factor causing work-related fatalities, and is increasingly seen as a major health policy challenge worldwide... asbestos is still the No.1 carcinogen in the world of work.”⁸

Dr. Takala has estimated that 100,000 people die every year from work-related asbestos exposures. In a private communication, he accepted that this figure significantly “underestimated” the problem (by as much as 42%!) as it was based on conditions in Finland, where the use of asbestos has been heavily restricted for decades, unlike the laissez-faire approach in most of the developing world:

“The global figure is growing as more people will die from (asbestos) cancer as communicable diseases are reduced...reductions (in asbestos-related deaths) will take place maybe only after 2020 if China and India introduce quickly measures against asbestos.”

The health effects of Europe’s massive asbestos use were analyzed in a 1999 paper entitled: *The European Mesothelioma Epidemic*. Using data from Britain, France, Germany, Italy, the Netherlands and Switzerland, the authors predicted that the number of men dying from mesothelioma in Western Europe for the period 1995-2029 would increase from 5,000 in 1998 to 9,000 in 2018.⁹ In this 35 year period, a

quarter of a million male mesothelioma deaths are expected. Adding the number of male deaths expected from asbestos-related lung cancer as well as asbestos deaths of women to this figure is likely to produce an asbestos death toll in excess of 500,000 in Western Europe alone. No estimates have been made for asbestos fatalities in Eastern Europe, where the unrestricted use of Russian asbestos was ubiquitous, or in developing countries, now the main asbestos consumers.

With one or two exceptions, research conducted for this paper has failed to obtain relevant data on asbestos cancer in the EM. This information vacuum substantiates the observation of leading Italian researcher, Dr. Claudio Bianchi that “The principal feature in mesothelioma geography is the lack of data”:

“Reliable figures on the incidence/mortality of/from mesothelioma are available for about 15% only of the world population. In particular, mesothelioma epidemiology is scarcely known for a majority of the big asbestos producer/consumer countries. Where data are available, marked variations in incidence are observed. During the last decades mesothelioma incidence showed a progressive increase in various industrialized countries, reaching the highest values in Australia, Belgium, and the UK... The mesothelioma wave consequent on the very high world asbestos consumption (which) occurred in the 1970s has yet to be seen.”¹⁰

3. Repercussions of Asbestos Use in Industrialized Countries

In view of the absence of statistics for the EM, it is informative to look at the experiences of industrialized countries.

Australia

In Australia, mortality from malignant mesothelioma has been increasing since 1965. The Australian Mesothelioma Register received 6,129 mesothelioma notifications between 1986 and 2000:

“...of the mesothelioma cases with a past asbestos exposure, close to 89% were work-related, about 3% were not work-related and the rest (8%) could not be classified;

...of the persons with work-related mesothelioma, one in three had worked in the *Construction* industry and one in five had worked in the *Manufacturing* industry.”

Considering the widespread and uncontrolled use of asbestos that had occurred in Australia, elevated levels of asbestos-related disease are not surprising:

“By 1954 Australia was number four in the Western world in gross consumption of asbestos cement products, after USA, UK and France, and clearly first on a per capita basis. After World War II to 1954, 70,000 asbestos cement houses were built in the State of New South Wales alone (52% of all houses built). In Australia as a whole, until the 1960s, 25% of all new housing was clad in asbestos cement.

Exposures in the past were very high in some industries and jobs – (eg, 25 million particles per cubic foot (150 fibres/ml) in asbestos pulverisors and disintegrators in the asbestos cement industry; up to 600 fibres/ml in baggers at Wittenoom).”¹¹

Belgium

A study undertaken in 2001 to quantify the European incidence of mesothelioma found that the country with the highest number of mesotheliomas per million (29) was Belgium.¹² The use of asbestos began in Belgium at about the same time as in England, France¹³ and Germany.¹⁴ An asbestos mill, Feutres et Amiantes d’Auvélais, which was established in 1905, manufactured asbestos textiles until the mid-1970s.¹⁵ Also in 1905, the first Belgian asbestos cement factory started production under the Eternit trademark. To meet demand, the plant relocated in 1923 to Kapelle-op-den-Bos, which eventually became one of the world’s largest sites for the production of asbestos cement, employing 3,000 workers and consuming 40,000 tons of asbestos a year.

