Technical information note by the country offices
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# Asbestos - hazards and safe practices for clean up after earthquake

The May 12, 2008 earthquake in Sichuan, China, destroyed many buildings including hospitals, schools, government offices and private homes. The external walls, roofs, window awnings and bathrooms in many of these buildings had been made using asbestos cement sheets – commonly known as "fibro" or "fibro cement". The earthquake broke the fibro into many small pieces, releasing fine fibres of asbestos at the broken edges. During clean up operations, there is the risk of liberating substantial quantities of asbestos fibres, particularly if heavy plant and equipment are used to demolish damaged structures and load rubble into vehicles. These asbestos fibres are a significant risk to public health. This joint statement by the World Health Organization and the United Nations Environment Programme provides a guideline on how to control the risk of the cleanup and to safely dispose of asbestos waste in the areas affected by the earthquake.

## What is asbestos?

The term "asbestos" is used for a group of naturally occurring minerals that take the form of long thin fibres and fibre bundles. These minerals are non-biodegradable, have great tensile strength, conduct heat poorly and are relatively resistant to chemical weathering, such as from rainwater. Due to these characteristics, asbestos is widely used throughout the world, particularly in building and insulation materials, including boilers and heating vessels; cement pipe; clutch, brake, and transmission components; conduits for electrical wire; pipe covering; roofing products; duct and home insulation; fire protection panels; furnace insulating pads; pipe or boiler insulation; sheet vinyl or floor tiles and underlay for sheet flooring.

## Why is asbestos a problem?

**Damage to material containing asbestos can result in the release of small asbestos fibres that become airborne and are readily inhaled. Although not acutely toxic, asbestos fibres can remain in the lungs for long periods and can cause serious lung disease including asbestosis, lung cancer, pleural thickening and mesothelioma. These diseases have long latency periods, in the order of 10-50 years, and are associated with all forms of asbestos.**

## What are the risks in the post-earthquake clean up?

During the clean up of damaged and destroyed buildings after the earthquake, it is likely that there will be a need to handle, break up and dispose of asbestos-containing building and insulation materials. Much of this work may be undertaken by temporary labourers,

volunteers and local residents who are unaware of the hazards of asbestos and who may be unable to identify asbestos-containing material. Further, it is unlikely that the workers will, in the first instance, be provided with appropriate personal protective equipment (PPE), thus increasing their risk of long term health problems.

As a result of the cleanup operations there may be an accumulation of asbestos-containing waste that will present a hazard to people in the local environment and those living in close proximity to the site of final disposal.

**How can risks be minimized?**

The main principles of safe handling are the following:

- Identify the locations of asbestos-containing materials and carry out a risk assessment
- Ensure that people involved in the clean up work are adequately informed of the risks and best practices;
- Minimize the disturbance of asbestos-containing materials;
- Minimize the release of respirable asbestos in the atmosphere by wetting;
- Minimize the extent to which people have contact with asbestos;
- Ensure that material containing asbestos is segregated from other waste products, is securely stored and is adequately labelled before disposal;
- Ensure that waste is disposed of in an approved manner.

**Disposal of asbestos-containing materials**

- These materials should be disposed of by properly trained personnel.
- It is best to transport asbestos waste in bulk. During transportation, ensure that containers remain covered or sealed so that dust and fibres do not escape.
- Asbestos waste must not be mixed with other waste prior to disposal.
- Materials containing asbestos can be disposed of in landfill sites provided these are appropriately engineered to prevent the release of asbestos fibre. Such a site would have a liner and a system for leachate collection, and a system for newly deposited waste to be covered immediately with a layer of suitable inert material.
- To avoid future exposure, care must be taken within the engineered landfill site not to dispose of asbestos waste in a location where there may be future construction such as leachate headwells and gas extraction wells.
- In the event that engineered landfills do not exist, or were damaged by the earthquake, sites for the temporary storage of asbestos waste must be identified and prepared.
- Ensure that a record is kept of the locations for the disposal of asbestos waste, including exact geographical coordinates.

**DO NOT dispose of asbestos waste by burning.**

**Suggested actions for the protection of workers**

- Provide simple and easy-to-understand information for people involved in clean up work that describes what asbestos is, where it might be found, what the hazards are, and how to handle and dispose of it safely.
- Trained personnel should inspect sites where there may be asbestos-containing materials to identify the type of materials, the hazard that they present and the safest course of action (e.g. to seal and leave in place, or to remove). Friable materials present a particular hazard and should be removed by trained personnel following accepted procedures, with adequate personal protection equipment.
- As a minimum measure, provide workers with gloves, goggles, disposable clothing or replacement clothing (so that workers do not take contaminated clothing home) and disposable dust masks. Contaminated clothing and protective equipment should be disposed of in the same way as other asbestos-containing materials.
- Provide washing facilities for workers. Ensure that they are aware of the need to wash before eating, drinking or smoking and before returning home to minimise the risk of spreading asbestos fibres outside of the worksite.

**General protection measures**

- Restrict access to sites where there are piles of building debris, and to demolition sites and waste sites. In particular, keep children away.
- Try to keep any manipulation of asbestos-containing materials to a minimum Asbestos structures should be dismantled as gently as possible. If it is necessary to move, saw or break up such materials, keep them thoroughly wet to reduce the amount of airborne fibres and dust. Take particular care with friable materials.
- Clean surfaces contaminated with asbestos-containing materials **using wet methods**. Do not dust or sweep or use a domestic vacuum cleaner because this will propel fibres and dust into the air.
- Keep piles of asbestos-containing materials covered, for example with tarpaulins or sheets of plastic, until they can be safely stored or disposed of. Wet thoroughly before moving the materials.
- Store asbestos-containing waste material in sealable containers until it can be disposed of safely. Containers can be drums of metal, plastic or fibre, or strong polyethylene bags. If using bags, put one bag inside another, sealing each with tape. Label the containers in the local language and include a hazard warning, for example, "**DANGER! CONTAINS ASBESTOS FIBRES. HARMFUL IF INHALED. MAY CAUSE CANCER. KEEP SEALED. AVOID CREATING DUST**".

If you have any question please address them to:

Hans Troedsson
WHO Representative, China

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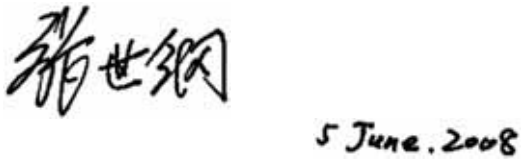
Nyka Alexander
Communications Officer, WHO China
Tel: +86 6532-7189, ext 81281
Email: alexandern@wpro.who.int

401 Dongwai Diplomatic Office Building
23, Dongzhimenwai Dajie,
Chaoyang, Beijing 100600

Zhang Shigang
UNEP Representative, China



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No. 2 Liangmahe Nanlu,
Chaoyang, Beijing 100600
Email: unep@public.un.org.cn