Factsheet
Asbestos: a silent Killer on a global scale

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Overview

Asbestos is banned in most industrialised countries: yet it is the biggest occupational killer worldwide: the International Labour Organisation estimates asbestos causes 100,000 deaths globally every year through occupational exposure alone[2]. This is truly a global epidemic with a preventable cause. There is scientific consensus based on conclusive proof that all types of asbestos are hazardous for human health. The International Agency for Cancer Research classifies asbestos as a proven human carcinogen.1 Asbestos exposure is associated with bronchial carcinoma (lung cancer) and mesothelioma (pleural or peritoneal malignant tumours). In some cases, these diseases were observed even among people with a short-term asbestos exposures. The disease can lie dormant for years after exposure, but once activated, malignant mesotheliomas usually result in death of the patient in a short period of time.

Where is asbestos used?

Over 90% of the asbestos mined and sold in the world is chrysotile asbestos. The most common use for asbestos worldwide is in the manufacture of asbestos-cement construction materials such as slates, roofing materials and pipes; over 75% of the chrysotile mined every year is used in the manufacture of asbestos cement products which typically contain 10-15% asbestos (mainly chrysotile). Almost all municipal buildings, housing for economically poorer people in developing countries and economies in transition are constructed with use of corrugated asbestos-cement, as it is cheap and easily accessible. Roofs of schools, kindergartens and hospitals are covered by corrugated asbestos-cement (see Fig. 1, 2, 3). In Ukraine, for example, 95% of all roofs are covered by corrugated asbestos-cement.7

Who is at risk: the social costs

The main health risk is from inhalation of asbestos fibres in the air. Asbestos fibres are present nearly everywhere, with greater concentrations in urban areas, though levels are typically low compared to other airborne particles. According to the data of the Agency for Toxic Substances and Disease Registry (USA), in rural areas the concentration of asbestos fibres in the air constitutes 0,03 – 3 fibre/m3.3 In urban areas the content of asbestos in the air is 3 – 300 fibre/m3, while closer to asbestos mining or processing enterprises it can be up to 2000 fibre/m3 or more, representing a severe risk to human health.

The World Health Organization estimates that currently 125 million people are being occupationally exposed to asbestos. The risk group includes workers who are engaged in repairs or reconstruction works in buildings with asbestos-containing materials, or demolition of such buildings, as well as stokers, installers, car mechanics, etc. Lung carcinomas and mesotheliomas may develop through secondary exposure, for example through wives or other family members coming into contact with asbestos-contaminated clothing. The risk group also includes children who attend school and kindergarten buildings constructed with use of asbestos-containing materials. Sometimes the two factors converge to present a double

Fig 1.
Children's playground in Almaty, Kazakhstan
Fig 2.
A dwelling house in Kirgizstan
Fig 3.
A Balcony in a residential building in Ukraine plated by corrugated asbestos cement sheets

risk: for example, asbestos related diseases are known to occur far more frequently in high exposure zones such as a children's building which contains asbestos and which is also adjacent to an asbestos product manufacturing factory.
The poorest and most marginalised are suffering the most. Asbestos is produced, imported to and processed in developing and medium income countries with their much weaker environmental regulations and much lower capacity to treat dangerous diseases comparative to industrialised countries.

South Africa: showing other countries the way forward

The International Labour Organisation, the World Health Organisation's International Agency for Research on Cancer, the International Programme on Chemical Safety, the European Union, the Collegium Ramazzini, the International Social Security Association, the World Trade Organisation, the International Commission on Occupational Health, the International Federation of Building and Woodworkers, the International Metalworkers' Federation and governments of over 50 countries are calling for a ban on the use of chrysotile asbestos as well as any other form of asbestos. Referring to numerous scientific studies on the health risks, they are calling on countries to stop mining of asbestos and phase out production and use of asbestos-containing products. The most recent country to ban asbestos is South Africa, which had until recently been a major producer and user of chrysotile asbestos. This shows that asbestos producing countries can show the courage to address these risks and to find real solutions.