The recognition of the harmful effects of occupational asbestos exposure in Belgium was slow. Various documents from the (Belgian) FMP (the Occupational Diseases Fund)¹⁶ reported:

- 138 cases of asbestosis between 1953 and 1972;
- in 1973, mesothelioma accounted for 7% and lung cancer for 21% of deaths among people compensated for asbestosis;
- 267 cases of asbestosis between 1973 and 1981;
- in 1981, mesothelioma accounted for 19% and lung cancer for 25% of deaths among people compensated for asbestosis.

In 1980, Pneumologist Dr. Vande Weyer of the FMP concluded:

“Taking into account, on the one hand, the extent of the industrial use of asbestos now and in the recent past and, on the other hand, the inadequate precautionary measures, it is to be feared that the situation we are observing now will be confirmed and shall endure till at least the beginning of the 21st century.”

By 2003, a total of 850 mesothelioma victims had been compensated by the FMP and 60 new cases were being recognized annually. Analysing data supplied by The National Institute of Statistics it is obvious that the mesothelioma victims whose claims were approved by the FMP were in the minority. In 1995, there were 161 mesothelioma deaths recorded by the National Institute of Statistics. Figures from the National Cancer Register also call into question the FMP’s data. Between 1985 and 1992, the NCR recorded 630 new mesotheliomas; during this period the FMP recognized 232 cases. The higher figures provided by the National Cancer Register still underestimate the problem says Dr. Vande Weyer:

“In the United Kingdom, there were 6,134 cases between 1976 and 1987, over 1,000 per 10 million inhabitants. The figure for Belgium is 241. Yet with six times fewer inhabitants, our consumption of asbestos was half the British one. It

was shown convincingly in Denmark and in Sweden that the incidence of mesothelioma reflects the asbestos consumption 20 years or so earlier.”

United Kingdom

In the UK, asbestos is the “greatest single cause of work related death.”¹⁷ In 1995, the paper *Continuing Increase in Mesothelioma Mortality in Britain*, by Julian Peto et al, predicted that “mesothelioma deaths will continue to increase for at least 15 and more likely 25 years. For the worst affected cohorts – men born in the 1940s – mesothelioma may account for around 1% of all deaths.”¹⁸ In 2002, Peto qualified the earlier findings:

“There were 1600 (UK) mesothelioma deaths in 1999 and the number is still rising. The latest HSE estimate suggests the peak will occur earlier than we originally predicted and that the maximum will be of the order of 2000 deaths in or around 2010.

Based on data up to 1991, we predicted a peak of about 2500 mesothelioma deaths per year around the year of 2020. The rate of increase since 1991 has flattened, presumably due to the very abrupt reduction in the use of asbestos in the late 1970s particularly in construction.”^{19,20}

A paper published in 2004 confirmed the continued risk to UK workers:

“One in every hundred men born in the 1940s will die of malignant pleural mesothelioma... For a man first exposed as a teenager, who remained in a high risk occupation, such as insulation, throughout his working life, the lifetime risk of mesothelioma can be as high as one in five...The disease is increasing in frequency...we will be seeing many more mesotheliomas in the next 25 years.”²¹

Last year UK epidemiologists predicted that:

“Between 1968 and 2050, there will have been approximately 90,000 deaths from mesothelioma in great Britain, 65,000 of which will occur after 2001.”²²

Research conducted by European scientists in 35 countries found that “data about the proportion of asbestos-related carcinomas of the lung were unavailable.”²³ Due to the difficulty in attributing lung cancer deaths to asbestos, the HSE has, in the past, estimated 1-2 asbestos-related lung cancers for each mesothelioma;²⁴ a conservative estimate for the number of UK asbestos-related lung cancer deaths in 2003 is 2,000.²⁵ Other medical experts feel this figure could significantly underestimate the asbestos death toll. In 2004, Professor Joe LaDou wrote: “The number of lung cancer deaths caused by asbestos is at least equal to the number of deaths from mesothelioma. The ratio may be much higher than 1 to 1, with some reports suggesting up to 7 to 1.”²⁶

