

The tragedy of asbestos

Eternit and the consequences of a hundred years of asbestos cement

by

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Foreword

The processing and use of asbestos has already cost tens of thousands of people's lives. In the years to come, hundreds of thousands of victims will be added to this toll. The use of asbestos has, in addition, caused enormous damage to the environment.

In the European Union, the use of asbestos has been totally forbidden since January 1st, 2005, but in a number of developing countries it continues to rise. At the present time, on the world scale, two million tonnes of asbestos per year are used, usually without any form of protection.

As long ago as 1930 it was confirmed that exposure to asbestos dust was dangerous to the point of being life-threatening. It nevertheless took until the beginning of the 21st century to have asbestos use banned within the EU. Before this, tens of thousands of victims suffered while a long struggle was fought against the 'magic mineral'.

By means of their massive power and extensive influence the asbestos cement concerns succeeded in postponing the ban on asbestos by decades, years in which huge profits were made at the expense of a multitude of factory workers and their families.

In this report we reveal how, since the 1920s, the major asbestos concerns have used an international cartel to distort knowledge of asbestos and its dangers, with profit as their only goal.

On the basis of these facts, some of which we have uncovered and will be new to the reader, and some of which are already well-known, we argue that these corporate groups should be held responsible for the human suffering which they have caused. Environmental damage must be systematically mapped and the high costs of cleaning it up should be paid by the polluter.

The authors

1 Introduction

Around 1900 the Austrian Ludwig Hatschek designed a process whereby asbestos fibres could be mixed with cement. The resulting material, known as asbestos cement, possessed excellent technical properties which quickly led to its adoption for a number of different applications, including corrugated sheets, wall coverings, roofing plates and water pipes. Under the trade name Eternit numerous companies were established, each of which worked with Hatschek's patent. Asbestos cement firms became by far the biggest processors of asbestos. Asbestos has been totally banned in the EU since January 1st, 2005, but its use in other parts of the world continues to grow.

Harming people and the environment

In the industrialised countries asbestos is the leading cause of work-related sickness and, after tobacco, the deadliest carcinogen in the environment. Between 1995 and 2029 it is estimated that in western Europe alone 250,000 men will die from the asbestos-related disease mesothelioma. In the Netherlands to date 7,000 people have died from this illness, and in the next twenty-five years around 12,000 more will do so. At the same time at least as many victims will succumb to asbestos-related lung cancer.

Who is responsible?

During the last decade the movement in many countries in support of the victims of asbestos-related diseases has grown, while almost yearly another country is added to the list of those where asbestos is banned. This is leading also to an increase in the number of court cases concerning the payment of compensatory damages.

These cases continually raise the question as to who is responsible. Asbestos corporations try every means to escape responsibility. It is particularly the case that the struggle has turned out, in many different countries, to be most difficult when it comes to firms bearing the trade name Eternit. Holdings in which they own a share or have done so in the past have not been overly forthcoming with information regarding their managerial practices. Nor were they listed on the stock exchange. Nothing has been done to force these firms to make information public, as has happened to a number of concerns in the United States and Great Britain. The resulting limited knowledge in relation to Eternit companies is what prompted the Socialist Party of the Netherlands to begin a thoroughgoing investigation.

This report

Collaboration between Eternit companies has been used quite consciously to work against the introduction of measures responding to the dangers of asbestos cement, preventing them completely or delaying them for as long as possible. How this has been achieved is the subject of this report.

Chapter 2 describes the way in which Eternit companies have co-operated intensively during the whole period of their existence. The third chapter demonstrates that these firms knew very early on about the dangers to health their product presented. Chapter 4 shows what these firms did with this knowledge. Through lobbying and by delaying research these companies worked against the introduction of measures to deal with the dangers of asbestos cement. In the fifth chapter we look at the disinformation campaigns organised by Eternit companies, by means of which they succeeded in manipulating their customers' trust, political decision-making and the medical debate.

Chapter 6 brings the report's most important conclusions together and offers a number of recommendations on the basis of our research.

2 A network of Eternit companies

One way in which Eternit companies escape their responsibility before the courts is through the assertion that these firms are unrelated and therefore cannot be expected to have any knowledge of a specific danger just because it is well-known elsewhere. In this chapter we demonstrate that there has always been intensive cooperation between the various Eternit companies.

A century of asbestos cement

Asbestos is a mineral fibre extracted from mines. In ancient times it was known and used by various cultures, but it was in the industrial revolution of the 19th century that it came into more and more widespread use, for the most part as a heat-conserving insulation material. In 1900 an application was patented which in the extent of its use would come to dwarf all others: the strengthening of cement by means of adding asbestos. The Austrian asbestos goods manufacturer Ludwig Hatschek was the inventor of this asbestos cement, an important advantage of which is that plates and pipes which were lighter in weight could be manufactured than had earlier been possible.

A patent on the process was lodged in as many countries as possible, and an exclusive, protected trade mark, 'Eternit' adopted, the word coming from the Latin *aeternus*, eternal or immortal. In each country Hatschek permitted only one firm to use the name Eternit. Licences to use it were quickly granted in Belgium, France, Switzerland, Italy, Great Britain and the United States.

In 1911 the Italian engineer Adolfo Mazza came up with a plan to develop a process enabling the production of pipes from asbestos cement. After technical improvements in the 1920s made mass-production of these pipes possible, they were widely adopted for use in water supply.

During the Second World War asbestos was reserved for military use and supply broke down; at the same time, cement was subject to rationing. After 1945 there began a massive expansion in the use of asbestos cement. In the years of reconstruction in continental Europe the material suited the industrial style of working which made its appearance in the building trade. Other applications of asbestos also grew, for example its use in protection against fire.

Growth reached its zenith during the 1970s. Then came a reversal as public debate arose over the dangers of asbestos for health. Through closure, take-over and buying and selling of other producers, the production of asbestos cement came to be increasingly concentrated in the hands of one concern, the Belgian Eternit Group, later known as Etex, which did not halt production world-wide until 1st January, 2004.

Local production in countries where the use of asbestos is not forbidden has continued beyond this date. Among such countries are the huge, heavily populated nations of Asia. In countries which together account for two thirds of the world's population the use of asbestos goes on. On an ever-increasing scale asbestos cement is used to construct low-cost housing. Particularly in China, India, Indonesia and Vietnam, use has grown enormously.

The Eternit companies

The history of the Eternit companies is extremely complex. Because the Belgian and Swiss branches would eventually become the most important, emphasis in the time-line below has been placed on the main points of their history.

- 1900 After 1900 in Europe and the US independent companies are established on the basis of Hatschek's patent. With the exception of the Netherlands, where the factory is known as Martinit, these firms use the trade name Eternit.
- 1905 In Belgium the company Eternit SA is established by cement producer Emsens. Patent-holder Hatschek takes a number of shares in this firm.
- 1920 The Swiss family Schmidheiny come into the picture for the first time. Ernst Schmidheiny's firm, Holderbank, had up to that time been the most important supplier of cement to the Swiss Eternit-Werke. In 1920 Schmidheiny acquired an interest in Eternit-Werke.
- 1922 Eternit Switzerland acquires an interest in Eternit Belgium.
- 1922 Alphonse Emsens uses his licence to establish, together with Frenchman Joseph Cuvelier, SA Eternit France. Emsens has a minority interest in the holding company, Cuvelier a stake in Eternit Belgium.
- 1923 In Switzerland the holding company Amiantus AG is established, with the Schmidheiny's having a dominant interest.
- 1924 Amiantus acquires an interest in the Belgian cement firm Cimenteries et Briquetteries Réunies (CBR), in which the Emsens also own a major stake.
- 1928 Emsens and Schmidheiny establish the German firm Deutsche Asbest-Zement AG Berlin. Other Eternit companies also take small numbers of shares.
- 1929 European Eternit firms establish the SAIAC cartel (see following paragraph). The British producer of asbestos goods Turner and Newall (T&N) is also involved. In the cartel, agreements are drawn up relating, among other things, to the exclusive right to establish Eternit companies outside Europe.
- 1932 Emsens acquires a majority interest in Martinit Nederland.
- 30-49 In the 1930s and 1940s Eternit companies expand outside Europe. In part this was to gain control of asbestos mines and thus to guarantee supply.
- 40-59 Concentration took place: Eternit Switzerland and Eternit Belgium control an ever-increasing number of Eternit companies within and outside Europe.
- 1960 Eternit Belgium, Johns-Manville (US), T&N and Eternit France together form TEAM, under whose auspices many new firms are established in Asia.
- 70-90 Influenced by the debate around the dangers of asbestos, British and American firms are the first to begin to withdraw from the market. T&N and Johns-Manville transfer their interests in TEAM to Eternit Belgium. In addition, Eternit Switzerland withdraws, selling a growing proportion of its interests to Eternit Belgium. By 1989 almost everything which was originally divided between a number of other firms is in Belgian hands. This includes the US firm Eternit Inc.
- 2004 The Belgian Eternit Group, known since 1994 as Etex, halts production of asbestos cement worldwide.

From this outline history alone can be seen numerous overlapping strands. Patent-holder Hatschek granted exclusive licences, one per country, and took his payment in packages of shares. The Swiss

family Schmidheiny acquired interests in the Belgian branch owned by the Belgian family Emsens. Together they established the German firm. Emsens set up the French branch, in co-operation with Cuvelier and with the help of moneys acquired through the sale of shares to Schmidheiny. These four families, Hatschek, Schmidheiny, Emsens en Cuvelier, would be bound together for generations.

Cartelisation

In 1929 the Eternit companies took a further step, establishing a cartel, SAIAC, an abbreviation of Sociétés Associées d'Industries Amiante-Ciment. Participants included firms in Belgium, France, Germany, Austria, Hungary, Czechoslovakia, Britain, Spain, the Netherlands, Italy and Switzerland. To these were later added companies established in other countries by the various families involved, while the British T&N also took part. The secretariat was based in Switzerland under the leadership of Ernst Schmidheiny, who had been responsible for the original initiative.

Some years ago from the archives of T&N a document revealing the goals of SAIAC came to light:

The objects of this Cartel are, inter alia:

The exchange of technical knowledge;

The establishment in Switzerland of an Institute of research for the entire industry;

The foundation of new factories in neutral countries;

The organisation of the export business;

The standardisation of quality, and minimising unnecessary variety in the product;

Mutual assistance in securing the necessary raw material on the best terms.

...

The position of the European Asbestos Cement Industry is thus rationalised, and we expect great benefit by way of improved technique and economy to accrue to all concerned. This miniature League of Nations has a great future before it, for it is based upon the principle of mutual help, which now displaces the previous atmosphere of distrust and suspicion.

