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Historically the burden of industrial pollution has reached the developing world much faster than the fruits of industrial growth," writes Dr. Sanjay Chaturvedi. This statement is well illustrated by the evolution of the asbestos industry in India. In the frantic rush for economic development, there has been a pervasive lack of concern for the health of workers and the contamination of the environment. Sacrificing the lives of the few for the "good" of the many, the Indian Government has knowingly colluded in this sad state of affairs.

"It cannot be disputed that no development is possible without some adverse effect on the ecology and environment ... The comparative hardships have to be balanced and the convenience and benefit to a larger section of the people has to get primacy over comparatively lesser hardship."¹

Elected representatives and civil servants have been encouraged to turn a blind eye to "Dickensian" working conditions thereby exposing generations of workers to the debilitating and deadly diseases caused by asbestos.²

Research conducted for this monograph has revealed that between 1960-2006, 6.7 million tonnes of asbestos were used in India;³ although data is unavailable for 2007-2008, based on figures from 2006, it is not unreasonable to estimate that cumulative asbestos consumption in India between 1960-2008 will exceed 7 million tonnes.⁴ As there is no safe level of exposure to asbestos and as even minimal precautions have been lacking, phenomenal numbers of workers have received hazardous exposures. The fallout from India's asbestos mining and processing will be measured in lives lost, communities blighted and infrastructure contaminated. National and state governments in India maintain a stony silence on the collateral damage caused by the widespread use of asbestos; virtually nothing has been done to quantify the effects of environmental pollution in the wider community. The objective of this monograph is to give the people working on these issues the opportunity to present the evidence they have collected; the papers which follow constitute a damning indictment of a government that has prioritized the interests of the corporate sector above all else.

Decades of Economic Growth and Hazardous Exposures

Things could have been very different. India's commercial exploitation of asbestos began in earnest in the 1970s. Over the next 30 years, national usage grew by nearly 300%. That this industry was allowed to flourish at a time when the occupational, environmental and domestic hazards of asbestos exposure were firmly established is scandalous; that the Government of India made no attempt to track the health effects of asbestos use on at-risk workers is unforgivable. Companies like Turner & Newall, Hindustan Composites, Visaka Industries, Eternit Everest, Hyderabad Industries, Utkal Asbestos, Ramco Industries and others

have profited from the manufacture of asbestos-containing products in India. As the authors of the prefaces which precede the introduction point out, employers did not inform their workforces of the nature of the raw material they were handling; neither did they provide protective clothing or equipment. The situation in asbestos textile manufacturing is described as follows by Ravindra Ganpat Mohite: "company officials did not tell us anything about the dangers of asbestos or safety measures that we need to take to protect ourselves from exposure."

In the power stations things were no better according to Mangabhai N Patel:

"When I joined the company, I and my co-workers had no knowledge of asbestos or its effect. No one ever told us anything about it. Certainly the company did not... The company never gave us any training for safety or protection."

Despite the reassurances of industry stakeholders that asbestos is being used "safely under controlled conditions," living with asbestos in India is a "dangerous existence" according to the paper by Anup Srivastava and Vipul Pandya; these authors highlight the risks to "millions of construction workers who may be exposed during maintenance, renovation and demolition activities in buildings that contain asbestos." P. Madhavan's graphic photographs confirm that hazardous conditions continue in today's workplaces while Nick Clarke's discussion of the fallout from the increasing use of asbestos-cement roofing material in India leaves the reader in little doubt as to the capacity this material has to liberate fibers in domestic settings, especially urban slums.

The Indian Government has been guilty of malign neglect in its failure to act on the asbestos hazard. Long after the health consequences of occupational exposure were known, asbestos dust counts of up to 15f/cc were recorded at Hindustan Ferodo, a British-owned company that produced asbestos textiles, jointings, millboard and brake linings in Mumbai (1978). Footage of this factory which appeared in a landmark television documentary showed clouds of asbestos dust emanating from the plant "contaminating the streets and railway tracks around the factory." A factory worker described extremely dusty conditions in the carding department: "while the machines were in operation the dust would fly and at the moment they were stopped, they would sweep out the dust and collect it to one side, with their hand... the naked hand. Just be swept up."