4. Repercussions of Asbestos Use in the Developing World: Brazil, India, the Philippines

As industrialized nations have amassed data on the human cost of asbestos use, prohibitions or serious restrictions have been implemented on all types of asbestos

fibers and asbestos-containing products in 40 countries.²⁷ Reacting to the collapse in demand, asbestos producers began targeting consumers in the developing world. According to the U.S. Geological Survey (USGS):

“Countries in Asia, South America, and the former Soviet Union remain the largest users of asbestos. More specifically, Brazil, China, India, Japan, Russia, and Thailand are the only countries that consumed more than 60,000 tons of asbestos in 2000. These six countries accounted for more than 80% of (the) world’s apparent consumption in 2000... Consumption has increased in India, Indonesia, and Thailand during the past couple of years while that of Japan has declined. Several countries have maintained low levels of consumption and a few of these small consumers have increased consumption in recent years.”²⁸

Of the countries named in the paragraph above, only Brazil (1990) and the Russian Federation (2000) have endorsed ILO Convention No. 162, concerning safety in the use of asbestos, and its accompanying Recommendation 172;²⁹ these ILO instruments underline the necessity of national asbestos regulations to minimize occupational exposure:

“According to ILO Convention No. 162, the employer assumes full responsibility for the establishment and implementation of practical measures for the prevention and control of the exposure of workers to asbestos and for their protection against health hazards due to asbestos.”³⁰

Hazardous working conditions are the norm in developing economies. Despite the fact that Brazil is a signatory to ILO Convention 162, “the majority of Brazilian employers do not fulfil their responsibilities for protecting workers from occupational asbestos exposure.” During twenty years of workplace inspections, Senior Labor Inspector Fernanda Giannasi routinely finds hazardous conditions:

“The controls specified by ILO Convention 162 are frequently absent, especially in smaller companies. Even when these firms are aware of the risks, they continue to treat asbestos as just another raw material; no safety measures or protective equipment are used. Employers prefer to pay fines which are cheaper than adequate controls. The highest fine ever imposed for infringement of safety and health regulations is US\$3,000. It is very cheap to kill and injure Brazilian workers. Another serious problem in Brazil is asbestos waste; as it is expensive to dispose of this waste appropriately, many companies dump it in secluded spots such as abandoned warehouses and derelict buildings.”³¹

An absence of epidemiological data is used by many national governments to justify the continued use of asbestos:

“According to the International Agency for Research on Cancer (IARC), mesothelioma is not considered an occupational cancer in Brazil, because of the lack of local studies and information about this tumor in the medical literature. There is just one paper, reporting three cases of mesothelioma in the country.”³²

Brazilian government statistics report that there were fewer than 100 asbestos-related deaths between 1900-1998. Alternative figures produced by The Brazilian Association of The Asbestos-Exposed (ABREA) reveal that of 960 former workers at Eternit's Osasco asbestos-cement factory, 549 were affected by an asbestos-related disease or symptoms. Research conducted in the State of Rio de Janeiro found that:

“of 217 death certificates coded as pleural tumors, 34.1% were considered wrongly coded... A preliminary report shows that death certificates can underestimate mesothelioma mortality. In our hypothesis, this tumor is underreported and underdiagnosed in Brazil... there is an impressive lack of studies of this tumor, and for this reason it is difficult to make public health decisions.”

India consumes about 100,000 t of chrysotile every year, much of which is imported from Canada. Dr. Tushar Kant Joshi, Director of the Center for Occupational and Environmental Health in New Delhi, is scandalized at the hazardous exposures taking place on a daily basis in India:

“Human biology is the same everywhere; if asbestos of all kinds including chrysotile/white asbestos is a carcinogen in over 30 countries how can it not be hazardous in India... How can we allow asbestos to cause havoc while waiting another 30-40 years for an Indian study to conclude that asbestos is a carcinogen.”