The formation of cartels was not in those days unusual and in Europe still not forbidden. A ban was not in fact introduced in the EU until 1986. In the US, on the other hand, cartels were prohibited. A formal involvement of American firms in the European cartel was therefore out of the question.

Relations within the cartel were typified by something which happened in 1941. Max Schmidheiny had, at the end of the 1930s, taken interests in a chalk quarry serving cement production in South Africa and was in 1940 considering establishing an asbestos cement factory. Asbestos was readily available in the country and because of the war in Europe the production of asbestos was falling. Schmidheiny, however, was here entering the territory of Turner & Newall. In the British group's view social unrest was too likely in South Africa for the firm to want to make any further investment there, for which reason it was prepared to allow the Swiss firm to go ahead, provided only that the trade name was changed to Everite. This was confirmed in a telegram.¹ The result was that in 1941 the firm of Everite Ltd was established in Johannesburg. In the same year Schmidheiny established a company in Brazil, despite the fact that it had earlier been agreed in SAIAC that the Belgians would invest there. This agreement was annulled by the war.²

¹ Text of the telegram: 'You can go ahead in South-Africa', Der Eternit-Report, pp. 45-46.

² Der Eternit-Report, p.135

During the war numerous agreements could not be maintained. After the war was over, however, SAIAC once again picked up the threads. In a commemorative text of 1950 cooperation was characterised as follows:

“Today there are more than two hundred asbestos cement goods factories working on the basis of the Hatschek process throughout the world. With the majority of these undertakings the company in Vöcklabruck, where asbestos cement was born, has friendly relations. The active exchange of experiences and ideas for improvements has had fruitful results for all of these enterprises. Close co-operation has meant that time and again new possible applications for asbestos cement have been found and that new products have been developed by a number of different firms.”³

Agreements on the division of markets continued to operate, as is evident from, amongst other things, a text of 1975: “The Eternit factories in western Europe have concluded an agreement on markets which means that production from Eternit-Werke Ludwig Hatschek will be directed at domestic demand.”⁴

Persistent interconnections

The close co-operation between Eternit companies was not only evident from the SAIAC cartel. A range of sources, including annual reports, demonstrate that the four families who had been there at the industry’s inception, and in particular the Emsens of Belgium, continued to play an important role within Eternit companies world-wide. There were Swiss and Belgian Eternit groups. The Belgian group consisted in turn of two branches: Cie. Financière Eternit SA (CFE) and Eteroutremer. In both holdings the Swiss group held a roughly 25% interest.

From CFE annual reports of 1967 (covering 1966) and 1981 (covering 1980) it can be seen that the four original families retained a prominent presence. In the Board of Management in 1966, in addition to five members of the Emsens family, there is a certain Guillaume Cuvelier, a Frédéric Hatschek and two Schmidheyns, Ernst en Max. A further three members could be counted as belonging to the Emsens family⁵. The same goes for two members of the Board of Governors.

In 1980 we see the same picture: four individuals who carried the Emsens name, as well as half a dozen that could be counted members of the family. Frédéric Hatschek, Max Schmidheiny andn Ernst Schmidheiny continued to hold places in the Board of Directors. Guillaume Cuvelier had been replaced by Joseph Cuvelier while Stephan Schmidheiny had been added. Again, two members of the Board of Governors belonged to the Emsens family.

The annual report of the Belgian Eternit NV from 1976 shows the same pattern. In the Board of Management there were two Emsens and two other men belonging to the family, as well as one Gui Cuvelier, a Rupert Hatschek and two Schmidheyns. One Emsens family member sat on the Board of Governors and two more in the management, including Alphonse B. Emsens.

A comparison of the composition of the Board of Directors, the Board of Governors and the management reveals that numerous names appear several times and that the Cuveliers, Hatscheks and above

³ Der Eternit-Report, p.135

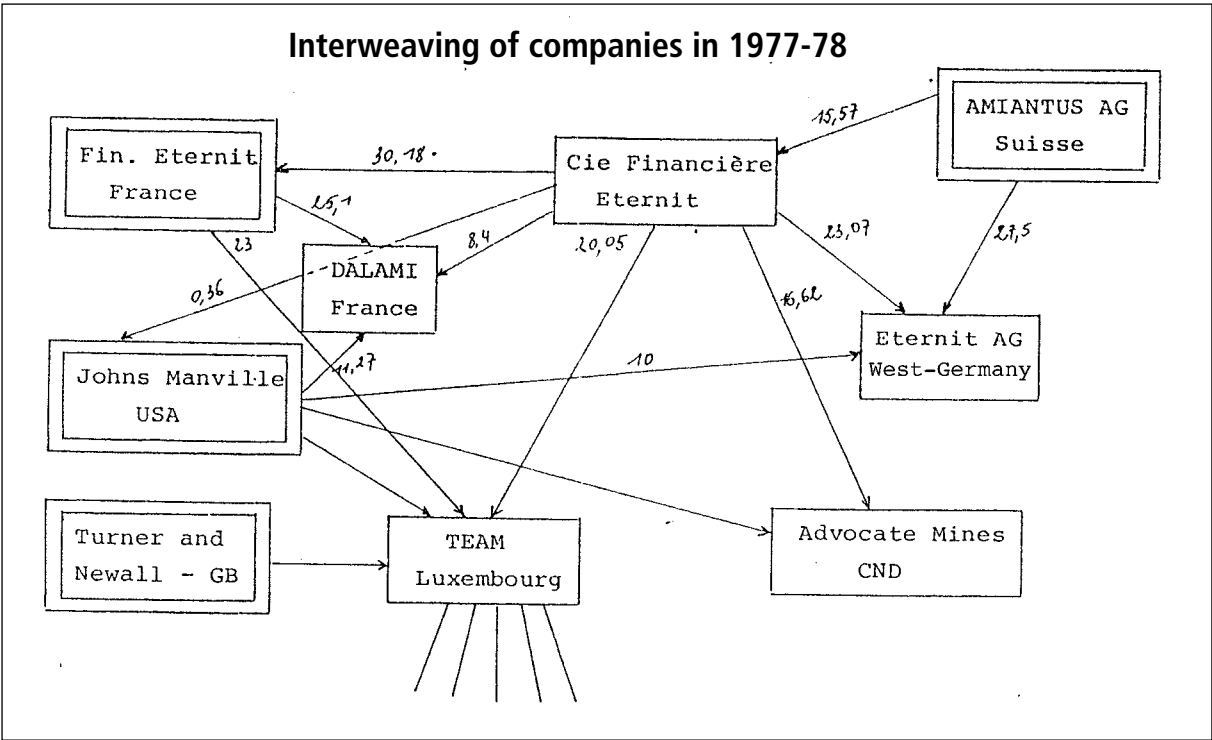
⁴ Cornelia Binder, Die Asbestzementindustrie. Dargestellt an einem bedeutendem Österreichischen Unternehmen, Vienna 1975, p.118.

⁵ These were the children of daughters and relations by marriage. For example, Etienne van der Rest, born in 1925, was the son of Paul van der Rest, the husband of Marguerite Emsens (1891-1975) a daughter of Alphonse Emsens.

all the Schmidheyns are well represented. This positional board game played by these families demonstrates the extent of cooperation between Eternit corporations.

As noted above, one of SAIAC's aims was mutual assistance in the supply of raw materials. This was organised through centralised buying. As late as 1981 a report of a meeting published in the Eternit Netherlands magazine Eternieus stated that 'All asbestos is bought centrally by the Group.' One point on the agenda of this meeting was the different properties of asbestos from the German factory in Nordenham and that of Johns-Manville.⁶ In later chapters we will show how within the Belgian Eternit Group there was also discussion of, amongst other things, how to tackle the problem of the dangers of asbestos.

For the moment suffice it to say that over the years intensive cooperation has taken place between the industry's four founding families. In particular, the Schmidheyns and Emsens played a major role in a very large number of Eternit firms throughout the world.



Source: Etude de Secteur de l'Asbeste-ciment, Gresea 1979, p11

6 At a 'Consultation meeting' of Eternit on 13 April 1981, Eternieus, voorjaar (spring) 1981

3 The dangers were known

What did the Eternit corporations know about the dangers to health from asbestos cement and when did they know it? Before we answer this question we should perhaps first outline just what those dangers constitute. These facts were brought to light long ago by reliable scientists. A review of the most important publications indicates that it can certainly be assumed that Eternit companies have known of them for a very long time. At the end of this section we list a number of documents which demonstrate that this was the case.

The dangers of asbestos

By the time asbestos cement was invented there were already reports that asbestos fibres could cause pulmonary diseases. Attention was initially directed primarily towards the processing of asbestos for use in textiles. Concern focused on the large quantity of dust in asbestos factories and the recommendation was for better ventilation. In later years further reports appeared regarding damage to health, not only in medical journals but in other occupational publications, information bulletins and ordinary newspapers. In 1918 the US Bureau of Labor Statistics went so far as to publish a book which noted that a number of major American and Canadian life assurance firms were refusing to sell any further policies to asbestos workers, whom statistics had shown to suffer a high rate of premature death. The first mention of claims for damages against an asbestos firm on the grounds of pulmonary disease dates from 1929. The company in question was Johns-Manville. Such claims for damages were also a concern for insurers providing policies against industrial risk.

Scientific interest in the problem increased following the publication in 1924 of a paper on asbestos fibrosis of the lungs in the British Medical Journal. From 1927 a number of further papers appeared in England and the term asbestosis was used for the first time. It was noted that due to the lack of microscopic and anatomical research in earlier years pulmonary diseases had too frequently been diagnosed as tuberculosis. Confusion also existed over the influence of silicon, silicosis being already recognised as an occupational disease. It had previously been possible only after the patient's death to specify the actual cause of the illness, but from 1927 a new radiography-based diagnostic method was developed. The increase in the number of people suffering from asbestosis led in the UK to legislation being enacted which laid down rules for counteracting the dust. This law – the Asbestos Industry Regulations – came into force in 1931 after a laborious tug-of-war with the manufacturers over the scope of the regulations. Reducing dust always involves costs. The manufacturers attempted to establish that the chance of a worker becoming ill was small, that it depended to a great extent on the duration of exposure and that moderate regulations would be sufficient.

Significant restrictions were placed on the industrial sectors to which the regulations applied, while the duration of an individual's exposure during working time had to be at least 8 hours. This made it pos-

sible for manufacturers to avoid claims for damages by varying the tasks performed by their workers. Medical research for a long time paid no attention to workers who, after a period of years working with asbestos, moved on to other occupations.