In the "golden corridor" of Gujarat State, occupational exposure to asbestos has been a routine occurrence for decades in a multitude of industrial sectors: power generation, ship-breaking, production of cement, insulation, chemicals, pharmaceuticals, friction materials and safety equipment. Examples of ignorance and superstition emanating from this situation are legendary such as the comment by one Chief Inspector of Factories who said that workers in Gu-

"while the machines were in operation the dust would fly and at the moment they were stopped, they would sweep out the dust and collect it to one side, with their hand... the naked hand. Just be swept up."

Mumbai factory worker

jarat were immune to asbestos: "Had it not been so," he said "large numbers of workers in Gujarat would have died of asbestos looking at the poor work conditions in Gujarat." State officials believe that Gujarat residents receive divine protection: "God is here in Gujarat... (if workers and industry) believe in God, trust in God and work with God, then production, health and safety would be in a good condition." In her paper "Monitoring" *Environmental Pollution and Asbestos Exposure in Gujarat*, Dr. Linda Waldman explains:

"Having spirituality means that, even if unsafe conditions prevail, the workers will be 'well aware' and accidents will not happen. Telepathy and sensors in their bodies will enable workers to guess that something is going to happen and to take preventative action. Following this line, some State doctors argue that the majority of illness is psychosomatic and stems from the stressful conditions workers experience. But if they can achieve a mental balance and supreme energy from their spirituality, then they will be in a much better position to deal with this. Termed 'Disaster Management with a new and unique approach,' this approach means that workers are themselves to blame for their illness and therefore should seek compensation through their beliefs and increased religious piety."

If one were to subscribe to the religious technique of disaster management as described previously, then faith must be lacking in the country's ship-breaking yards as asbestosis is rife amongst the workforce, many of whom "are migrant and casual workers driven by poverty to the Alang yards." India has attracted widespread condemnation for its willingness to import hazardous waste contained on board redundant ships, such as the Blue Lady and the Riky. By doing so, they not only expose ship-breaking workers and their families to a cocktail of toxins including asbestos, PCBs and radioactive waste, but also jeopardize the health of local people such as the 30,000 villagers in Gujarat's Bhavnagar district who have the misfortune to live in close proximity to Alang.

Miners and workers from asbestos processing units and factories in Rajasthan and Maharashtra have elevated levels of asbestosis and obstructive lung disease from occupational asbestos exposures. As described in the paper *Health Hazards Due to Asbestos Exposure in India*, Dr. Qamar Rahman observed the use of obsolete technologies, a total lack of protective clothing or equipment, poor housekeeping practices and "little concept of the proper disposal of asbestos waste" at workplaces she inspected whilst conducting a survey for the Central Pollution Control Board.

Medical Failures: Ignorance Compounded by Bias

India's medical community has not covered itself in glory in its treatment of patients with asbestos-related disease. According to Dr. Murlidhar:

"'Occupational Health' is taught as part of the much-maligned subject of Community Medicine, and students rarely have access to standard ILO radiological plates, mandatory for asbestosis diagnosis, even in the top medical colleges... there is no postgraduate degree on occupational health available at any of the major medical colleges... Consequently, even a first-ranking radiology physician, lacking the expertise to diagnose asbestosis unambiguously, may

be compelled to certify an X-ray as normal when it is not."