Dr Joshi believes that up to 1 million people in India are currently being occupationally exposed to asbestos. Government findings support Dr. Joshi's fears:

“In India, too, studies by the National Institute of Occupational Health (NIOH), an Ahmedabad-based autonomous government scientific body, have found lung impairment and radiological abnormalities in asbestos milling workers (54.8 per cent) and miners (19.5 per cent). The workplace asbestos fibre concentration in milling facilities was found to be 33 times higher than the Indian standard for chrysotile asbestos of 2 f/cm³...

Indian researchers have reported numerous instances of high exposure levels to asbestos fibres in the workplace, which indicates a potential epidemic-like situation of asbestos-related diseases in the coming years.”

Indian workers remain uninformed and unaware of the hazards they are experiencing; there is no enforcement of health and safety regulations in the asbestos sector, the construction industry or at the docks:

“The Central Pollution Control Board under Union Ministry of Environment and Forests monitored eight major asbestos products manufacturing operations in India. Six of them were not complying with the emission standards, and for the remaining two, compliance or non-compliance status could not be ascertained.”

Surveys conducted in 1997 by government agencies recorded airborne levels of between 2-488 f/ml in occupational settings; the Indian standard for permissible airborne concentrations of chrysotile is 2 f/ml.

An absence of information about asbestos hazards and the under-diagnosis of asbestos-related disease is common in the developing world. The situation in the Philippines, where asbestos consumption is increasing, is typical:

“Asbestos and asbestos-containing materials have been used ubiquitously in the Philippines for more than five decades now... Accuracy of historical asbestos-related demographic information is difficult to ascertain because of the absence of a functional database system prior to 2000. Currently, it is estimated that more than 30,000 workers have direct and indirect exposure to asbestos. This figure may more than double if all individuals ever exposed to asbestos are taken into consideration... asbestos-related information is insufficient... data on exposure assessment for hazards in general are lacking.

Surveillance of asbestos-related diseases is also difficult to implement. Limited medical knowledge of the health problem from asbestos exposure has affected the diagnosis and reporting of asbestos-related diseases. Asbestos-related disease may likewise escape detection because of the long latency period from the time of exposure to the appearance of health problems. Many workers are lost to follow-up once employment in asbestos-using enterprises has been terminated.”³³

In 2005, a new campaigning group was formed: the Philippines Ban Asbestos Network (PBAN). At PBAN’s inaugural asbestos seminar in July 2005, Dr. Marlito Cardenas, a former director of the Department of Environment and Natural Resources Environmental Management Bureau, and one of the founder members of PBAN, described asbestos products as “silent but sure killers,” and said that asbestos was a huge threat to public as well as occupational health. Dr. Cardenas warned delegates that the dumping of hazardous asbestos waste was rife and few, if any, safeguards protected workers from hazardous exposures. Dr. Cardenas pointed out that current asbestos legislation and guidelines on asbestos management in the Philippines were woefully inadequate and called for a national ban on asbestos use.

Despite all that is known about asbestos, it remains a popular product in the Philippines. Manila-based asbestos companies are importing 4,000t of asbestos annually for the manufacture of asbestos fiber cement boards, packaging materials, gaskets and friction and mechanical parts such as brakes and automotive clutches. Asbestos cement, banned throughout Europe since January 1, 2005, is still highly valued in the Philippines and is incorporated in major building projects like shopping malls, gas stations, airports and apartment complexes.³⁴

5. Repercussions of Asbestos Use in the EM Region

Data relevant to the discussion in this paper could only be obtained for two countries in the EM region: Pakistan and Cyprus. The lack of published data and the fact that not one country in the region has ratified ILO Convention No. 162, concerning safety in the use of asbestos, are causes for concern.³⁵ In 2004, Dr. Noor Jehan, from the University of Peshawar, Pakistan, presented a paper at the Global Asbestos Congress entitled: *Asbestos Risks: Occupational and Para-Occupational Health Status in Pakistan* during which she displayed a series of breathtaking pictures illustrating the hazardous nature of occupational asbestos exposures at:

- asbestos mines in Behram Dheri, Northwest Frontier Province (NWFP);
- asbestos crushing units in Nawe Kili and Anbar Killi, Mohmand Agency;
- asbestos grinding units at Newe Killi;
- asbestos manufacturing units in the cities of Mardan and Peshawar, NWFP.