These Regulations were important for the example they set to other countries and were at least something. In practice they often meant little, however. The bad name that a factory could acquire amongst workers and people in its vicinity was generally more important and established a connection between the dust and the occurrence of diseases.⁷ Of course, firms had to recruit personnel. Also of importance was the fact that the Regulations meant that asbestosis was recognised as an occupational sickness for which compensation for damages could be claimed. In the following years this recognition spread to other European countries with Switzerland joining the UK in 1939, Germany in 1943, France in 1945, Belgium in 1953 and the Netherlands in 1951.

In the '30s and '40s more papers were published on asbestosis, dealing with both the disease itself and the number of victims. In addition, reports began to appear on the incidence of the illness amongst people who had had no involvement in asbestos processing, but who had inhaled dust outside the workplace.⁸ The first mentions were made of a possible connection between asbestos and lung cancer and even of mesothelioma (cancer of the pulmonary membrane and peritoneum). Interest remained small, however. The economic crisis of the '30s followed by the war made the number of victims generally more acceptable. The industry was, moreover, able to prevent or delay by many years the publication of the results of numerous studies. When official state institutes conducted research they promised anonymity and confidentiality.⁹ With an eye to the possibility of claims for damages, or in order not to alarm personnel, health risks were treated as company secrets. For firms in the UK and US it became more difficult to find insurance against the risk of asbestosis. In Italy in 1939-1940 a study was conducted into the health of workers in the asbestos textile factories of Turin. The results of this study were indeed published, but nothing was done about its recommendations.¹⁰

On the European continent the use of asbestos declined between 1940 and 1945, while the war also clouded the picture when it came to the number of victims of earlier contamination. Most new reports came from the United Kingdom and the United States. In these countries the use of asbestos continued unabated, with the asbestos insulation industry experiencing a huge upsurge. This industry began to produce a large quota of victims, but the authorities immediately after the war, in 1946, introduced measures to impose standards limiting the concentration of free-floating fibres. The adequacy of these limits as a means of preventing disease was soon called into question, a fact well known to the directors of the corporations involved.¹¹ Concerned by the costs, the industry for many years resisted the widening of the scope of these protective measures to include further groups of workers.

Interest in asbestos-related diseases began to rise after the Second World War, but remained to a large extent unpublicised. New papers on the link with lung cancer and on mesothelioma did find their way into print. For these illnesses no connection appeared to exist between the duration and extent of exposure to asbestos fibres and the occurrence of disease. This could only mean that exposure outside

7 Geoffrey Tweedale, *Magic Mineral To Killer Dust*, Turner & Newall and the Asbestos Hazard, p.176

8 For further information on these and later years see Castleman, Chapter 7

9 See Castleman, *Asbestos: medical and legal aspects*, 4th ed. 1995, Chapter 3

10 Jock McCulloch, *Asbestos Blues*, Labour, Capital, Physicians and the State in South Africa, 2002, p. 87
There were many cases of asbestosis.

11 Vandiver Brown, senior adviser at Johns-Manville at a symposium in 1947: 'So far as I have ever been able to ascertain, no one can state with certainty what is the maximum allowable limit for asbestos dust.' The symposium was hosted by the Saranac Laboratory which conducted research for asbestos firms. See Castleman, p. 314

the context of work carried a great deal more risk than had up to then been assumed. Moreover, mesothelioma can strike long after the exposure, as long even as thirty years or more. It became ever more obvious, in addition, that damage to the lungs was irreversible. No safe threshold value for the inhalation of fibres could be specified. Improvements in health care in relation to bacterial infections led to a fall in the rate of premature death, meaning that fewer people were dying before asbestos-related diseases manifested themselves, the result being an increase in their incidence. In addition, more reports appeared on asbestos-related diseases amongst family members, people living in the neighbourhood of asbestos plant and others who may have inhaled clouds of dust. It was in the areas where it was mined that asbestos dust was most widespread.

An important breakthrough came with the publication in 1964 of an epidemiological study conducted amongst insulation workers and their families by a team led by American doctor Irving Selikoff. This revealed that even a brief exposure could provoke mesothelioma. These findings attracted a great deal of attention. Then, in 1969, Dutch physician Dr J. Stumphius produced a dissertation which showed that a small quantity of asbestos dust could cause mesothelioma, and that this was also evident amongst people who did not work in the industry. His research was based on a shipyard and a machine factory owned by the firm Koninklijke Schelde (Royal Schelde) of Walcheren. Stumphius concluded that: 'In view of the presently occurring spread of asbestos use, most notably beyond the industry itself, one must fear an explosion of the same dimensions throughout the whole population. The consequences will become visible over several decades. Asbestos is developing from a problem of occupational medicine into a clear public health problem – the result of the Walcheren research is in this respect a warning which should not be misunderstood.'¹²

In the 1970s attitudes amongst politicians began to change. Initially, this meant a tightening of standards in Western Europe and the US. Later, bans were gradually introduced on one or another type of asbestos. A definitive break with asbestos was delayed, the possibility of requesting exemptions being exploited to the full by firms in the industry.

Different Eternit corporations asserted that asbestos was not dangerous if it was encased, as was the case with asbestos cement (see Chapter 5). For years this argument was used to prevent the introduction of restrictive measures, yet it was based on a specious picture of the actual dangers involved with this material. The whole life cycle of asbestos cement must be taken into account when these are assessed, from mining and transport, via the production process and all the way through to the processing of the waste. Examining asbestos cement in this light reveals that its dangers certainly do not disappear simply because it is encased in cement. In each part of its life cycle asbestos presents dangers to health.

Who knew what when?

The most important medical publications concerning asbestos were:

- 1930 Relationship between asbestos dust and asbestosis established
Merewether, E. and Price, C. Report on the effects of Asbestos Dust on the lungs and Dust Suppression in the Asbestos Industry (London: Her Majesty's Stationary Office, 1930)
- 1955 Relationship between asbestos dust and lung cancer established
Doll, R., "Mortality from lung cancer in asbestos workers" *British Journal of Industrial Medicine* 12, 1955, pp. 81-87.

¹² Dr J. Stumphius, *Asbest in een bedrijfsbevolking* ('Asbestos in a company workforce'), 1969, p 223.

- 1960 Relationship between asbestos dust and mesothelioma (cancer of the pleura and peritoneum) established
Wagner, J.C., Sleggs, C.A. and Marchand, Paul, “Diffuse Pleural Mesothelioma and Asbestos Exposure in the North Western Cape Province”, *British Journal of Industrial Medicine* 17, 1960, pp.17 ff.
- 1969 It is established that a small quantity of asbestos dust can provoke mesothelioma, including amongst people who have never worked in the industry. Stumphius, J., *Asbest in een bedrijfsbevolking, Voorkomen van mesotheliom bij werknemers van de Scheepswerf De Schelde in Vlissingen* (“Asbestos in a company workforce. Occurrence of mesothelioma among workers at the De Schelde Shipyard in Vlissingen [Flushing]”) (Van Gorcum Assen, thesis, 1969)

As this short overview shows, the dangers of asbestos dust have long been known. It can certainly be assumed that producers of asbestos cement were aware of these important publications regarding their product.

They knew

The producers cannot claim that they did not know anything about asbestos-related diseases. They kept up to date with reported findings and had contacts with medical experts. As well as their involvement with asbestos cement, owners of these firms might have holdings in companies which used asbestos for other applications.¹³ In a German publication of the 1980s, *Der Eternit-Report*, Werner Catrina reported how, since as far back as the 1930s, the firm had played down the threat of asbestosis.¹⁴ Silicosis was worse, they claimed, and in any case life was short. “Dust on the lungs was in earlier times taken as a matter of course,” argued one Dr. Blumer from Niederurnen in an interview with Catrina. “Working practices which were dangerous to health in mine galleries were somewhat better paid.” By this time he had more problems with accidents involving machines in the Eternit factory.

In the same report Max Schmidheiny, longstanding boss of Eternit Switzerland, is quoted as saying that “The only problems I had to concern myself with were the cases of asbestosis that you found here and there... we considered this to be the same as silicosis. It was even said back then that silicosis is more dangerous because of the quartz dust found in stone works and quarries. Asbestosis certainly did not appear to people to be so terribly dangerous.”

The occurrence of asbestosis was, in addition, less noticeable in the past because numerous affected workers came from other countries, being employed for three or four years before returning to their homes. This of course raises the question as to why temporary guestworkers were employed for the most dangerous work. It was already known that the incubation period for asbestosis could be extremely long. What the above quotation expresses is a lack of concern which was structural: why worry yourself about a few victims? Workers could be replaced.

In 1950 SAIAC received a letter from Eternit Netherlands in which the Dutch firm requested more information on the occurrence of asbestosis. In the Netherlands a ‘silicosis law’ was in preparation which devoted one of its articles to asbestosis. SAIAC in turn requested information from members, who included other Eternit firms and T&N, and distributed copies of medical articles on the subject of

¹³ Eternit Belgium was, amongst others, involved with Fadamac and with the French company Dalami (Société des dalles et produits amiantés), in which Johns-Manville also held an interest. Eternit Netherlands was, through Nefabas, involved with other asbestos products.

¹⁴ *Der Eternit-Report*, p. 82. The journalist Werner Catrina was offered the opportunity in 1984 and 1985 by Stephan Schmidheiny to speak intensively with people who had been involved with Eternit.

asbestosis in Germany. The tone of the reactions was reassuring. Not a single case had been demonstrated. Yet SAIAC's letter to Eternit Netherlands dated 6 July 1950 tells a somewhat different story, stating that "all of our employees are extremely interested in becoming informed as to the current state of knowledge regarding the occasional occurrence of asbestosis in the asbestos cement industry." In the person of Max Schmidheiny, SAIAC's secretariat urged members to take measures to reduce dust emissions. Of particular interest is the reaction of T&N which drew attention to a number of requirements of the Asbestos Industry Regulations of 1931, as follows:

These regulations apply substantially to the processes scheduled in the Asbestos Industry (Asbestosis) Scheme, 1931 and, in brief, require that, inter alia,

- (i) an exhaust draught effected by mechanical means be provided to prevent the escape of asbestos dust into the air in any room in which persons work;*
- (ii) mixing or blending by hand of asbestos shall not be done except in a special room in which no other work is ordinarily carried on, nor except with an exhaust draught effected by mechanical means to ensure the suppression of dust;*
- (iii) a sack which has contained asbestos shall not be cleaned by hand beating but by machines;*
- (iv) all sacks used as containers for the transport of asbestos within the factory shall be constructed of impermeable material;*
- (v) a breathing apparatus shall be provided for every person employed in chambers containing loose asbestos, or in cleaning dust settling or filtering chambers or apparatus.*

The requirements for firms in the UK were, as can be seen from this, known to all Eternit companies, but were nevertheless not complied with. The chance of detecting an asbestos-related disease remained small in the 1950s, because production and use of asbestos cement had been for many years restricted by economic and political conditions. After 1950, with the rapid growth in production and use of asbestos, the possibility of this happening had begun, however, to grow markedly. In many countries new factories were established. In this period, also, new reports of sickness amongst workers in other sectors where asbestos was processed began to appear. In 1959, in Johannesburg, a conference was organised during which the pathologist Christopher Wagner presented the results of research amongst mineworkers and those who lived in the neighbourhood of mines. The results revealed the existence of mesothelioma in both categories.¹⁵ Later, the publication of these results found a world-wide audience and the findings were frequently cited.