In Gujarat this certainly happens, as shown by a case reported by Jagdish Patel in his paper *The Struggle against Asbestos-Related Diseases in Gujarat*. Workers with suspected asbestosis were adjudged to be able-bodied by the Employees State Insurance Corporation (ESIC),⁵ a contributory health insurance scheme tasked with treating and compensating injured workers. When asked by the Supreme Court to clarify the criterion used to arrive at this finding, an ESIC spokesman explained "that since they had neither expertise nor any equipment to diagnose asbestosis, they issued 'fit to work' certifications." The failure of medical professionals to issue asbestos-related diagnoses, which constitutes a major roadblock to victims' attempts to obtain compensation from negligent employers, is due to multiple factors including class bias and pressure from industry and/or government to downplay the incidence of occupational illnesses by misdiagnosing asbestos-related diseases as tuberculosis or bronchitis.⁶

Company screening programs consisting of periodic X-raying of selected parts of the workforce did nothing to safeguard workers' health. Test results and health reports were nearly always withheld from workers. As far as one employer was concerned (Turner & Newall), the results of the X-rays were considered "the property of the management." In his paper, Dr. Tweedale relates the story of one Indian chest physician who:

"recalled reviewing Hindustan Ferodo films in the late 1980s and found that up to nearly a third had lung damage consistent with asbestos exposure. When he tried to take it up with the company he was told his diagnoses were wrong. It was reported that court action against the company had been totally ineffectual."

Discussions with workers from the Hindustan Composites factory were reported by Dr. Rakhil Gaitonde and Madhuma Dutta who confirmed the futility of corporate medical check-ups:

"chest X-rays and medical examinations were performed every year, they (workers) were never told of the significance of these procedures, nor were they given any results. They told us that in the early days (1960s and 1970s) chest X-rays were done even every six months and for every one without fail, but as time went by especially after the 1990s, the whole system became haphazard; if you were not present on the given day you might go without an X-ray for the entire year. It seems that the company was providing the X-ray facility to satisfy bureaucratic demands – not out of any genuine concern for the workers' health."

So much for in-house corporate healthcare at asbestos factories.

Information Black Hole: No One Knows, No One Cares

It is hard to believe that in a country with such a sophisticated judicial system, where public interest litigation to establish the rights of asbestos workers can be brought before the Supreme Court, the lack of data on asbestos-related diseases can be anything other than intentional. As Dr. Sudhakar Kamat reports in his paper *Asbestos-Related Disease in India*:



"Although mesothelioma and asbestos-related lung cancer are recognized around the world, in India neither one of these diseases is commonly reported. This is not surprising as in India, cancer is not a notifiable disease. While there are some regional cancer registries, poor data collection and inadequate death certificate registration combined with other factors result in a spectacular underestimate of asbestos-related cancer. According to data from regional cancer registries in India, between the years of 1993-1997 there were a total of 56 mesotheliomas."

As there is a powerful interaction between exposure to asbestos and cigarette smoking in the causation of asbestos-related lung cancer and as there are 120 million smokers in India, the continued use of asbestos, an acknowledged carcinogen, is no doubt contributing to a massive loss of life in India.⁷

In his discussion about *The Difficulties in the Diagnosis of Asbestosis in India*, Dr. V. Murlidhar points out that:

"Like many chronic occupational diseases asbestosis exists in a climate of uncertainty, concerning exposure controls, diagnoses and assessment of disability. Exposure limits and disability assessments are often influenced by socio-political factors, while reliable diagnoses depend on access to suitable diagnostic tools and appropriate training of clinicians. There is frequently uncertainty about the precise source of asbestos exposure, and about the nature and speed of the disease processes – despite the public perception that medicine is an exact science. This uncertainty is compounded by the lack of a clear regulatory framework and the lack of understanding among concerned parties about the limited legal regulations."

If those who contract these diseases are not counted, does their suffering count? Does anyone care about them or the bereaved families they leave behind? That former employers don't care can be surmised by their failure to pay compensation; that the government doesn't care is evinced by its failure to even acknowledge their existence.

Compensation Process: Too Little, Too Late!

