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## An Asbestos-Free Pacific: Asbestos Disposal Options



Secretariat of the Pacific  
Regional Environment  
Programme (SPREP) and  
The World Health  
Organization (WHO)

## **Environmentally sound asbestos disposal**

### **The issues**

There are a range of potential options for the final disposal of asbestos containing material and asbestos waste currently located in the Pacific island countries and territories. However, there is a lack of objective evaluation of each option. The disposal options include:

- i. Do nothing with the asbestos waste;
- ii. Recycling and reuse of asbestos;
- iii. Disposal in a secure landfill (either locally or after international transportation);
- iv. Disposal at sea; and
- v. Disposal by high temperature transformation.

### **Option i. Status Quo (i.e do nothing).**

The option of not managing asbestos waste means the potentially hazardous waste will stay where it is and will continue to degrade and possibly become friable which increases the health risks to surrounding communities. The exposed asbestos can also be disturbed during any future cyclones or other natural disasters and could be spread over a wide area, contaminating many communities. This option to do nothing is considered to be irresponsible and is not an environmentally sound management option.

### **Option ii: Reuse and recycling of asbestos**

Reuse of asbestos is not recommended due to the inherent problems linked to the handling of asbestos and asbestos-containing materials. However, in the interim, regular maintenance of asbestos-containing structures could contribute significantly to the reduction in human exposure to asbestos prior to its disposal.

### **Option iii: Disposal at a secure sanitary or hazardous substance landfill**

Asbestos-containing materials can be disposed of in landfill sites provided these have appropriate measures in place to prevent release of asbestos fibres, including a non-porous liner and a system for leachate collection. Asbestos contaminated waste should never be disposed of by burning. Bagged asbestos wastes are typically disposed of in specially identified cells alongside municipal solid waste. Large items such as asbestos sheets and boards should be wrapped and sealed in polythene (polyethene) with precautions taken to prevent any damage to the polythene by sharp edges of the contents. A record must be kept of the location of this waste, including the exact geographical coordinates.

#### **Option iv: High Seas disposal of asbestos waste**

Being inert, insoluble in water and harmless when wet, the dumping of asbestos in the high seas is a potential disposal option. However, dumping at sea must be in accordance with the requirements of relevant conventions (the Noumea and London Convention and Protocols). The wastes should be properly contained and each dumping operation should be strictly controlled and monitored. Sealing of waste asbestos in concrete in second-hand shipping containers is a means of secure disposal. The shipping container should be loosely packed with asbestos, and vacant space filled with concrete so that the concrete surrounds the asbestos waste. This will prevent the asbestos from breaking up as the container disintegrates, and the added weight will also aid in keeping the asbestos submerged after dumping at sea. An appropriate location for sea disposal could be the same as a deep water place of refuge for ships as defined by the International Maritime Organisation (IMO). A place of refuge refers to a place where a ship in need of assistance can take action to enable it to stabilize its condition and reduce the hazards to navigation, and to protect human life and the environment. The features which allow a place of refuge to reduce environmental risk from distressed ships will also reduce the environmental risk from the dumped asbestos in the unlikely event that it becomes disturbed.

*The Convention for the Protection of Natural Resources and Environment of the South Pacific Region (the Noumea Convention) and its Protocols obliges Parties to endeavour to take all appropriate measures to prevent, reduce and control pollution from any source and to ensure sound environmental management and development of natural resources, using the best practicable means at their disposal and in accordance with their capabilities. One of the Protocols is the Protocol for the Prevention of Pollution of the South Pacific Region by Dumping. The Noumea Protocol does allow for disposal of bulky items at sea. The London Dumping Convention and Protocols also allows for the disposal of bulky items at sea in circumstances where such wastes are generated in small islands having isolated communities and no practicable access to disposal options other than sea dumping. It is suggested that disposal of asbestos waste from Small Island Developing States fits within this category of legitimate high sea disposal.*

#### **Option v: High Temperature Transformation**

Asbestos can be recycled by transforming it into harmless silicate glass. A process of thermal decomposition at 1000–1250 °C produces a mixture of non-hazardous silicate phases, and at temperatures above 1250 °C produces silicate glass<sup>1</sup>. Microwave thermal treatment can be used in an industrial manufacturing process to transform asbestos and asbestos-containing waste into porcelain stoneware tiles, porous single-fired wall tiles and ceramic bricks<sup>2</sup>. Both of these processes are likely to be restricted to small-scale disposal of asbestos, and would also require the trans-boundary transport of the asbestos waste prior to transformation.

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<sup>1</sup> Gualtieri, A.F. and Tartaglia, A. (2000). Thermal decomposition of asbestos and recycling in traditional ceramics. *Journal of the European Ceramic Society* **20**: 1409–1418.

<sup>2</sup> Leonelli, C., Veronesi, P., Boccaccini, D., Rivasi, M., Barbieri, L., Andreola, F., Lancellotti, I., Rabitti, D. and Pellacani, G. (2006). Microwave thermal inertisation of asbestos containing waste and its recycling in traditional ceramics. *Journal of Hazardous Materials* **135**: 149–155.