The first major wave of public disquiet was provoked by the investigations and actions of Dr Selikoff. In *Der Eternit-Report* it was noted that the attitude had been 'let sleeping dogs lie' (p.99). This became untenable when, in 1974 in Sweden, a threat to ban all asbestos goods arose, a ban which would of course have included asbestos cement.¹⁶ New Eternit Switzerland boss Stephan Schmidheiny was deeply impressed and argued for a transition to asbestos-free products. Family members and others who were involved (the Emsens, Cuveliers and Hatscheks) saw no necessity for this, though in 1976 it was mentioned in annual reports that they were considering changing the name of asbestos cement, substituting the term 'fibre cement'. In defence of asbestos persistent emphasis was placed on the use of specious comparisons: the risks of smoking, or of traffic or household accidents, for example.¹⁷

15 A paper appeared in 1960 in the British Journal of Industrial Medicine. Wagner therefore travelled through western Europe during these two years and in England spoke with managers from T&N, who, according to Wagner, advised him not to go through with his investigation. See Tweedale, p. 154.

16 As early as 1964 it was already specified in Sweden that asbestos must be replaced wherever possible. In 1972 a limited ban was introduced in Denmark, but this did not apply to asbestos cement.

17 See e.g. *Der Eternit-Report* p. 88. See also: 'But just one cigarette increases risk more than thousands of asbestos fibres. And eating a charcoal grilled steak every week is more dangerous than living in an asbestos-insulated building.' Statement by Michel Camus, a scientist at the University of Quebec, quoted in a Belgian newspaper and cited by Laurie Kazan-Allen.

It is clear that the Eternit companies had at, a very early stage, knowledge of the gravity of the risks to health posed by asbestos cement. What they did with this knowledge is the subject of the following chapter.

4 Organised opposition

The dangers of asbestos cement were known to all of the companies involved. Eternit companies worked hard to prevent measures to counter these hazards from being introduced. In this chapter we look at the lobbying carried out by these firms and their attempts to hinder research into possible alternatives to asbestos. If the Eternit corporations had invested more energy in the finding of an alternative material, production of asbestos cement could have been halted far earlier than it was. Yet not only did they not make much effort to seek alternatives, they even put a stop to such research. A third form of opposition – disinformation spread by Eternit about the dangers of asbestos cement – is the subject of Chapter 5.

Lobbying and legislation in the Netherlands

In 1949 a law was proposed relating to silicosis in which a single passage dealt with asbestosis. What provoked this was a series of articles on asbestosis written between 1938 and 1945 by Dr. P. Luyt, a medical advisor at the labour inspectorate. Luyt pointed to the risks involved in the sawing up and smoothing off of asbestos cement.¹⁸ The law, which came into force in 1951, offered the possibility of specifying more detailed requirements, but it was not until 1971 that this was acted upon. In 1970, Mr Roolvink, the then Minister for Social Affairs, speaking in a parliamentary debate, reacted to the thesis recently published by Dr Stumphius by stating that “The relationship between the quantity of asbestos inhaled and the long-term inception of mesothelioma is insufficiently understood for it to form the basis of policy,” adding that “The assertion that inhalation of a few asbestos fibres leads irrevocably after thirty or forty years to malignant tumour, as is being said, must be emphatically denied. It has the same character as the assertion that anyone who has at any time ever smoked a few cigarettes will inevitably get lung cancer.”¹⁹

Despite this, the labour inspectorate imposed an occupational health directive relating to exposure to asbestos. The asbestos industry was involved in this, the recommendations being largely taken from the British Regulations. At a conference in London in 1971 a spokesman for the asbestos industry, Kolff van Oosterwijk, spoke about the beginnings of disquiet in the trade union movement.²⁰ As a delaying tactic he proposed the setting up of as many committees as possible which, due to their

18 See P. Swuste, A. Burdorf and J. Klaver, *Asbest, het inzicht in de schadelijke gevolgen in de periode 1930-1969 in Nederland*, (‘Asbestos, understanding of the harmful consequences in the period 1930-1969 in the Netherlands’) 1988.

19 Proceedings, Tweede Kamer (Lower House of Dutch national parliament, sitting 1970-1971, 2500-2501).

20 Kolff van Oosterwijk was a director of Hertel, the Netherlands’ biggest insulation firm and one which had itself seen a striking number of victims amongst its own personnel.

expertise, must be involved in decision-making by the state and public authorities. This would offer space for the necessary delays and time to lobby against critics of the use of asbestos.²¹ Sure enough, a series of committees including representatives of the industry was established.

In a letter to the labour inspectorate Eternit Netherlands attempted to play down the medical risks. Doctors were cited who contested the proof that a causal relationship existed.²² In 1972 Eternit Belgium's chief physician Dr Lepoutre wrote a letter to the inspectorate headed 'The biological effects of asbestos' in which he claimed that the international conference in Lyon had recognised that 'a limit value for exposure exists and that with the help of technical regulations this can be achieved with respect to prevention.'²³ Lepoutre further stated that encasing the fibres rendered asbestos products harmless.

In reaction the medical advisor to the labour inspectorate wrote that while at the Lyon conference a dosage effect had indeed been specified for asbestosis, this was not true for mesothelioma.²⁴ He also dismissed out of hand the argument regarding encasement, stating that 'The product must moreover still be manufactured, during which loose asbestos will certainly be present.' The advisor also wrote to a colleague that as a member of the conference Advisory Committee, Lepoutre must know that his observation was in conflict with the conclusions arrived at in Lyon.²⁵ In December 1973 another letter arrived from Lepoutre, in which he stated that support had 'been given' in Lyon 'to studies conducted by, amongst others, Dr Muriel Newhouse, an article by whom I have recently read in which it is stated that "The figures suggest that the risk of mesothelial tumours is strongly related to both the degree and the length of exposure to asbestos dust, and that although there may be no critical level where the cancer risk can be confidently said to be eliminated, strict control of factory hygiene and dust suppression may minimise the risk."²⁶ Vagueness was piled upon vagueness, with the conference in Lyon used as the purported source.

Substitute products

Industrial production techniques were Ludwig Hatschek's winning card. Cement was easy to mould to a particular size and shape, but had to be reinforced. Reinforcement by means of asbestos fibres seemed to work well, while a second advantage was the relatively low weight of the materials involved. The product was so good that the manufacturers were not inclined to look for new discoveries when it came to the material's construction. New techniques related instead to new manufacturing processes and new applications. Nevertheless during the 1920s and 1930s patents had already been lodged by people outside the industry for materials in which substances other than asbestos were added to the cement.²⁷

By means of industrial production techniques buildings could become relatively cheap, so that keen interest among building contractors responsible for major works such as stations, factories, exhibition complexes, hospitals and educational facilities was quick to manifest itself. Later, farmers sought the product for sheds and irrigation pipes. Contractors were also pleased by the prospect of being able to build cheaper private dwellings for working people.

21 Laurie Kazan-Allen, 'The Asbestos Frontline' p 21-22, in Steven P. McGiffen (ed.) *The Polluter Pays: Notes from the international conference on asbestos held in Amsterdam in May, 2004* (Hoorn: Comite Asbestslachtoffers, 2005)

22 The doctors in question were Dr H.T. Planteydt and Prof. Dr Gyselen who turn up regularly in Eternit texts. Letter of 3 August 1972 to the director J. van Haagen.

23 Letter to the Medical Adviser to the labour inspectorate, 27 November 1972.

24 Letter from the Medical Adviser to the labour inspectorate to Dr Lepoutre, 25 January 1973.

25 Letter from the medical department of the Directorate-general of Labour, 1 February 1973.

26 Letter to the Medical Adviser to the labour inspectorate, 4 December 1973.

27 See Castleman, pp. 454-455. Such patents also appeared in the '50s.

The Schmidheins, and to a lesser degree the Emsens' had traditionally held extensive interests in other building materials, a fact which enabled them to influence middle-men and building firms.²⁸ Through their holdings in the cement industry they had an interest in an increasing use of asbestos cement (large scale fibre cement), of which cement itself was of course the foremost component. The Swiss and Austrians enjoyed a monopoly in the production of asbestos cement in their own countries and a near-monopoly in its trade. The Belgians also had a near-monopoly, and dominated the market in various other countries, notably Germany and the Netherlands. This gave them so much market power that they could direct interests of the asbestos cement industry. They were involved with builders' trade magazines, organised training courses on building work, and presented an architecture prize in the judging of which the use of asbestos cement was a prime consideration. In different countries of the Third World they were unable to maintain a majority interest in asbestos cement firms, opting instead for control of technology and patent rights. In these countries interests were also acquired at an early date in a number of building materials in order to strengthen influence over the market.

Market Power

For applications in insulation and fire-proofing, alternatives, including stone wool and fibre glass had been available since the 19th century. From a technical point of view, however, asbestos combined a number of different qualities. The '20s and '30s saw rapid consolidation of asbestos firms. The consolidated corporations had an interest in emphasizing the exceptional properties of asbestos and by means of their strong economic position were able to hamper market access for alternatives. Customers could be put under pressure while firms making competing materials could be bought out, a policy pursued without restraint by the then biggest concerns Turner & Newall and Johns-Manville.²⁹

In the First World War firms had by necessity to switch to substitute products simply because no more asbestos was being supplied, or because it was reserved for war-related purposes, principally to do with firefighting. Experiments were conducted with materials derived from plants, particularly with cellulose from wood. These products turned out to be less durable. The same conclusions were reached from experiments carried out during the Second World War. After both wars the switch back to asbestos fibres happened as rapidly as possible and there was no incentive for further experiment. No competitor arose to enter the market with new cement-based materials. This would not happen until, in 1975, Sweden imposed a ban on blue asbestos and, in 1976, on the installation of asbestos cement materials. Competition did come from the 1950s onwards from plastic building materials, and later, in addition, from plaster, leading Eternit holdings to buy into the companies involved. Because of competition profit margins for plastic were, however, lower than those for asbestos cement. Asbestos-free plates were only made before this time for use inside buildings. After the oil crisis of 1973 Eternit Belgium put more work into diversification.