Despite High Court rulings, Supreme Court orders, grassroots campaigning and detailed legislation, obtaining compensation for an asbestos-related disease in India requires the stamina of an Olympic athlete and the patience of a saint; qualities lacked by people experiencing shortness of breath and severe pain on a daily basis. Overcoming the formidable hurdles to obtaining an accurate diagnosis however is child's play compared to surmounting the barriers blocking access to compensation. Successful claimants are few and far between; those who manage to navigate their way through the system receive paltry sums:

- ◆ Rs 10,000 (then around \$800) in 1984 for the death of Sri Dhiraj Sonaji, a worker in an asbestos-cement factory;
- ◆ Rs 170,000 (\$4,250) paid by instalments of Rs 10,000 in 1997 and Rs 160,000 in 2008 to Mangabhai Patel, a former power plant worker incapacitated by asbestosis;
- ◆ Rs 150,000 (then \$4170) in 1996 to the daughter of the late Kishan Goplani, who had worked at the Ahmedabad Electricity Company.

In Gujarat, the ESIC has compensated eight individuals for asbestos-related disease, all of whom were workers at Digvijay Cement; not one claim for these diseases has been paid out in Gujarat under the Workmen's Compensation Act. The intransigence of asbestos companies when it comes to compensating those they have injured is well known. The Manager of the Ghatkopar plant of Hindustan Composites wrote to a trade unionist:

"the conclusions drawn by you, that workmen listed are affected by asbestosis are far fetched, not supported by sound medical inferences and are with certain motives.... The company has qualified Medical Practitioners for regular check ups and maintains the records as per the rules and regulations as laid down by the Directorate of Industrial Safety & Health."

The Fix is In: Industry Control of the National Asbestos Debate

The economic interests of India's asbestos industry are furthered by strategies well-honed by international tobacco companies, including the use of industry propaganda, the commissioning of junk science masquerading as "scientific research" and personal and professional attacks on critics. It is ironic that even as big tobacco provides a role model for asbestos moguls, the synergistic effect of combining tobacco and asbestos is condemning many Indians to an early grave. A sustained and nationwide disinformation campaign designed to protect the asbestos sector from adverse publicity and unwelcome regulation has been ongoing for decades. Turner & Newall, the British-owned company which "led the way" in opening up asbestos markets in India, drew on its experience at home to advise company officials in Mumbai (1937) not to introduce dust control in the factory as to do so might create suspicions: "once the word gets around that asbestos is a dangerous occupation, it may seriously affect our labor force at some future date."⁸ As in the UK, Turner & Newall executives lied to factory inspectors in order to "avoid tiresome regulations and the introduction of dangerous occupation talk." The depth of concern asbestos executives had for their workers is revealed in a statement made by T&N's Chairman Ralph Bateman in 1971:

"in many of these (developing) countries the life expectancy is so low... that the question of the very, very small risk of mesothelioma that may exist in exposure to asbestos in some situations, is totally outweighed by the contribution that asbestos pipe and other products can make..."

Canadian asbestos exporters to India agreed that the risks to Indian workers could be ignored. In 1982, Daniel Perlestein, President of the (Canadian) National Asbestos Society (Société Nationale de 'Amiante) said:

"The question of health does not appear to be a concern in some countries where life expectancy is only 35... most people die by age 35 of other causes than old age or of a cancer that takes 35 or 40 years to grow."⁹

The well-resourced and unfettered public relations campaign mounted in India by asbestos stakeholders has provided fruitful material for several authors in this monograph:



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President of the (Canadian) National Asbestos Society

- ◆ Dr. Sanjay Chaturvedi describes a 2003-2004 media blitz-krieg by the asbestos lobby which included special supplements, “news stories,” full page features and advertisements in magazines and national newspapers such as The Indian Express exonerating chrysotile asbestos;
- ◆ Madhumita Dutta presents a detailed analysis of current attempts by industry to sabotage government research into the health effects of exposure to asbestos; she categorizes the continuing use of asbestos in India as a “Crime Against Humanity”;
- ◆ Dr. Richard Lemen deconstructs current global asbestos propaganda initiatives describing them as “smoke and mirrors... illusion and confusion but not fact”; he dissects the epidemiological and scientific flaws in the ongoing attempt in India to “whitewash the effects of chrysotile asbestos,” citing factual errors, inappropriate methodologies, incorrect sampling techniques and unrepresentative cohorts.

