

Thailand

Thailand has been using asbestos for more than 30 years in the production of building and friction materials; it is the world's 4th largest asbestos consumer. According to Thai Government data, from 1997-2004, asbestos imports averaged 116,500,000 kg/year and cost US\$43.25m.³² In 2004, 1,784 workers were employed at 16 asbestos-using factories in Thailand, most of which were located in central Thailand. Environmental monitoring by government agencies carried out since 2000 shows elevated levels of airborne asbestos at many of these factories (7 plants with 1,297 workers); conditions in brake and clutch factories were the most hazardous. Most asbestos (90%) in Thailand is used in the manufacture of asbestos-cement pipes and roofing materials; 8% goes into brakes and clutches and 2% into vinyl floor tiles, gaskets and heat insulating material.

Workplace levels of asbestos contamination in Thailand are higher than those allowed in other Asian countries and often exceed the Thai Asbestos Occupational Exposure Limit (OEL) of 5 f/cc.³³ Recent measurements taken by industrial hygienist Ms. Karnviroj in asbestos-cement factories in Thailand found that 30% of samples taken were higher than 5 f/cc. The dustiest conditions were experienced by those workers manually handling bags of asbestos fiber and using sandpaper to polish asbestos-cement roof fittings. Despite their occupational exposure, lung function tests of 85% of the factory workers and chest X-rays of 97% were normal. Given the high level of asbestos use, it is surprising that not one case of asbestos-related disease has been reported to the national surveillance scheme or the Workmen's Compensation Fund.³⁴ Dr. Kamjad Ramakul, from the (Thai) Bureau of Occupational and Environmental Diseases, is worried: "Since asbestos consumption is increasing and concentrations of asbestos in working conditions are high, especially in brake and clutch factories, we can expect the number (of asbestos cases) to be high in the near future." Possible explanations for the lack of registered cases of asbestos-related disease are:

- there are no cases of asbestos-related diseases in Thailand;
- cases are occurring but are not reported and doctors do not have the knowledge to diagnose these diseases;
- the long latency period of these diseases means that symptoms have not yet developed;
- a high turnover of the workforce in the asbestos industry means that workers did not inhale a sufficient fiber burden to develop these diseases;

- there is neither a follow-up nor a registration system for exposed workers, which means that cases of asbestos-related disease that do occur remain unacknowledged.

Research was undertaken in 2003-2004 by the Ministry of Public Health to investigate cases of asbestosis and lung abnormalities amongst people with occupational exposure to asbestos in the production of cement or friction products. Using questionnaires, chest radiographs, HRCT,³⁵ air sampling and physical examinations, 41 out of 140 workers were found to have lung abnormalities. All those exhibiting symptoms of asbestosis reported a past history of occupational asbestos exposure. Air samples collected in 2003 showed that 12 out of 25 samples were over the standard set by the ACGIH;³⁶ 6 out of 40 samples collected in 2004 exceeded the standard. Researcher Vichuda Lojananont believes that:

- efforts should be made to raise awareness of the hazardous nature of asbestos;
- the national policy on asbestos should be reviewed;
- the implementation of no-smoking initiatives is crucial;
- greater numbers of occupational physicians should be trained and a further cohort study should be undertaken.

Dr. Ponglada Subhanachart from the Chest Disease Institute (Thailand) has identified some cases of lung disease amongst asbestos-cement factory workers. Chest X-rays of 907 workers from one factory were examined by experienced chest radiologists using standard ILO classifications. Where there was a suspicion of asbestosis or early asbestos-related pleural disease, HRCT examinations were undertaken. The results were:

- 747 workers had normal X-rays;
- 26 (2.87%) had abnormal chest radiographs and/or abnormal HRCTs;
- 14 had abnormal X-rays compatible with asbestosis, pleural plaques or calcifications;
- 7 (0.77%) had very early lung fibrosis: only one patient had lesion profusion 1/1 which is the cut-off point in Thailand for the diagnosis of asbestosis;
- 24 had pleural lesions such as pleural plaques and/or pleural calcification.

Dr. Subhanachart believes that the low incidence of disease could be explained by the fact that most patients are in the latent period or that the systems for reporting these diseases in Thailand are inadequate. Concluding that chest radiographs are a useful tool for





the screening for asbestosis and asbestos-related pleural disease, he remains concerned about the high level of false readings and supports the use of HRCT examinations for confirmation in cases with lung lesion profusion >1/1.