The economic costs of asbestos-related diseases

In addition to concern about their citizens' health, one reason why all major industrialized countries and an increasing number of other countries, have banned chrysotile asbestos is because they have looked at the evidence of the enormous economic costs that will be incurred to deal with the health epidemic of asbestos-related disease (compensation, health care, support of victims), as well as the environmental costs of cleaning up buildings and sites where asbestos poses clear health risks.4 claims. Occupational victims also claim for compensation as their health and lives have been ruined by asbestos, and this is a huge cost to a country. A test case in the UK in 1993 saw one of the first payouts of compensation (£45,000) to a man who had become ill with mesothelioma after living near the Cape Plc asbestos factory in East London. In 1995 a woman was awarded £65,000 after contracting mesothelioma years after she played near an asbestos factory as a child. This opened the door to an avalanche of claims which have been repeated in other countries around the world.
When there is a natural disaster, such as an earthquake or severe storm, countries are then faced with the costs of cleaning up hazardous asbestos-contaminated debris. A report on the 2006 Jakarta Regional Workshop on Sound Management of Hazardous Wastes from Health Care and from Agriculture, organised by the World Health Organisation (WHO) and Food and Agriculture Organisation (FAO, also highlighted the problems of post-tsunami clean-up of asbestos-containing materials. It was noted that during the clean-up of damaged and destroyed buildings after the disaster, large quantities of asbestos-containing materials needed to be handled and disposed of.

Rotterdam Convention: inclusion of asbestos on the PIC list

Non-governmental organisations, including labour groups share the position of many countries and international organisations and argue that industry is profiting at the expense of human health in a cynical and indefensible way, when there can be no doubt of the damaging effects. Individual countries are to blame, since their governments are prioritising short term economic interests over the health of millions of the citizens whose interests they are supposed to represent.
Civil society and labour organisations therefore join the position of the majority of governments. They believe that only a complete ban on production and trade in asbestos-containing products – regardless of which type of asbestos or asbestos fibres are used – will allow for a substantial reduction in the misery and massive death toll caused by asbestos related diseases.

Fig 4.
The roof of a residential building in Moscow covered by corrugated asbestos cement sheets.

Management of asbestos containing waste still remeins a serious problem. This type of waste predominantly includes waste construction materials that are not considered as hazardous waste (see fig. 4, 5). As a result, asbestos containing waste materials are often disposed to municipal landfills and continue to affect the environment and human health.

The Chemical Review Committee of the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade has recommended that asbestos be incorporated into the PIC list. At the Conference of Parties in 2006, more than 100 countries agreed with the recommendations of the Chemical Review Committee.
However, the Parties have failed to reach consensus on putting asbestos under jurisdiction of the Rotterdam Convention. Canada, India, Kyrgyzstan, Iran, Peru and Ukraine, as Parties of the Convention prevented inclusion of asbestos to the PIC list. They were supported by Zimbabwe, Russia and Indonesia, none of which has so far ratified the Rotterdam Convention yet.

EECCA Region: continuing to produce asbestos, aggravating the problem

While global production and application of asbestos are decreasing due to convincing statistical evidence of the growing incidence of asbestos-induced diseases, the EECCA region (Eastern Europe, Caucasus and Central Asia) continues to lead in production and use of this deadly material.
The share of EECCA mining companies in the global production of chrysotile asbestos is 60.8%. The largest global operational deposits of chrysotile asbestos are located in Russia: Bazenovskoye deposit (Middle Urals), Kiembaevskoye deposit (Orenburg Oblast) and Ak-Dovurakskoye deposit in Tyva with asbestos reserves estimated at 78 million tons or 71% of the overall asbestos deposits in the country. Molodeznoye deposit with exceptionally long-fibre asbestos was found in the northern part of Chita Oblast. Chrysotile deposits are also located within the serpentine belt of Eastern and Western Sayan Mountains and in the Northern Caucasus.
In total 11 deposits are registered in Russia with balance reserves of 110 million tons of asbestos.5
Asbestos mining is Russia is dominated by two major mining and processing facilities (Uralasbest and Orenburgasbest) with the overall annual production capacity (inc. asbestos of 0 to 6th groups) of 1,060 tons (as at 01.01.99). From 1996-1998, they produced 600 – 700 tons/year, with capacity utilisation of 60%.
Major deposits of Chrysotile asbestos are also located in Kazakhstan (Dzetygarinskoye – Zitikarinskoye deposit in Kostanai Oblast). Overall explored reserves of chrysotile asbestos in Bazenovskoye, Kiembaevskoye and Dzetygarinskoye deposits are estimated at the level of 3,079.6 million tons (or sufficient to supply chrysotile industry for about 150 years). Ukraine does not have asbestos deposits of its own and producers of corrugated asbestos-cement sheets, pipes and other items import asbestos from the Russian Federation and Kazakhstan. Shares of imported asbestos from these countries reached 61% and 39% in 2006 and 67% and 33% in 2007 of the overall asbestos import. Asbestos is primarily imported as fibres, flakes and powder. The asbestos-cement industry of Ukraine currently incorporates 12 major facilities that produce different asbestos-containing products and consume more than 100 thousand tons of chrysotile asbestos annually.