Betrayal of Civil Society by the Political-Industrial Establishment

In developed countries, you can't even give asbestos away nowadays; there are laws which prevent society's use of this poisonous substance.¹⁰ To absorb the fall in global demand for chrysotile, asbestos pushers have aggressively targeted consumers in countries with booming economies and lax health and safety regulations. They found a ready market in India as well as ruthless entrepreneurs willing to exploit a substance regardless of the potential harm it poses.

India's asbestos lobby, coordinated by the Asbestos Information Centre (AIC) and the Asbestos Cement Products Manufacturing Association, has plenty of money to throw around; business is, after all, booming as evinced by a steady increase in national chrysotile consumption. Working with stakeholders at home and abroad, asbestos events are planned and initiatives are mounted to convince Indian officials and consumers that chrysotile is indispensable; the fact that safer alternatives are available, as discussed in Nick Clarke's paper: *Potential Health Hazards of Asbestos Cement Roofing for India's Poor*, is consistently denied by vested interests. Links between Indian asbestos trade associations and their international counterparts were uncovered by Canadian emails and briefing documents obtained in 2002 by researcher Ken Rubin under the Canadian Access to Information Act:

“Over the past decade, the (Canadian) Asbestos Institute in cooperation with the Indian Asbestos Information Center (AIC), a member of the Asbestos International Association which represents the interests of the asbestos industry worldwide, has been very active in promoting and ensuring the safe use of chrysotile asbestos in India.”¹¹

The “Rubin dossier” contains details of a meeting between Brigadier Sethi of the AIC and Martin Barratt, Second Secretary (Commercial) of the Canadian High Commission in India in New Delhi on October 8, 2002:

“I met with Brig. Sethi of the Asbestos Information Centre this afternoon. We discussed AIC participation in the workshop on November 11 or a separate get together on Novem-



ber 12. Do you have any further information on whether Mine Jeffrey or LAB (Canadian asbestos mining companies) are participating in this mission? The AIC membership is meeting this Friday (Oct. 11) and Sethi will gauge interest in setting up one on one meetings for the 12th. I also advised him that some of the delegation will be in Hyderabad or Kolkata and he will inform me of interest in those cities as well.”¹²

The Canadian files document steps taken by Canadian chrysotile suppliers to influence India's asbestos debate:

“Since the Indian market is well known by LAB and the client base well established, these dinners are not expected to result in additional business. What is essential at this time is to ensure continued market access for chrysotile asbestos. As you know, the Indian iron and steel industry as (sic) been undermining the continued use of chrysotile asbestos cement products in the wake of the European asbestos ban. The (Canadian) Minister's presence in India gives us the opportunity to reinforce the Indian government's resolve to pursue the controlled-use of chrysotile asbestos.”¹³

Canadian enthusiasm for cultivating a close relationship with allies in India is easily explained:

"After remaining in second place for a number of years, India overtook Japan to become Canada's most important chrysotile asbestos export destination in 2001. These exports were valued at \$30 million and represented 20% of Canada's asbestos shipments."¹⁴

In 2005, Canadian chrysotile asbestos exports to India were worth \$30.3 million and represented 33% of Canada's asbestos exports; Thailand, Canada's second biggest customer, only accounted for 13% of sales. UN trade figures for 2006 show a 90% increase in Canadian chrysotile exports to India, making it India's second largest supplier, after Russia.

Out of Step with the Global Consensus on Asbestos

Contrary to the pro-asbestos Indian Government which has lowered import duty and eased trading restrictions on asbestos in recent years, international agencies such as the World Health Organization and the International Labor Organization are actively working towards the elimination of asbestos use and the imposition of restrictions on global trade.¹⁵ On February 21, 2002 the United Nations Environment Program announced that "all forms of asbestos should be added to an international list of chemicals subject to trade controls."¹⁶ Unfortunately, on multiple occasions delegates from India have vetoed efforts to designate chrysotile asbestos as a hazardous chemical under the Rotterdam Convention.¹⁷ By doing so, they have prevented the implementation of a protocol designed to ensure that importing countries in the developing world are fully informed of the hazards of toxic chemicals, such as asbestos, and pesticides.