The photos showed a total lack of protective clothing, respiratory equipment and ventilation measures. Environmental exposure to asbestos is also common in Pakistan; thousands of commercial operations disseminate respirable asbestos dust including mining, scrapping of old ships, milling, sorting, crushing, grinding, and manufacturing.

There is an epidemic of asbestos-related disease in Pakistan; between 1995-2003, 601 cases of mesothelioma were diagnosed in the NWFP, of which 60% were in male patients (356) and 40% (245) in female patients of whom the majority were housewives. Its 120 cases made Mardan City the Province's worst affected hotspot, Mohmand Agency (90), Peshawar (70) and Malakand (70) were next. Occupations shown to be at high risk were: housewives (200), farmers (100), mineral-based industrial workers (55) and mineworkers (50). Professor Dr. Arshad Javed, President of the Pakistan Chest Society, believes that in Pakistan many cases of mesothelioma go undetected; at a meeting in 2004, he estimated that 800 to 1000 cases remain undiagnosed.³⁶ Despite the known health effects associated with asbestos exposure, asbestos-related diseases are not recognized by the Department of Health and hazardous exposures are not controlled by the Environmental Protection Agency in Pakistan.

Cyprus was, until 1988, a producer of white asbestos (chrysotile); mining operations, which began in 1904, were carried out in the Troodos forest at a 400 hectare site. The mechanization of the mining operations introduced in the 1950s produced 20,000-40,000 tons of asbestos fiber a year; cumulatively, one million tons of chrysotile were produced by the excavation of 130 million tons of soil and rock at this facility. In 1980, the health of 8% of the population living in close proximity to the mines was affected by asbestos disease. Between 1990 and 1995, 30% of deaths in this area were due to asbestos-related diseases such as mesothelioma, asbestosis and lung cancer. The biggest problem now is the area near the mines where the spoil has accumulated.³⁷

The dire human consequences of national asbestos consumption are incontrovertible; there is little doubt that the epidemic of ill-health and death will affect asbestos-consuming countries in the EM in decades to come.

6. The Way Ahead

In August 2000, the Gulf News reported that the Gulf Cooperation Council (GCC)³⁸ was considering a ban on the use and import of asbestos. An editorial in this publication reported that a comprehensive study commissioned by the Ministry of Finance and Industry on an asbestos ban was unnecessary as “the harmful effects have been established beyond doubt.” The editorial urged the GCC to “take a firm decision and ban asbestos forthwith...(as) it is the responsibility of governments to protect the large labor force employed in GCC states from asbestos and this can only be done if its production and import is banned forthwith. The ban should also be strictly enforced.”

Forty countries have banned or seriously restricted the use of all types of asbestos; some bans were government initiatives but pressure from asbestos victims’ associations, community groups, trade unions, NGOs and public health campaigners played a significant role in achieving bans in Italy (1992), France (1997), the UK (1999), Chile (2001), Spain (2002), Australia (2003), South Africa (2004) and Japan (2005). The emerging alliance of labor and other groups representing civil society was pivotal in the saga of the *Clemenceau*, the asbestos-contaminated French warship that finally returned to its home port on May 17, 2006, after its futile 12,000 mile quest to find a scrapyard willing to decommission it.³⁹

A ban on the future use of asbestos is a vital component of a comprehensive public health strategy. Six years ago, Saudi Arabia began work on the implementation of such a step when Royal Decree 162/1418 was adopted. This instrument:

- banned the import of asbestos;
- allowed a period of 180 days during which the use of asbestos was to be phased out;
- eliminated all SASO (local Saudi Standards) asbestos specifications;
- cancelled all projects that proposed the use of asbestos.