Fig 5.
A typical construction waste dump of the EECCA countries (Almaty, Kazakhstan).

Fig 6.
A construction waste dump in the EECCA region (Bishkek, Kirgizstan). Sheets of corrugated asbestos-cement are stored in the open.

Fig 7.
Obsolete sheets of corrugated asbestos-cement are stored together with other household staff (Kirgizstan)

Can such a lucrative business be abandoned?

Mining companies and producers of asbestos-containing products generate major profits, and both profits and sales are increasing. In 2007, Russia and Kazakhstan exported 656,921 tons of chrysotile asbestos to developing countries, which is 13,997 tons more than in 2006. Main foreign markets for export of chrysotile are located in Central, Eastern and South-Eastern Asia. China, Vietnam, Thailand, India, Iran and Indonesia are key partners of EECCA mining companies in these regions. Data for 2007 suggest that the EECCA countries themselves remain major consumers of chrysotile asbestos in the world. In 2007, chrysotile-processing industries of the EECCA countries used 578,621 tons of asbestos (including Russia – 333,556 tons, Ukraine – 79,846 tons, Uzbekistan – 84,463 tons, Belarus – 31,892 tons and Kyrgyzstan – 20,011 tons). According to the US Geological Survey, in 2000, Russia used 447 thousand tons of asbestos (or 3.4 kg per capita/year) and produced 804,800 tons. In 2003, asbestos production in Russia reached 878 thousand tons (according to Mineral Yearbooks). Ukrainian asbestos-cement facilities annually produce more than three thousand products worth about UAH 600 million (or $120 million) and generate $60 million of tax revenues.6

Can people be protected without banning asbestos?

The answer is clear – no. Asbestos mining and use should be banned at the global and national levels, enshrined in legislation. Workers of asbestos mining and processing facilities are particularly at risk. In some developing countries they work under appalling conditions without any safety measures like protective face-masks, and either receive no information or misleading information on the safety of asbestos. Countries that declare their adherence to safe use of asbestos, simply cannot protect people, who are exposed to asbestos outside workplace settings, particularly women, children and the elderly. Besides workers of asbestos-processing facilities, emissions from these facilities pose serious heath risks to residents of adjacent areas. Massive releases of asbestos dust are inevitable in areas of asbestos mining, clarification and processing operations, as well as with wear of friction units. For example, a single plant in Volgograd Oblast in Russia that produces asbestos-based technical items, emits 6.5 tons of asbestos dust annually. There are three asbestos-cement production facilities at the territory of the Oblast. It would be impossible for local residents to wear protective masks or clothing, so they live unprotected - and at high risk of asbestos-related diseases..

Is asbestos unique?
Are there any substitutes?

Asbestos can be easily substituted by:

- materials based on thermostable polymers, carbon and inorganic fibres
- non-woven materials at the base of ultra-thin chemical fibres
- fibreglass, carbon fibre plastics.
- Cellulose fibre

The range of modern industrial substitutes for chrysotile asbestos include cellulose, aramid, PVA (polyvinyl alcohol), polypropylene, polyethylene, mineral wool, glass and ceramic fibres. The most common substitutes for asbestos include aramid fibres, nomex and cellulose.8

Is a compromise possible?

No. The aim is to eliminate application of asbestos-containing materials completely, to replace them with modern safe materials. This aim may be achieved only if asbestos production and use is banned legislatively. As the first step, it's necessary to include asbestos into the list of substances under jurisdiction of the Rotterdam Convention. The appeal to governments with demands to prevent interference of asbestos industry into the decision-making process of the Rotterdam Convention has been already signed by representatives of 58 NGOs of different countries, including 8 EECCA countries: Azerbaijan, Armenia, Moldova, Russia, Kazakhstan, Kyrgyzstan and Uzbekistan.

Parties of the Convention should make the only sound decision on the basis of credible scientific data and information available on health hazards of asbestos. Millions of people are waiting, and hundreds of thousands more will die unless the decision is taken to ban asbestos mining, trade and use of asbestos-containing products.

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