The Great Hanshin-Awaji Earthquake 1995

One of the consequences of Japan's widespread use of asbestos was observed after the 1995 Great Hanshin-Awaji earthquake which affected Kobe, Awaji, Ashiya and Nishinomiya and their surrounding areas. Post-earthquake atmospheric monitoring by the Environmental Agency (Japan) showed an increase in ambient asbestos concentration in the stricken zone; a diffusion model was used to assess how much of this contamination was due to sprayed-on asbestos insulation/fireproofing present in earthquake-damaged buildings at 16 sampling points. The scientists estimated that prior to the earthquake there had been 3,740 tonnes of sprayed-on asbestos stock in the affected buildings; the quake liberated 26.4 kg of asbestos into the environment.[75] Experiments revealed that demolition without pre-removal of asbestos caused the highest levels of asbestos emissions into the surrounding areas; asbestos removal costs accounted for 68-94% of total demolition costs.

Indian Ocean Tsunami 2004

The destruction wrought by the Indian Ocean tsunami devastated communities in Sri Lanka, Thailand, India, Indonesia and the Maldives. On February 22, 2005, Ian Cohen, an Australian politician who was on the beach in Hikkaduwa, in the south-west of Sri Lanka on December 26, 2004, told the New South Wales Parliament that in the aftermath of the tsunami there was:

"a great deal of asbestos spread around that coastal area. As the houses and buildings were destroyed, asbestos was broken up. It was being cleared by hand and bulldozer without appropriate safety measures."

Despite Cohen's warnings of the hazards caused by thousands of tonnes of asbestos waste, no attempts were made to control the widespread contamination. Cohen explained:

"There is an asbestos industry in Sri Lanka that claims it is just blue asbestos that is the problem, not white asbestos. I have it on good authority from people who have been involved in unions here in Australia that white asbestos is as much the issue as is blue asbestos. I have written a letter to Alexander Downer advising him that the asbestos industry in Sri Lanka has been conducting an aggressive campaign to convince particularly Southeast Asian countries that asbestos products are safe."

Observers from the United Nations Environment Programme (UNEP) were seriously concerned about the threat posed by hazardous waste, including clinical waste, waste oil, batteries as well as asbestos, found in post-impacted tsunami countries. In a series of UNEP Post-Disaster Waste Management Workshops which were held in the Maldives (May 2005), Indonesia (June 2005) and in Pakistan (March 2006), the asbestos hazard was one of many waste issues flagged up.[76] Although funding was available, no such workshop took place in Sri Lanka, a country where asbestos-containing materials are regarded as everyday building materials. The Government's views are expressed in a three-page document entitled: *Usage of Chrysotile Fibre-Bonded Cement Roofing Sheets for the Housing*

Reconstruction Programme Launched to Settle the People Displaced by the Tsunami which was issued by the Sri Lankan Reconstruction and Development Agency in June 2006. After a scant 10 weeks of research which relied on outdated and faulty sources, the conclusions cited in this paper included the following:

"III Once the asbestos fibres are bonded with cement as in the case of asbestos roofing sheets, it will cause no health hazard unless the fibres are exposed due to cutting, drilling or grinding.

IV Usage of asbestos roofing would not involve grinding but would necessitate drilling while fixing. Any health problems to arise from exposure to drilling could be avoided if the recommended safety measures such as wearing breathing masks are practiced by those engaged in it.

V The Asbestos Manufacturers' Association has educated the builders and carpenters by conducting training programs as well as by way of catalogues and brochures.

VI The asbestos manufacturing industries subject their employees to periodical medical check-ups and it has been revealed that employees have not been identified to be suffering from industrial related diseases.

VII According to the information available at the Cancer Hospital there is no evidence to show that the asbestos fibres are in the lungs of cancer victims in Sri Lanka."[77]

Indonesian Earthquake 2005

The earthquake which hit the Indonesian provinces of Yogyakarta and Central Java on May 27, 2005 measured 5.9 on the Richter scale. It lasted just 57 seconds, killed over 5,700 people and injured 47,000; more than 500,000 homes were destroyed or damaged.[78] According to Dave Hodgkin the Shelter Cluster Coordinator and Technical Advisor from UN Yogya/Central Java Earthquake Response:

"In Jogya, cleanup operations were largely community driven, with Gotong Royong (community working bee) groups chipping in, to sweep up, and remove much of the rubble. Almost uniformly no attention was paid to the risks posed by rubble removal. Low lying land, roadsides, rice paddies and rivers, were all used as dumping sites for the billions of tonnes of waste created by the minute long quake.

Families scrounged through rubble, dusting off bricks, timbers, steel, windows, doors, roof tiles, asbestos sheet and anything else with some possibility for reuse. Rubble crushers, backhoes, bulldozers and raw human labour set to work, cleaning up debris and reusing whatever possible as road base, foundation fill etc; all with little or no heed to dust for months after the earthquake.

As in Aceh, aware members of the emergency shelter cluster applied some of their overstretched resources (both time and funds) to produce public outreach documents to encourage safe handling of asbestos waste and to discourage its further purchase.

In both cases, efforts were often hampered by multiple factors including the scale of the disasters. With over 800 affected villages in the Java earthquake, comprising something in the order of 8,000 individual hamlets, and mixed literacy levels as well as varying levels of media access, public outreach is a massive task."[79]