Subsequently Royal Decree 26/1422 was passed which stipulated:

- mandatory asbestos audits for public buildings;
- procedures for the management, removal and disposal of asbestos-containing materials;
- the replacement of asbestos-containing water pipes, more than 25 years old, with non-asbestos pipes.⁴⁰

The introduction of such procedures and measures to insure compliance with them would protect current workers and the public from hazardous asbestos exposures thereby reducing the incidence of asbestos cancer in years to come.

7. Concluding Thoughts

If we have learned anything from the tragic asbestos legacy, it is that the impact of hazardous asbestos exposures continually exceeds predictions.⁴¹ The legacy of asbestos consumption is: ill-health, death, contaminated infrastructures, polluted land and major public health problems. The asbestos epidemic which has killed so many in the industrialized world is now afflicting the developing world.

Despite the global nature of this problem, efforts by the United Nations to regulate asbestos exports have been blocked by industry and government stakeholders, led by the Canadian Government. On May 23, 2006, Christian Paradis, Parliamentary Secretary to the Minister of Natural Resources (Canada) stated: “it is the position of the Government of Canada not to list chrysotile under the Rotterdam Convention.”⁴² Although a century of Canadian asbestos mining has killed thousands of citizens and grossly contaminated the mining regions, the Government’s politically-driven pro-asbestos policy endures.

In their desperation to continue milking the asbestos cash cow, asbestos producers and profiteers in Canada, Russia, Zimbabwe, Brazil, India, Indonesia, Mexico and elsewhere deny the reality of the asbestos hazard, maintaining that asbestos can be used safely under “controlled conditions.” Environmental consultant Dr. Barry Castleman believes that the “really well-controlled use of asbestos has never existed anywhere in the world and it isn’t being invented anywhere today.”⁴³ This opinion is supported by the World Trade Organization which, in a landmark verdict in 2001, dismissed the “controlled use” argument:

“WTO Members have the right to determine the level of protection of health that they consider appropriate in a given situation. France has determined, and the Panel accepted, that the chosen level of health protection by France is a ‘halt’ to the spread of *asbestos*-related health risks. By prohibiting all forms of amphibole asbestos, and by severely restricting the use of chrysotile asbestos, the measure at issue is clearly designed and apt to achieve that level of health protection... the efficacy of ‘controlled use’ is particularly doubtful for the building industry and for DIY enthusiasts, which are the most important users of cement-based products containing chrysotile asbestos.”⁴⁴

Mobilization of asbestos victims in many countries and increasing trade union activism on asbestos have raised public awareness of the asbestos issue and increased pressure on national governments and international bodies to act on the myriad of problems caused by asbestos use. On June 14, 2006, the 95th Session of the ILO General Conference adopted a ban asbestos resolution which stated:

“the elimination of the future use of asbestos and the identification and proper management of asbestos currently in place are the most effective means to protect workers from asbestos exposures and to prevent future asbestos-related disease and deaths...”⁴⁵

This resolution is a huge victory for civil society and should, if it is implemented, constitute a major advance in the campaign to protect future generations from death by asbestos.

¹ The countries in the EM region, according to the WHO website, are: Afghanistan, Bahrain, Cyprus, Djibouti, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Pakistan, Palestine, Qatar, Saudi Arabia, Somalia, Sudan, Syrian Arab Republic, Tunisia, UAE, Yemen.