Just after 1977, at the instigation of Stephan Schmidheiny, a programme of research into substitute fibres was established. The foremost motive behind this was growing social concern over the health risks from asbestos, because of which products containing asbestos threatened to become unsaleable. An additional motive was provided by the sharp rise after 1973 in the price of raw asbestos.³⁰ This was caused in part by higher energy prices which had a strong effect on transport and wage costs and higher requirements for protection against free-floating dust. The other Eternit companies were

28 Agreements were made involving exclusive arrangements with distributors. By building up a certain prestige on the basis of service and quality of materials, they were also able to demand a higher price. See Tom Stockman, *Het management van distributiekanaal: gevalstudie Eternit* (The management of distribution channels: case study of Eternit), 1992.

29 See Geoffrey Tweedale, *Magic Mineral to Killer Dust*, Turner & Newall and the asbestos hazard, 2003 p.139, and Barry Castleman, *Asbestos: Medical and Legal Aspects*, 1996, p. 35.

30 Werner Catrina, *Der Eternit-Report*, p.117

formally associated with the research and contributed to it financially, but they were less motivated. In the mid-eighties a spokesman told the journalist Werner Catrina why: 'Der Herr Schmidheiny hat mehr als genug Ausweichmöglichkeiten. Er kann es sich leisten, das NT-Experiment einzugehen. Wird es ein Fiasko, dann bleiben ihm noch genügend andere Geschäftsbereiche. Bei uns ist Asbestzement das absolut Dominierende, wir können das nicht leichtfertig aufs Spiel setzen.'³¹ People's lives could apparently be put in jeopardy without any problem.

In 1978 Schmidheiny was alarmed by the announcement that in Switzerland a competitor – Durisol³² – had been established with the intention of making a different kind of fibre cement. Shortly afterwards, the firm was bought out. In 1983 Eternit Switzerland announced that a number of products would become asbestos-free – window boxes, and plates for facades, the underside of roofs and interior walls – and that in the case of certain other products – roof plates and corrugated plates for facades – the quantity of asbestos contained in them would be reduced by half. In 1990 it was further announced that all products for use above ground would henceforth be free of asbestos and that it was expected that products for underground use - pipes – would be asbestos-free by the end of 1993. In the same decade firms outside Switzerland were also forced out of business or closed down. Eternit Belgium in addition began to trade in asbestos-free products, but continued to deal in asbestos as long as it was still permitted, persisting with asbestos cement right up until 1st January, 2004. Shortly before that Etex also sold its interests in asbestos cement companies, for example in Eternit Everest Ltd.³³

The introduction of new kinds of fibre cement was thus delayed. When it came to competition from other materials, exacting demands were made on their properties and production costs. The Eternit companies were certainly not willing to lose market share and delaying tactics were for this reason important to them. Etienne van der Rest, director of Eternit Belgium said of this that 'A substitute product for asbestos must fulfil a number of conditions. First and foremost it must be decidedly less unhealthy than asbestos. That is not so simple to demonstrate ... The materials which have to date been recommended as replacements such as glass wool, stone wool and other fibres, are certainly not harmless. At least we now know a great deal about asbestos and through drastic measures we can improve its safety somewhat. Second condition: the substitute material must be comparable in quality. Thirdly: the substitute must be economically viable, perhaps to some degree dearer than asbestos but nevertheless within reasonable proportions.'³⁴

In reality, glass wool and stone wool had already been long in use and no health risks comparable to those posed by asbestos had appeared. The argument served mainly to gain time, particularly when it came to the second and above all the third condition. After some years it emerged that in relation to each type of application and also with regard to varying climate conditions a different kind of fibre cement needed to be developed.³⁵ New types of fibre come principally from the synthetics industry, though plant-based material is an alternative in poorer countries.³⁶ New materials developed during

31 Fritz Bachmeier, director of Eternit Austria in Der Eternit-Report, p.224. NT stands for Neue Technologie (New Technology).

32 According to Asbest und Profit (Asbestos and Profit), PSO, 1983, p 75.

33 Now that the company is wholly owned by Indian nationals (via the ACC group) more asbestos is again being used as a fibre in cement. Resistance in India is at the same time growing.

34 NRC Handelsblad, 3 June 1982.

35 For the Swiss this was a reason also later to withdraw from the production abroad of asbestos-free fibre cement.

36 e.g. waste from banana plantations in Costa Rica, which was widely and cheaply available in the vicinity. Der Eternit-Report, p 132. In the International Journal of Occupational and Environmental Health of July, 2003, p. 285 the fact that the government in 1984 did not want to spend any hard currency on the import of asbestos is given as a motive. The cement was supplied by a subsidiary of Holderbank.

the 1980s were mainly intended for western Europe³⁷ the region where asbestos use came under most pressure.

The public authorities also for many years permitted the use of asbestos where substitute products were dearer. A Dutch report of 1980, *Asbest en Milieuhygiëne* ('Asbestos and environmental health'), stated that 'Notwithstanding the obscurities of the situation, the conclusion appears warranted that for many products containing asbestos technically sound, commercially viable and reasonably acceptable alternatives are often available.'³⁸ The report continued by stating that there were exceptions in friction materials and packaging. There was no mention of asbestos cement. Yet for many more years asbestos cement could still be processed and exceptions were granted even for the use of pipes containing blue asbestos.

37 'La substitution de l'amiante dans les produits traditionnels s'est orientée, pour les sociétés du secteur européen.' ('Substitution of asbestos in traditional products is directed towards the European sector'), Annual Report of CFE for 1987, p 8.

38 Published by the Ministry of Public and Environmental Health, p 4.

5 Disinformation

Eternit companies have used disinformation to manipulate the medical debate, political decision-making and their customers' trust. In influencing these matters they have always made it a priority to keep the lid on any bad news emanating from the world of medicine, preserving the image of a substance with few risks. If in the course of time doubts grow and the number of claims for damages increases, then the idea is spread that in earlier years too little was known of the risks for those involved to be held responsible.

'Fixed in cement'

In the asbestos cement industry's early days there were already victims, but the number which can be proven was originally very small. Nevertheless, inspectorates and doctors showed some interest, and the industry was concerned to keep asbestos cement out of the limelight. T&N director Mr Turner wrote for example in 1937 in a letter to a subsidiary operator in India: "All asbestos fibre dust, whether it arises in a factory or elsewhere, is a danger to lungs... [however], if we can produce evidence from this country that the [asbestos cement] industry is not responsible for any asbestosis claims, we may be able to avoid tiresome regulations and the introduction of dangerous occupation talks."³⁹

Only the industry's growth in the '50s and '60s laid the basis for the appearance of greater numbers of victims in later years. Asbestos cement producers followed the news about the dangers of asbestos, but restricted themselves to taking steps within the factory to do with storage and processing. At a meeting on asbestos on 3rd May 1937 in Germany representatives of the asbestos cement industry stated that for more detailed research in their factories only workers who, in the management's judgement, worked in dangerous parts of the plant would be involved.⁴⁰ Attention was at that time paid only to the idea of improved dust extraction and the wearing of dust masks. In 1940 in Germany standards for contact with asbestos in the production process were considerably tightened in response to the danger of contracting lung cancer from a relatively brief exposure.⁴¹ This must have been known to the owner-directors of Eternit companies. Nevertheless, though the supply of asbestos in continental Europe was halted by the war, at the end of this period production was resumed unchanged. The claim was that no-one needed to worry about the health risks because after manufacture the asbestos fibres were fixed in the cement and could not float free. In guides to the use of asbestos cement plates and pipes on building sites, nothing whatever was said about health risks.⁴²

39 Cited in Tweedale, p. 23.

40 In 1936 papers on asbestosis were published in Germany by, amongst others, a Professor Baader. At a meeting on 3 May 1937 in Berlin Baader indicated that the finest dust was the most dangerous and that a cure was probably not possible.

41 Castleman, p. 298-299. Whether these were implemented during the years of war is not stated.

42 For example, Well-Eternit Handbuch 1959.

A new line of defence came into play after 1978, when in one country after another the use of blue asbestos (crocidolite) was brought to an end, as this was the kind which appeared to carry the greatest risks. Blue asbestos was primarily used for the production of pipes and was by this time rivalled by plastic. The Eternit companies then announced that they would henceforth use only the less dangerous white asbestos (chrysotile). Yet by this time all of the results announced at the 1977 conference of the International Agency for Research on Cancer (IARC) in Lyon were well-known, results which, after thorough investigation, had led to the conclusion that white asbestos was also carcinogenic.⁴³ These crucial findings from an extremely prominent cancer research institute were systematically suppressed by Eternit firms which, however, never disputed their accuracy or attempted to refute them. In fact, the difference in risk between the two forms of asbestos had been overstated, as chrysotile was used on a far greater scale, having around 90% of the market. The ending of the use of blue asbestos served also to give the impression that health risks were being taken seriously, while at the same time the much more important market in white asbestos was defended. In Europe, where asbestos cement was widely used, companies lobbied successfully, but in the US a new regulation introduced in 1980 drew no distinction between types of asbestos.

The argument about the fixing of the dust in cement was trotted out endlessly, used by leading people from the industry, especially in Belgium, as an aggrieved reaction to criticism. Below are a few examples:

In a letter to the labour inspectorate in the Netherlands dated 27th November 1972, written by Dr J. Lepoutre, chief physician at Eternit Belgium:⁴⁴

‘It is now generally accepted that a finished asbestos product, when the asbestos fibres are “locked in” – that’s to say bound within another product – has become harmless.’

In a 1976 report from Eternit Building Products Ltd to the Advisory Committee on Asbestos to the British Health and Safety Executive it is noted that dust from asbestos cement differs from asbestos dust itself:

‘In each case, asbestos cement behaves as cement, whatever the conditions used in this study.’ In other words, the asbestos is ‘locked-in’. This conclusion was confirmed in three reports.⁴⁵

In Eternit Belgium’s annual report of 1977:

‘The problem of “asbestos and health” has been raised on our markets. The company has conducted an extensive action aimed at the competent authorities and public opinion in order to persuade them that the physiological properties of asbestos fibre are different when they are fixed in our material. This is proved by rigorous scientific research. On the other hand we must add to this that the important investments which we have made in the past in order to assure safe working conditions will be continued uninterrupted.’

43 International Agency for Research on Cancer, Monographs on the evaluation of carcinogenic risk of chemicals to man. Asbestos, vol. 14 (Lyon, IARC, 1977).