Responding in 2005 to a report of widespread pleura thickening amongst workers at an asbestos factory in Nakornsithammarat, Thailand, researchers designed and carried out a cross-sectional survey which established that amongst the 40 workers who participated in the study, there were 9 cases of pleural thickening.³⁷ Almost all those affected were: older than 50, had a history of smoking, had worked in the factory for more than 25 years and had spent time in the asbestos bag opening department, the stripping and mold department, the asbestos mixing department or the rod mill.



It is ironic that a substance as deadly as asbestos was widely used in hospitals in Thailand. In a cross-sectional descriptive study conducted in March 2006 at Buddhachinaraj Hospital,³⁸ Dr. Nopadol Suchat found asbestos in asbestos-cement roofing materials and sewage pipelines. He recommended that when these materials are removed, a wet process should be used and workers should be provided with personal protective respiratory protection.

Representatives from Thai Ministries speaking at an international asbestos conference in July 2006 agreed that doing nothing about the increasing use of asbestos would exacerbate the predictable epidemic of asbestos-related disease, incur increased medical and compensation costs, alarm the public, strain the economy and compromise the national reputation. To persuade policy-makers of the need for an asbestos ban, a concerted effort is needed, they said, to encourage government agencies to cooperate on initiatives to raise asbestos awareness, collect data and initiate health screening and surveillance of at-risk groups. Thai civil servants stressed the importance of working with local asbestos manufacturers on the transfer to non-asbestos technologies. One Thai doctor proposed that a higher tax be introduced for asbestos products to increase the cost advantage of safer alternatives. Although the best way to protect Thai society from the asbestos hazard is to ban asbestos, until the Government is ready or able to take this step, serious measures need to be adopted and enforced to protect workers and the public from hazardous exposures.

The Department of Labor Protection and Welfare (Thailand) has issued regulations, carried out inspections, undertaken training, developed guidelines and provided information to those working in or administering

the asbestos industry. Thai regulations which protect occupational health and safety include the: Working Environment Regulation (1977), Harmful Chemicals Regulation (1991), Physical Examination Regulation (2004) and Safety Officer and Safety Committee Regulation. The Government is taking steps to tackle the asbestos hazard by: lowering the threshold limit value from 5 fibers/cc to 2 fibers/cc, setting up criteria to limit hazardous asbestos exposures, providing health surveillance and dust monitoring in small and medium-sized companies and improving the criteria for the diagnosis and compensation of asbestos-related diseases. The ratification of ILO Occupational Health and Safety Resolutions by Thailand will take place in the near future (2007/2008) but *ILO Resolution 162: Convention Concerning Safety in the Use of Asbestos (1986)* will not be considered at that time.

Vietnam

A conflict between economic development³⁹ and public health can forestall action by pro-ban governments.⁴⁰ Although Vietnamese delegates to the GAC 2004 confirmed their Government's commitment to an asbestos ban, this goal has not been achieved;⁴¹ in fact, Vietnam's asbestos consumption increased 32% over the period 2000-2004 (Appendix A). From the 1970s, asbestos imported from Russia, Canada, China and Zimbabwe has been used in Vietnam principally for the manufacture of asbestos-cement (ac) roofing tiles, insulation and friction materials. Nearly 10,000 workers at 37 facilities in 21 provinces manufacture 60 million m³ of ac roofing tiles every year; these relatively cheap tiles are popular amongst poor people in rural, mountain, coastal areas and in the Cuu Long River Delta. Thirty-two of the ac roofing tile factories in Vietnam were built between 1995 and 2000; the majority of these factories are owned by the state.

The adverse effects of occupational asbestos exposure in Vietnam have been studied since 1996. Medical examinations of more than 1,000 asbestos-exposed workers from 12 ac companies have revealed that hazardous occupational exposures have resulted in a high level of lung disease amongst this cohort of workers. Research conducted by officials from the National Institute of Labor Protection (NILP) in 2000 at a factory producing asbestos roofing materials recorded levels of asbestos exposure from 33.7 f/cm³ by the grinding machine to 1.8 f/cm³ by the mixing machine. The fact that levels were reduced to 11.7 f/cm³ and 0.7 f/cm³ within nine months does not disguise the fact that the situation remains unsatisfactory. Research (2002) following up on the initial survey at 23 ac roofing factories revealed that: "most of the stud-