- ² LaDou J. *The Asbestos Cancer Epidemic*. Environmental Health Perspectives. 2004;112,3. There is controversy over the proportion of lung cancer cases caused by exposure to asbestos with estimates varying from 2-3% (Darnton, McElvenny, Hodgson, 2005) -10% (Eurogip, 2006).
- ³ Virta RL. *Worldwide Asbestos Supply and Consumption Trends from 1900 to 2000*. USGS Survey; <http://www.usgs.gov/>
- ⁴ Tossavainen A. *Global Use of Asbestos and the Incidence of Mesothelioma*. Int J Occ Env Health. 2004; Jan/Mar:22-25.
- ⁵ A report: *Asbestos in the Middle East* (2003 ICON Group Ltd.) confirmed that in 2003, Russia was the biggest asbestos supplier to the Middle East (sales of US\$24 mil) followed by Zimbabwe (US\$12 mil) , Canada (US\$5.2 mil) and Brazil (US\$2.7 mil).
- ⁶ The only statistics about national asbestos consumption in the EM region which were found showed apparent consumption of chrysotile asbestos in: Iran went from 65,000 metric tons in 1996 to 70,056 metric tons in 2003 and in Oman was 2,347 metric tons in 2000: <http://www.usgs.gov/>
- ⁷ <http://www.nrcan.gc.ca/mms/cmy/content/2003/20.pdf>
- ⁸ <http://www.ilo.org/public/english/bureau/inf/features/06/asbestos.htm>
- ⁹ Peto J, Decarli A, La Vecchia C, Levi F, Negri E. *The European Mesothelioma Epidemic*. British Journal of Cancer. 1999;79(3/4):666-672.
- ¹⁰ Bianchi C. *Geography of Mesothelioma: An Overview*. Abstract to Global Asbestos Congress 2004; <http://park3.wakwak.com/~gac2004/>
- ¹¹ Australian Mesothelioma Register Report. 2001;<http://www.nohsc.gov.au/statistics/>
- ¹² Bianchi C, Ramani L, Bianchi T. *Malignant Mesothelioma in Europe and the Mediterranean Region*. Salute & Prevenzione. December 2002.
- ¹³ According to a 2004 dossier entitled *Ban Asbestos International* by Belgian Senator Alain Destexhe: "In France, there are 2,000 deaths caused by asbestos every year, and this figure is expected to rise to 3,000 by 2020... In February 2004, the French Government published a report entitled: 'Financial impact of compensation of victims of asbestos for the current 7 year period and the next twenty years.' In the report, the cost of caring for asbestos victims is estimated... at between 27 and 37 billion euros (US\$32 and 44bn) for this 20-year period (i.e. between 1.3 and 1.9 billion euros / US\$1.55 and 2.27bn per year). For 2003 alone, the cost is estimated at 600 million euros (US\$717m) for the compensation fund (including 137 million euros (US\$164m) for social security, which covers about half of all workers in France) and 515 million euros (US\$615m) to finance early retirements." In April 2006, the Associated Press published an item which said that 7,500 people die in France every year from occupational asbestos-related cancer. <http://hesa.etui-rehs.org/uk/newsevents/newsfiche.asp?pk=553>
- ¹⁴ According to the Destexhe dossier, in Germany between 1980 and 2003, there were 12,000 asbestos-related occupational deaths: "In 2002 alone, there were almost 1,000 deaths. In 2001, the costs of medical care and financial compensation for victims and their dependents amounted to 290 million euros (US\$346.5m). In Germany alone, 20,000 additional deaths are expected to occur by 2020; the cost to the occupational insurance scheme (Berufsgenossenschaften) will be several billion euros."
- ¹⁵ Nay SY. Asbestos in Belgium: Use and Abuse. Int J Occ Env Health. 2003;9:287-293.
- ¹⁶ The FMP only compensates salaried (i.e. not self-employed) workers.
- ¹⁷ HSE campaign homepage (accessed March 4, 2004): <http://www.hse.gov.uk>
- ¹⁸ Peto J, Hodgson JT, Matthews FE, Jones JR. *Continuing Increase in Mesothelioma Mortality in Britain*. Lancet. 1995; 345:535-539.
- ¹⁹ Kazan-Allen L. *Control of Asbestos at Work Regulations 2002*. British Asbestos Newsletter. 2002-03;49:1-4; <http://www.lkaz.demon.co.uk>
- ²⁰ According to UK government statistics, there were 22,295 asbestos-related deaths between 1926 and 1996. Occupational hygienist Robin Howie believes that this figure is a gross underestimate. In a paper published in 1999, Howie calculated that the death toll over this 70 year period was 125,000, five times the government estimate. Furthermore, Howie calculated that the number of cumulative asbestos-induced deaths which will occur in the UK between 1929-2020 could reach 663,000-820,000.
- ²¹ Treasure T, Waller D, Swift S, Peto J. *Radical Surgery for Mesothelioma*. British Medical Journal. 2004;328:237-238.
- ²² Hodgson JT, McElvenny DM, Darnton AJ, Price MJ, Peto J. *The Expected Burden of Mesothelioma Mortality in Great Britain from 2002 to 2050*. British Journal of Cancer. 2005; 92: 587-593.
- ²³ Bianchi C, Brollo A, Ramani L, Bianchi T. *Malignant Mesothelioma in Europe*. Intl J Med Biol Environ. 2000; 28(2), 103-107.
- ²⁴ Asbestos-related lung cancer. HSE website (accessed May 26, 2006): <http://www.hse.gov.uk/statistics/causdis/lungcan.htm>
- ²⁵ <http://www.hse.gov.uk/statistics/causdis/meso.htm>