44 Letter included in the documentation on the Cannerberg affair held by the Ministry of Social Affairs.

45 Selected written evidence submitted to the Advisory Committee on Asbestos 1976-77, p.74

Max Schmidheiny in autumn 1984:

“And then, at the beginning of the `sixties...I heard about Mr Selikoff, I heard for only the first time from Eternit Berlin. Of this it's been said, that man is a fantasist who does research to make money. We have said that Eternit is absolutely not dangerous because the fibres are encased in the cement. Totally safe, which is also correct.”⁴⁶

In De Standaard 22/23 July 1995, director of communications Paul van der Straten Waillet for Eternit Belgium:

‘That asbestos is fully encased, it does not find its way into the air. Asbestos which is sprayed on the walls as insulation, such as was done in the Berlaymont, is indeed dangerous to health. The public confuses the two ways in which asbestos is handled.’

As stated in Chapter 3, the argument that encasement renders asbestos safe is incorrect. In the whole life cycle of asbestos cement, from mining to waste processing, a great deal of ‘non-encased’ asbestos is freed and people are exposed to it.

Influencing the medical debate

Interest in the health risks of asbestos has since as far back as the 1920s been a source of concern to producers of asbestos goods. A historical study by the American environmental advisor Barry Castleman has shown that major US concerns such as Johns-Manville were well aware of the problems and did their best to suppress bad news and limit financial risks, whether from damage claims, absenteeism through illness or compulsory safety measures. For the British firm Turner & Newall the same pattern is described by the historian Geoffrey Tweedale.⁴⁷ A great deal less is known about the Eternit companies, because their archives have to date remained closed. Yet they must, due to the close contacts which existed between asbestos corporations, as well as through their holdings in asbestos mines and experience in their own factories, have been aware of the situation. In the `20s the magazine Asbestos was already carrying occasional reports about asbestos-related diseases. This magazine for several decades reported news on anything and everything which touched the interests of asbestos companies. News about Eternit corporations occupied a prominent place. After March 1930, however, the publication ceased to carry stories about health risks. Correspondence has been uncovered from which it emerges that the asbestos corporations had led the publisher to understand that no mention should be made of the risks.⁴⁸

The fact that symptoms of disease usually took years or even decades to appear, and that by that time the victims often no longer worked for asbestos concerns, also played a part in the story of asbestos and its use, as did the fact that not everyone who had been exposed became ill. This made it easier to argue that a causal relationship between exposure and these illnesses had not yet been conclusively proved.

The denial of a proven causal connection has for decades formed an important part of the industry's resistance. The purpose was not only to be able to continue using asbestos, but also to avoid claims for damages. Tweedale's findings have shown that research institutes which the industry itself set up or financed have primarily concerned themselves with tests on animals and on chemical analyses of

46 Cited in Der Eternit-Report, p.79 and p.81-82.

47 Barry Castleman, *Asbestos: medical and legal aspects*, 4e ed. 1995; Geoffrey Tweedale, *Magic Mineral To Killer Dust*, Turner & Newall and the Asbestos Hazard, 2000.

48 Castleman, p.183

different kinds of asbestos, doing almost no epidemiological studies. Tweedale describes in particular what occurred at the 'Asbestosis Research Council (ARC)', established in Britain in 1957.⁴⁹ The ARC had associated members such as 'Johns-Manville in America, James Hardie in Australia, Eternit in Belgium, and the Quebec Asbestos Mining Corporation'. It had to create the impression that it was objective and impartial, closely following developments in other countries and sending specially selected researchers to conferences at the Council's own expense.

For a long time it was also widely stated that there must be a threshold value for exposure to dust below which asbestos was safe to use. This threshold value should of course be economically viable, giving standards for concentrations of airborne dust which could be safely respected. Another idea was that there were 'safe fibres', below 5 microns in length. These fibres were widely used for insulation and in asbestos cement. Starting from these basic assumptions, the ARC as late as 1987 came up with a threshold value under which the counting of the number of fibres was restricted to what was visible through an optical microscope. By then, however, it had already been long known that with an electron microscope a thousand times as many fibres could be seen, and there was absolutely no proof that these shorter fibres were any less dangerous. The ARC knew this, as Tweedale noted. Moreover the search for a threshold value had significance only in relation to asbestosis. In relation to the risk of cancer, no scientist had ever formulated an exposure limit, because there was no indication as to under what threshold value this risk no longer existed. Asbestos cement firms had already deliberately ignored this essential difference between the risk of asbestosis and that of cancer when they came out with the argument that they had for some time maintained valid limit standards.

In general, corporations sought to postpone undesirable conclusions, by constantly emphasising that more research was still required. The industry was trying to buy time, in the expectation that the benefits would outweigh the costs. Tweedale concluded:

'The ARC created uncertainty and suggested that various "problems" needed to be resolved by time-consuming research (rather than by common sense)... Typically, when mesothelioma was recognised - and the public and scientific community registered alarm - the ARC advised "caution" and argued that: "much more investigation is necessary before firm conclusions can be reached. First to be clarified is whether the nature of the cancerous change might be related either to a specific type of asbestos or to some accompanying impurity contained in the asbestos fiber... The disentangling of these and other questions will take much time and effort.."'⁵⁰

Another form of obstruction consisted of attempts to demonstrate that substitute materials such as fibre glass also posed risks to health. In this vein, the ARC stated in 1987 that 'there is no hazard which is unique to asbestos among fibres'.

Asbestos Project Group

During the 1970s the Netherlands was one of several countries which saw growing interest from critical scientists in the subject of chemicals and health, as well as working conditions in relation to the problem of asbestos. A number of them were from 1979 organised as the 'Asbestoprojektgroep' – the Asbestos Project Group – in cooperation with the country's largest trade union federation, the FNV. They conducted research into working conditions in factories, - including Eternit - into the transport of waste and the possibility of substitute materials. Their findings were in stark contrast to those of the rose-tinted messages emanating

49 Geoffrey Tweedale, 'Science or Public relations? The Inside Story of the Asbestosis Research Council, 1957-1990', *American Journal of Industrial Medicine* 38 (2000), 723-734.

50 Tweedale in *American Journal of Industrial Medicine* 38 (2000), 729.

from Eternit. Eternit's response was to write letters of complaint to universities and advanced technical colleges in which they accused those involved of unscientific behaviour. They particularly called into question the integrity of scientists from the Group's Delft-based section 'Veiligheidskunde' ('Safety Knowledge').

Influencing the authorities

During the legislative course and implementation of the above-mentioned Asbestos Regulations Act in the UK, companies established in that country did all that they could to interfere with the determination of the Act's scope. Such interference is, to be sure, not unusual in the history of legislative regulation related to occupational health and the inspectorates responsible for it. Tweedale's research revealed that the approach in the UK was to play down the risks and restrict the scope of the regulations as well as of liability with regard to potential groups of victims. Measures must not be too costly and must not pose a threat to the firm's existence, while attention must be paid to the danger of competition from other countries where less rigorous rules were in force. Castleman describes a similar situation in the US. In later years exerting influence on the regulatory activities of the state authorities would become an important aspect of the ARC's work. When, at the end of the sixties in the United Kingdom stricter regulation could not be avoided, the ARC changed tack, arguing that firms needed more time to implement the measures. This argument was also used in the Netherlands and elsewhere.

Influencing customers

Eternit companies have in the past put a lot of effort into the business of reassuring their customers. Instruction manuals for many years contained no reference to health risks. Only in the late '80s in the wake of a campaign by the Canadian Asbestos Institute was a guide to 'safe use' of asbestos (chrysotile) produced. For many decades Eternit published its own magazine in three languages, AC-Revue, yet this contained just as little on the dangers of exposure as did the various manuals. Asbestos, being encased in cement, is harmless, this was the longstanding answer to critics. Only when the debate went public were any instructions given for 'safe use'.

In the 1960s the issue was raised of the release into the air of asbestos fibres during processing and the suggestion was made that for this reason labels drawing attention to this danger should be placed on products. In the US, as early as 1964, shortly after the publication of Selikoff's paper, warning labels on asbestos products were introduced on a limited scale by a number of different producers. This did not include the sacks of pure asbestos which were transported from mines in Canada and South Africa: 'Not until 1969 were the first warnings also placed on sacks of asbestos fiber; other products, such as asbestos-cement panels and brake linings, do not appear to have borne warning labels until the 1970s.'⁵¹

In the US, in the years following this, labelling was made compulsory. In other countries, however, there was a great deal of resistance to this, as is evident from the establishment of an international lobbying group for asbestos firms, the AIA (Asbestos International Association), under the chairmanship of Etienne van der Rest, a member of the Emsens family who sat on the board of a number of different Eternit companies. From internal AIA communications it emerges that in 1978 a consensus existed that warnings of the dangers of asbestos should be kept to a minimum.⁵² In particular, warnings of the danger of cancer should be avoided. When, in 1980, Turner & Newall decided nevertheless to use the word 'cancer' their management received an anxious letter from Van der Rest asking for clarification,

51 Castleman, p 387.

52 Castleman, p 844-845.

because the danger existed that in Europe such strongly worded warnings might become compulsory. T&N reacted to this by arguing that the explicit wording could help stem legal claims for damages. The company also stated that in its experience warning labels did little harm. The European Community, in any case, went no further in 1983 than the formulation ‘asbestos dust is dangerous to health’, a clear sign of the influence of Eternit, the biggest user of asbestos in the EC’s member states. Outside Europe, Australia and the US, the multinationals, aided and abetted by Canada, succeeded in long delaying any labelling requirement, or ensuring that labels could be formulated in extremely abstract wording.

In September 1989 Eternit Netherlands sent another letter, this time to architects, building contractors, housing associations and local authorities in which the company responded to criticisms of its role from the Socialist Party and others. A few passages: ‘Since the founding of the factory in Goor in 1937 every attention has been paid to combating dust, despite the fact that no-one was proposing legislation or regulation to this end. When, at the end of the `60s the health risks from asbestos became known, Eternit applied itself to the task of maximising safety in its own factory and on building sites. ... The determination of the fact that blue asbestos has exceptionally dangerous properties was seen, at an early stage, as a reason to end its use. By means of correct measures, ensuring a low rate of asbestos exposure, the risk associated with the use of white asbestos, the only type which is now used in Eternit products, is esteemed by experts – including the health council – to be negligible.’