During the discussion (2004) on including chrysotile on the Prior Informed Consent (PIC) list of the Rotterdam Convention, Ramesh Inder Singh, the spokesman from India, said:

"We have studied this issue during the past twelve months with an 'open mind' and are not convinced that the opinion of putting chrysotile on the PIC list is correct... More time is needed to dwell on this issue... We oppose inclusion."

In a subsequent discussion (2006), India's representative to the Conference of Parties (COP3) alleged that the science was not "categorical," and that experiments had not been done on the hazards of "pure chrysotile."¹⁸ "We are," he told delegates in Geneva "undertaking several studies on the hazards of pure chrysotile. We strongly support the position of Canada": i.e. India does not support the listing of chrysotile. As all decisions under the Rotterdam Convention must be unanimous, the 2006 veto by India, and 5 other parties to the convention, resulted in a stalemate; even though 95% of the parties supported inclusion, no action could be taken. COP3 opted to defer any decision on chrysotile until October 2008 when COP4 meets in Rome.

Having relied for so long on the supposed absence of information and "inconclusive science" as their excuse for blocking the listing of chrysotile, in the run-up to COP4, In-

dia, Ukraine and Canada undertook "new research" on the health effects of chrysotile. The Indian study is thoroughly discredited in the papers written for this monograph by grass-roots activist Madhumita Dutta and Dr. Richard Lemen, former Assistant Surgeon General of the U.S. The Ukraine study is contained within a skimpy 32 page booklet titled: *It (sic) is possible to use chrysotile asbestos safely?* This flimsy piece of industry propaganda concludes:

- ◆ "(the) cancer risk for chrysotile workers is greatly exaggerated..."
- ◆ "not a single asbestosis case was identified by medical examinations conducted during our study..."
- ◆ "in our study, neither clinical nor epidemiological data ever confirmed occupational cancer cases in asbestos-cement workers in Ukraine..."
- ◆ "The results of our study demonstrated that it is feasible to control asbestos-containing dust levels at the Ukrainian asbestos-cement plants as well as to implement effective prevention measures to reduce the risk of asbestosis and other asbestos-caused diseases including cancer."¹⁹

The study commissioned by Health Canada was born in secret and remains shrouded in mystery. Although designated experts met in Montreal on November 13 & 14, 2007 "to share expertise at the Chrysotile Asbestos Expert Panel: Characterising the Toxicity of Chrysotile Asbestos"²⁰ six months on their findings have not seen the light of day. Responding to a parliamentary question tabled by Canadian MP Pat Martin on April 3, 2008, the Minister of Health would only confirm that "the Panel has completed its work."

Concluding Thoughts

India has one of the wealthiest economies in the developing world; it is predicted to become the third largest economy by 2035. International banking expert Shiv Khazanchi describes the country's expansion as "rocketing," adding that "the number of wealthy resident Indians is the fastest growing in the world." The collective wealth of India's 36 billionaires is estimated at \$191bn. The number of individuals with bankable assets in excess of \$1 million is currently growing by 30% per year and is predicted to reach 300,000 by 2012 (from 120,000 in 2007).²¹ In the words of Journalist Vicky Nanjappa: "India is becoming a country of millionaires."²²

The asbestos spectre hovers over this economic boom as an uninvited wedding guest. While shareholders and asbestos company executives reap the benefits of increasing sales in a market skewed by political favoritism, at-risk workers and consumers of the "poor man's roofing material," gamble their health and that of their families on a daily basis. If, as Nick Clarke says, "India is to develop a stable and growing economy so that all of its citizens might prosper... (it) must respond to the issues generated by the asbestos debate." Failure to do so could have dire consequences for millions of people.

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