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- ²⁶ LaDou J. *The Asbestos Cancer Epidemic*. Environmental Health Perspectives.2004;112,3: 285-290.
- ²⁷ *Current Asbestos Bans and Restrictions*. IBAS website:
http://www.btinternet.com/~ibas/Frames/f_lka_alpha_asb_ban_280704.htm
- ²⁸ Virta RL. *Worldwide Asbestos Supply and Consumption Trends from 1900 to 2000*. USGS Survey. 2003.
- ²⁹ International Labor Organization:
<http://webfusion.ilo.org/public/db/standards/normes/appl/index.cfm?lang=EN>
- ³⁰ Fedotov I. *Technical Briefing Note: ILO International Instruments Concerning Safety in the Use of Asbestos*. October 16, 2002.
- ³¹ Personal correspondence with Fernanda Giannasi, January 5, 2004.
- ³² Pinheiro GA, Antao VCS, Monteiro MMT, et al. *Mortality from Pleural Mesothelioma in Rio de Janeiro, Brazil, 1979-2000*. Int J Occup Environ Health. 2003;9:147-152.
- ³³ Villanueva MB, Granadillos NG, Cucueco MTS and Estrella-Gust DP. *Asbestos in the Philippines: Country Report* in the Proceedings of the Asbestos Symposium for the Asian Countries. Journal of UOEH. 2002;24(Supplement 2):70 -75.
- ³⁴ Kazan-Allen L. *First Asbestos Seminar Held in the Philippines*. August 1, 2005; IBAS website:
<http://www.ibas.btinternet.co.uk>
- ³⁵ <http://www.ilo.org/ilolex/english/convdisp1.htm>
- ³⁶ *Mesothelioma cancer on the rise in NWFP*; (accessed June 14, 2004):
http://www.hipakistan.com/en/pdetail.php?newsId=en67109&F_catID=&f_type=source
- ³⁷ Xanthou E. *Asbestos: A Cyprus Tale*. Paper presented to the European Asbestos Conference, Brussels September 22 & 23, 2005.
- ³⁸ The GCC represents Saudi Arabia, Bahrain, Kuwait, Oman and the United Arab Emirates.
- ³⁹ http://www.btinternet.com/~ibas/Frames/f_clemenecau_comes_home.htm
- ⁴⁰ Email from Prof. Saeed M. Al-Zahrani June 19, 2006.
- ⁴¹ Pinheiro A, Antao VCS, et al. *Malignant Mesothelioma Surveillance*. Int J Occup Environ Health 2004;10:251-255. The number of cancers contracted due to occupational exposures to carcinogens has also traditionally been underestimated. See paper: *Cancer due to Occupation in Australia*. Aust N Z J Public Health 2006; 30:213-19.
- ⁴² http://www.nrcan.gc.ca/media/speeches/2006/200607_e.htm
- ⁴³ http://www.btinternet.com/~ibas/Frames/f_lka_hellen_asb_conf_rep_txt.htm
- ⁴⁴ *Editorial: WTO Upholds French Ban on Chrysotile*. Int J Occup Environ Health.2001;7:246-253.
- ⁴⁵ <http://www.ilo.org/public/english/standards/relm/ilc/ilc95/pdf/pr-20.pdf>