Eternit referred in fact to a draft advisory note which spoke of a probable smaller risk. This had attracted a great deal of criticism, and because of this it was never published (see box). Responding to it, the Ministry of Public and Environmental Health, in a 1980 report entitled *Asbest en Milieuhygiene* (‘Asbestos and Environmental Health’) said: ‘In any case it is precisely the data on chrysotile that provided the grounds for the acceptance that in relation to exposure to asbestos fibres no threshold value exists under which the chance of contracting lung cancer is effectively nil.’⁵³

Cleverly-chosen references

Eternit asserts that the ‘health council’ had esteemed the risk from white asbestos to be negligible. The company here refers to a draft advisory note of 1988 from the Health Council’s Consultation Group on Toxicology and Ecology entitled *Asbest, toetsing van een ontwerp-basisdocument* (‘Asbestos, review of a draft basic document’) This draft advisory note was written at the request of the Minister of the Environment in reaction to an earlier draft advisory note on asbestos prepared under the aegis of RIVM – a state research institution responsible for providing information, monitoring and a scientific basis for public health policy – in order to provide a basis for environmental quality goals.

In the Health Council’s advisory note it was stated that white asbestos cannot, or rarely does, cause mesothelioma. It does also mention the fact that, in order to express the difference in the potential of white and blue asbestos to provoke mesothelioma, the RIVM document suggests a reduction factor for quantitative risk evaluation of 10-100. The Consultation Group judged this reduction factor to be arbitrary and stated that the necessary data which would have made possible an accurate estimation were as yet unavailable.

Criticism of this advice note came from a number of sides and the final version was to adopt a very different tone. Eternit, however, spotted the opportunity and, insofar as it suited the company’s interests, cited the Health Council’s original draft advisory note.

Also relevant was what the Minister for Social Affairs and Employment, Mr B. de Vries, said in a letter of 9th January 1990 to the Labour Council regarding the ban on asbestos:

“The carcinogenicity of asbestos has recently been the subject of a study by the Working Group of experts. In this Working Group’s report one of the conclusions was that white asbestos must be considered to be a proven human carcinogen, for which it is not possible to specify with certainty that a threshold value exists with regard to the provocation of lung cancer. Furthermore it is stated that on the grounds of currently available scientific data it should be concluded that no difference exists between the two types of asbestos with regard to the overall risk of cancer.”

53 *Asbest en Milieuhygiene*, p. 8. Stumphius knew about the danger from chrysotile as early as 1969.

6 Conclusions and recommendations

A hundred years of asbestos use has demonstrated the way in which the owners of asbestos corporations have consistently put their own interests before considerations of public health and the environment. They have been aided in this by politicians who believed ‘the economy’ more important than people’s health and continually drew back from imposing the necessary measures.

Eternit’s arguments

In court cases concerning compensation for damages for the victims, Eternit companies try as far as is possible to evade their responsibility. They hide behind arguments such as a lack of knowledge of the dangers, the fact that they have not broken state regulations (though they have of course exerted influence on these same rules) and lack of proof that their companies or products are the cause of asbestos-related disease.

At the very first court case in the Netherlands, in 1989, Eternit presented documentation from the SAIAC cartel as proof that in earlier years attention had been paid to asbestosis. The documentation in question took the form of a circular sent out by SAIAC in 1950, following a request from the Netherlands, where in 1949 a bill had been prepared dealing with silicosis, one passage of which dealt with asbestosis. The immediate cause was a case of illness at an insulation firm. The report of the ‘inquiry’ would reveal that the possibility of asbestosis occurring was nil, or so the director Mr Rijks asserted in a letter to other holders of interests in the industry.⁵⁴ It emerged from the documentation, however, that Eternit companies kept each other informed and that doctors in Germany had, as early as 1936 or 1937, pointed out that there was unmistakably a risk to health. Among the documents there is even a letter from Eternit Switzerland in which a case is mentioned of a worker who had died from asbestosis.

At further court cases in the Netherlands and elsewhere it is in addition often asserted that the various Eternit companies have no connection to each other and for this reason could not be expected to have had knowledge of a specific danger just because it might be known to another firm. As recently as 2003 Eternit Nederland was claiming that: ‘So by means of the purchasing of a licence companies came into being which all operated under the “Eternit” name, yet – except for this name – had nothing in common with each other. So, for example, the Belgian concern, to which Eternit in Goor belongs, is wholly independent from the Swiss “Eternit” company, in view of which the two firms have nothing in common bar their name.’⁵⁵

54 Letter of 22nd September 1950, received in trial papers. The case was instituted by the Socialist Party of the Netherlands on behalf of three asbestos widows.

55 Appeal procedure of Mrs A. Horsting versus Eternitfabrieken BV, Memorandum of objections of Eternit, 9th September 2003, point 4.2.

Spy

The increase in claims by victims is a source of concern for the Eternit corporations and their owners. They therefore keep an eye in addition on the activities of victims' groups and people across the world campaigning against asbestos. On 2nd October 2004 a meeting took place in Geneva of victims and activists from France, Switzerland and Italy at which also in attendance – uninvited – was a person who, it emerged, was a representative of Eternit Switzerland. When he was unmasked he turned out not to be prepared to say anything to the meeting. The representative from IBAS (International Ban Asbestos Secretariat) Laurie Kazan-Allen commented: "It is understandable that after avoiding its asbestos liabilities for so long, the Swiss Eternit Group is getting jumpy. Compensation for injuries contracted through hazardous exposures at Eternit's asbestos-cement factory in Casale Monferrato, Italy, and Eternit mines and factories in South Africa are being vigorously pursued. The floodgates are being pried open and Swiss asbestos victims are in the forefront of those eager to expose the misdeeds of this powerful corporation."⁵⁶

The conclusions of this study

This report demonstrates that the arguments employed by Eternit companies do not stand up to scrutiny. Chapter 2 shows that Eternit companies during the entire period of their existence have cooperated intensively, that they were linked by shareholdings, cartelisation and mutual ownership. A number of subjects, including the health risks and the strategy to be followed in order to limit regulation, were the subject of explicit coordination.

The argument that the health risks were not known is refuted in Chapter 3. Not only is it extremely unlikely that the companies were unaware of well-known medical publications, it emerges quite explicitly from documentary evidence that they were indeed conscious of the dangers.

Knowledge of the risks is also shown by the resolute way in which influence was brought to bear on the medical debate, the political decision-making process and the confidence of customers. This can be seen, for example, from the agreement between Eternit companies to avoid, for as long as possible, the use of the word 'cancer' on labelling.

From the moment that the unfortunate truth seeped out that asbestos is not only, technically speaking, a wonder-material, but also quite deadly, the industry exerted pressure on the authorities in order to prevent the passage of restrictive legislation or outright bans. This refutes the industry's later argument that it was the state which had been negligent. It was precisely the industry itself which systematically argued against interference from the public authorities and rigorously resisted a ban on asbestos.

From countless national and international documents it can be seen that the industry was at an early date well aware of the danger of inhaling asbestos fibres. Reaction to this knowledge was not an immediate search for alternatives. The industry's purpose for decades was, on the contrary, to interfere in the medical debate and play down the risks. Medical research remained, to the extent that the industry was able to influence it, extremely limited. Even investment in safety measures was postponed for as long as possible. When in the US and Europe the use of asbestos was no longer tenable, different internationally operating asbestos corporations continued to promote its use outside of these areas.

The various manufacturers maintained a relationship with each other through cooperation in the buying in of raw materials, through cartels such as SAIAC and in national employers' organisations, as well as, in later years, in international institutions whose purpose was to make propaganda, and in medical conferences. They kept each other informed and discussed tactics for the defence of their interests. They are, therefore, directly responsible for the tens of thousands of victims of asbestos who have already succumbed to one or another disease and the even greater numbers which, due to the long latency period of these illnesses, are yet to come.

56 http://www.ibas.btinternet.co.uk/Frames/f_ika_sec_sub_switz.htm

Asbestos cement firms were the most successful of asbestos-related concerns in continuing the use of asbestos in the industrialised countries. These firms were to a large extent in the hands of a small number of families who liked to conduct their business behind closed doors. They were able for many years to remain on the sidelines of the political debate on the health risks of their product, their motto being 'let sleeping dogs lie'. Throughout the whole of this time they were able to maintain the appearance that asbestos cement, because of the 'solid combination' of asbestos with cement was safe. The plain truth was rather that this combination was merely temporary, forming only one, limited phase of the production cycle between the mining of the raw material and the clearing away of the waste.

The longstanding practice of giving asbestos cement waste away for free for the paving of paths and yards, a practice which enabled the firm to escape the costs associated with more conventional dumping, demonstrates in a most distressing manner how indifferent the manufacturers were to the health risks and how hypocritical was their talk of a 'solid combination' of cement and asbestos which rendered the latter harmless.

More attention ought to be afforded to the tragic lot of the people in all those countries where no ban on asbestos is as yet in force. In many countries the owners are able to sell up or close down and then clear out without having to concern themselves with the consequences which their commercial activities have had for people or for the environment. Eternit Belgium continued even as late as 2004 to promote its product in other parts of the world while in a number of European countries, including Belgium itself, it was already banned. This double standard has saddled these firms with a heavy responsibility.

For decades the trade in asbestos cement was extremely profitable. Large amounts were also earned through the sale of companies, or shares in companies, in countries where no ban was as yet in force and the new owners could continue on the basis of 'business as usual'. The most influential families earned fortunes and remain to this day millionaires. This is most true of the Belgian manufacturing family Emsens, which should surely make good, in financial terms, the harm they have caused. They were the last of all to give up asbestos and have to a very large extent backed out of accepting any liability.

Victims chase shadows

'If you tackle the undertakings country by country, they slip through your fingers. They are often subsidiaries of multinationals; it's child's play simply to delocalise or, if necessary, declare bankruptcy. The victims chase shadows and the country in question is left with enormous environmental pollution... The communities of miners live in extreme poverty. Many are poisoned at an early age and die in their forties from asbestos-related cancer, leaving behind a young family with no income and no future. Often such a family lives in a company house which they will also be deprived of.'

Richard Spoor, *De Tribune* (Socialist Party of the Netherlands monthly magazine), May 2002.

From the moment that the health risks became evident the manufacturers began to use the threat of unemployment to defend their position. The public authorities, trade unions and many others – even the workers themselves – were for a long time sensitive to this argument. What was in fact overlooked was the longstanding reluctance of asbestos cement firms such as Eternit to seek alternatives to asbestos or indeed to use one of the alternatives which was already available. The unemployment argument can only thrive in an economic climate characterised by high unemployment and where people are afraid of poverty. That is why early in the last century workers from abroad could be attracted to relatively developed countries to do work which was dirty and dangerous. Once these workers had gone home, nothing more would be heard of the state of their health. The production of asbestos cement reached its highest level in the '60s and '70s, when in most western European countries there was no

thought of unemployment. It was not employment but profitability which provided the motive to continue with this production, despite the breakthrough during these years in understanding of the dangers of asbestos.

The authorities

The public authorities in the Netherlands, in particular the Ministry of Economic Affairs, played a reprehensible role in promoting the interests of a number of major undertakings. In the core countries of the four families which dominated holdings in Eternit companies - Switzerland, Belgium, France and Austria – this was even more starkly the case. The reluctance shown by politicians to allow the public health interest to prevail over that of the profits of asbestos cement corporations has burdened the Dutch state with a heavy debt. This means not only that the state has an extensive duty towards the victims within our country – and the same goes, of course, for every other country which has been touched by these events – but also that the public authorities are charged with the task of clearing up the gigantic legacy left behind by asbestos.

In addition the state has the ever more urgent task of compiling a complete inventory of asbestos-contaminated buildings, dwellings and land, and of decontaminating them. The state must in this respect take both the organisational and the financial lead. Each year that the authorities delay, the problem grows greater, both in terms of the number of victims and in relation to the costs involved in decontamination.

Holding those liable who are in truth responsible for the harm done to human beings and the environment is of direct interest to the people and countries involved. But at the same time it can send a message to all those corporations in countries which have not yet instituted a ban, to get out of asbestos, quickly and of their own volition.

Recommendations

On the basis of this investigation the authors would make the following four recommendations:

- 1 The government and state authorities in each country should conduct a complete national inventory of the presence of substances and materials containing asbestos in buildings and in the soil.
- 2 Following this inventory a systematic decontamination should take place. The costs associated with the decontamination of the soil around the Eternit factory in Goor and the former Asbestona factory in Harderwijk must, mindful of the vision of EU ministers that ‘the polluter pays’, be charged to Eternit Netherlands. The same principle must, of course, be applied in other member states where this problem exists and, given that ‘the polluter pays’ is now recognised internationally as plain justice, anywhere in the world where asbestos decontamination is needed.
- 3 All victims of exposure to asbestos have the right to full compensation for damages. The state should pay such compensation in the form of an advanced payment and then pursue those responsible in order to recover the costs.
4. A parliamentary enquiry should be established into the use of asbestos in the Netherlands and the consequences of such use in the broadest possible sense. Other countries should establish equivalent procedures according to their own laws and customs.

Reading List

Books and reports

- BGBouw, 1982. Inventarisatie Asbestcement-materialen in de bouw
- P.J. Biesheuvel, J.F. Buurmeijer en P.H.J.J. Swuste, Asbest van Goor naar Hof van Twente, in opdracht van de gemeente Hof van Twente, 2003.
- Binder, C., 1975. Die Asbestzementindustrie. Dargestellt an einem bedeutendem Österreichischen Unternehmen.
- Brandi, O.H., Eternit AG. 1963. Eternit-Handbuch
- Catrina, W. 1985, Der Eternit-Report, Stephan Schmidheiny's schweres Erbe
- Castleman, B., 1995. Asbestos: medical and legal aspects, 4de ed.
- Dallermassl, M., 1989. Ein Unternehmen im Wandel von neun Jahrzehnten – Die Eternit-Werke Ludwig Hatschek AG
- Eternit Kapelle op den Bos, Eternit 1905-1980
- Eternit Niederurnen, 1994. Geschichte der Eternit AG seit ihrer Gründung im Jahre 1903
- Eternit-Vöcklabruck, 1956. Festnummer der Zeitschrift der Eternit-Werke Ludwig Hatschek.
- Eternit Nederland, 1984, Aantekeningen Eternit B.V. bij brochure 'tien jaar hetze (?) tegen asbest'
- Gresea, 1979. [Eric Callier, Jean-Luc Ivens, Jean-Pierre Vercruyssen] Etude du secteur de l'asbeste-ciment
- Heerings, H. 1999. Asbest tot in de vezels van de samenleving.
- Hoepflinger, F., 1980. Das unheimliche Imperium
- IARC, 1977. Monographs on the evolution of carcinogenic risk of chemicals to man. Asbestos, vol 14, conferentie Lyon, 1977
- Industriebond NVV, Industriebond NKV, 1976. 1ste en 2de rapport van een onderzoek naar de gevaren van het werken met asbest bij Eternit te Goor
- Industriebond FNV, 1984. tien jaar hetze (?) tegen asbest
- Iselin, F., 1983. Asbest und Profit
- Lepoutre, J. 1986. Chronische gevaren van asbest
- McCulloch, J. 2002. Asbestos Blues, Labour, Capital, Physicians and the State in South Africa
- MilieuAlarmteam SP, 1990. Asbest doodt. Komt er een algeheel asbestverbod?
- MilieuAlarmteam SP, 1992. Asbest in de 'Hof van Twente'
- Ministerie van Volksgezondheid en Milieuhygiëne, 1980. Asbest en Milieuhygiëne
- Monopoly Commission, The. [House of Parliament, London] 1973. Asbestos and certain Asbestos Products
- Mulder, V., 2002. Twente Asbestvrij
- Neufert, E., Von Flotow, P., 1959. Well-Eternit Handbuch

Shepherd, W.W.F., 1933. On visit to U.S.A. and Canada, 6th June 1933 to 1st July 1933
 Shepherd, W.W.F., 1938. On visit to U.S.A. and Canada, 15th October 1938 to 23th November 1938
 Staub, Hans O., 1994, Von Schmidheiny zu Schmidheiny
 Stockman, T., 1992. Het management van distributiekkanalen: gevalstudie Eternit
 Stumphius, J. 1969. Asbest in een bedrijfsbevolking
 Swuste, P., Burdorf, A., Van Vliet, L., 1985. Asbest, de vervanging van het magische materiaal
 Swuste, P., Burdorf, A., Klaver, J., 1988. Asbest, het inzicht in de schadelijke gevolgen in de periode 1930-1969 in Nederland
 Tweedale, G. 2003. Magic Mineral To Killer Dust, Turner & Newall and the Asbestos Hazard, 2de ed.
 CRISP 1962. Morphologie des groupes financiers, 1ste ed.
 CRISP 1966. Morphologie des groupes financiers, 2de ed.
 CRISP 1972. Répertoire permanent des groupes financiers et industriels, 1ste ed.
 CRISP 1976. Répertoire permanent des groupes financiers et industriels, 2de ed
 CRISP 1982. Répertoire permanent des groupes d'entreprises
 Wetenschappelijk Bureau SP, 1995. Asbest: de dubbele lijdensweg
 WHO, [P. Bogovski, V. Timbrel, J.C. Gilson, J.C. Wagner] Lyon, 1973. Biological Effects of Asbestos

Periodicals and articles

AC Revue, kwartaalblad Eternit
 Asbestos, kwartaalblad asbestindustrie
 Burdorf, A., Swuste, P., Looman, C. 1998. Estimating the future developments in mesothelioma mortality due to historical asbestos use and its consequences for public health. In Current Asbestos Issues. Volume 18 of the Sourcebook on asbestos diseases
 Burdorf, A., Dahhan, M., Swuste, P.H.J.J., 2004. Pleuramesotheliom bij vrouwen in verband gebracht met milieublootstelling aan asbest; Nederlands Tijdschrift voor Geneeskunde 148 (35); p 1729-1731
 Burdorf, A., Järholm B., Englund, A., 2004. Explaining Differences in Incidence rates of Pleural mesothelioma between Sweden and The Netherlands. In Int. J. Cancer: 113, 298-301 (2005)
 Eerste Nederlandsche Fabriek van Asbestcementplaten 'Martinit', jaarverslagen over 1917-1928
 Egilman, D. e.a., Exposing the 'Myth' of ABC, 'Anything but Chrysotile': a critique of the Canadian asbestos mining industry and McGill University Chrysotile Studies: American Journal of Industrial Medicine: 540-557 (2003)
 CRISP, knipseldocumentatie
 Eternieuws, 1971-1982
 Eternit België, jaarverslagen over 1965-2002
 Eternit Nederland, jaarverslagen over 1932-1959
 Francois E., Hecke, A. van., 1929. Les tubes en éternit. Extrait du Bulletin de la Société Belge des Ingénieurs et des Industriels, Tome IX, nr 6
 Greenberg, M., Cape Asbestos, Barking, Health and Environment : 1928-1946, American Journal of Industrial Medicine 43 : 109-119 (2003)
 Handelingen Tweede Kamer der Staten Generaal
 International Journal of Occupational and Environmental Health, 2003-3, 2004-1, 2004-2
 Korff de Gidts, J., Swuste, P.H.J.J., Vier asbestmultinationals. Risikobulletin 1981; 3 (3) : 7-9
 Knipsels dag- en weekbladen Nederland
 Natuur, De, 15 november 1924
 Oss, S.F. van, Effectenboek, meerdere jaargangen tussen 1916 en 1962
 Peto, J., Hodgson, J.T., Matthews, F.E., et al., Continuing increase in mesothelioma mortality in Brittain. Lancet 1995; 345: 535-9
 Peto, J., e.a. The European Mesothelioma Epidemic, British Journal of Cancer 79 (Feb. 1999), 666-72
 Toestanden, Socialistisch theoretisch Tijdschrift [België] jg 1, aug 1981. Derde Wereld en technologie-

transferten: het geval Eternit

Tribune, maandblad SP [Nederland]

Turner & Newall Ltd, Jaarverslagen over 1928 en 1929

Tweedale, G., Science or Public relations?: The Inside Story of the Asbestosis Research Council, 1957-1990, *American Journal of Industrial Medicine* 38 (2000), 723-734

Wetsontwerp Wijziging wettelijke regeling betreffende het voorkomen en bestrijden van silicose en andere stoflongziekten; 16 december 1949, *Handelingen Tweede Kamer der Staten Generaal*, bijlagen 1949/1950, nr. 1507, 1-3

Documents

Documenten Cannerberg-affaire

Documenten Havenschap Vlissingen, 1969

Gresea diaserie, 1979. [Jean-Pierre Vercruyssen, Paul Busschots] Een buis voor de 'Derde Wereld' IACA 2004. De vervuiler betaalt, [teksten Internationaal Asbestcongres Amsterdam]

Processtukken, zaak Horstink/Eternit, 2003, 2004

SAIAC, Niederurnen, 1950. Documentatie Asbestose voor Eternit Nederland

Simpson Committee, Selected written evidence submitted to the Advisory Committee on Asbestos, 1976-77 [Engeland]

Abbreviations

GRESEA = Groupe de Recherche Pour une Strategie Economique Alternative, Brussels

CRISP = Centre de Recherche d'Information Socio-Politiques, Brussels

IARC = International Agency for Reseach on Cancer

WHO = World Health Organisation