**Research on Chrysotile Asbestos: Failure of Ethics by National Institute of Occupational Health and National Human Rights Commission**

**Dr Gopal Krishna\***

**Abstract:** The pre-condition of pursuit of the good is that there must be a notion of what counts as ethically good in research and what is ethically appropriate action and right conduct. Department of Chemicals and Petrochemicals, Ministry of Chemicals and Fertilizers had entrusted National Institute of Occupational Health (NIOH), Ministry of Health and Family Welfare to carry out a study on Health Hazards/Environmental Hazards resulting from the use of Chrysotile variety of Asbestos in the country. The application under Right to Application Act revealed that this was co-sponsored by asbestos industry. This has been admitted by two ministries in the Parliament. National Human Rights Commission (NHRC) relied on this admittedly conflict of interest ridden study to decline action. The paper will point out specific instances of unethical practice by both NIOH and NHRC. The paper will point out the improprieties in the research, which financed by the chrysotile asbestos cement industries association. It will examine the ToR of the study and the proceedings of the NHRC. The paper will share its findings based on the scrutiny of the relevant official documents about the necessity of strict adoption of Conflict of Interest Guidelines by research institutions like NIOH and public institutions like NHRC. The relationship between the case in question and the principle of right conduct will be inferred.

**Introduction**

In Consumer Education and Research Centre Vs Union of India case, the petitioner had applied for remedial measures to fill in legislative gaps, to require mandatory compensation for occupational hazards and diseases or death to employees in 1986. The petition prayed for adequate mechanisms for diagnosing and controlling asbestosis and for award compensation to those suffering from asbestos related diseases (SC, 1995)[[1]](#footnote-1). The Supreme Court granted relief in the context of ongoing ban on asbestos world over. The government agencies like Directorate General, Factory Advice Service and Labour Institutes (DGFASLI) took note of Prevalence of Asbestosis and Related Disorders in an Asbestos Fiber Processing Unit in West Bengal as early as in 1996 (DGFASLI, 1996)[[2]](#footnote-2). By now it has been conclusively established that all forms of asbestos (chrysotile, crocidolite, amosite, tremolite, actinolite and anthophyllite) are carcinogenic to humans. The exposure to asbestos causes cancer of the lung, larynx, and ovaries, and also mesothelioma (a cancer of the pleural and peritoneal linings) (NHP)[[3]](#footnote-3). There is no possibility of its safe and controlled use. It has not been possible for all the countries which have banned it.

While passing the judgment in the CERC case, the Court directed all asbestos factories to keep the health records of their workers for 40 years and/or 15 years after their retirement. The second significant direction was the Government of India and the state governments have to mend their rules and regulation as per the resolution of International Labour Organisation (ILO). It also directed that a compensation of Rs 1 lakh be paid to the asbestos victims.  ILO has developed international standards and guidelines to contribute to the elimination of asbestos-related diseases worldwide following its resolution concerning asbestos of all kinds (ILO, 2006)[[4]](#footnote-4). But unmindful of Supreme Court’s order of 1995 adequate steps have not been taken by the central and state governments for complete ban on asbestos despite admitting the “deleterious effect of asbestos on the health” and in spite of imposing ban on grant, renewal and expansion of asbestos mining in the year 1986, sixty three years after the first diagnosis of asbestosis was made in the UK in 1924 (Cooke, 1924)[[5]](#footnote-5). Subsequent to the verdict in the CERC case in 1995, France prohibited the manufacture, processing, sale, importation, domestic marketing, possession for sale, offer and transfer of all varieties of asbestos fiber regardless of whether the substance had been incorporated into the materials, products or devices in 1997 but not in India (Seligsohn, 1996)[[6]](#footnote-6).

Although Supreme Court of India reiterated its order in 2011 saying, “Ministry of Labour in the Union of India and Department of Industries and Labour in all the State Government shall ensure that the directions contained in the judgment of this Court in the case of Consumer Education and Research Centre are strictly adhered to”, there has been no compliance so far. It directed “the Union of India and the States to review safeguards in relation to primary as well as secondary exposure to asbestos keeping in mind the information supplied by the respective States in furtherance to the earlier judgment as well as the fresh resolution passed by the ILO. Upon such review, further directions, consistent with law, shall be issued within a period of six months from the date of passing of this order” (SC, 2011) [[7]](#footnote-7). More than 25 years have passed since Court’s judgment of 1995 and eight years since the verdict of January 2011 directing compliance within six months but non-compliance has remained the norm despite Court’s endorsement of “fresh resolutions passed by ILO” seeking elimination of asbestos.

In a significant development, on 24 August, 2017, Constitutional Supreme Court of Brazil decided with 8 votes against 2 that the use of all kinds of asbestos is unconstitutional. The President of the Brazilian Supreme Court observed, “In concern of the environment, if any doubts, it must be prohibited so that the rights for us today and tomorrow won’t be lost for the ones that come after us.” India has been a consumer of foreign asbestos mineral fibers imported from countries like Brazil, Canada and Russia for long. Canada too has banned it. Russia remains its biggest producer and supplier. Indian courts are yet to adopt this universally accepted precautionary principle and the inter-generational equity principle to save the public health of Indians like the Brazilian Court as far as implementation is concerned (ADAO, 2017)[[8]](#footnote-8).

**National Scenario**

The use of asbestos based products and technology carries continuing burden of harm throughout its life cycle. India has banned mining of its own asbestos mines but it chooses to import thousands of tons of asbestos. India imported 310,570 tonnes of asbestos in 2016-17 from Russia, Kazakhstan, Brazil, China and other countries. During April-September 2017, India imported just 162,740 tonnes of asbestos (Ibid)[[9]](#footnote-9). This is hardly sufficient because it’s past usage and continued usage is of colossal consequence. The inconsistency in government’s policy is apparent from the minister’s reply in the Parliament.

Among the most deprived and marginalized communities as many as 16.4 per cent in the rural areas and 20 per cent in the urban areas live and work under asbestos roofs in India. Some 79 per cent of Dalits live in such houses, as per the 2011 Census figures released on the Scheduled Caste households by amenities and assets by the Office of the Registrar General & Census Commissioner. Urban development departments and urban local bodies are yet to stop usage of asbestos in all the municipalities and in some 7, 935 urban centres. No agency has apprised some 260,000 gram panchayats Panchayats to eliminate and refrain from procurement of construction of asbestos cements sheets and other asbestos based products to ensure asbestos free villages.

In a related development, Calcutta High Court has passed an order which can set the process of making West Bengal free of asbestos based products. The order seeks removal of carcinogenic-asbestos that has been used for roofing in the Court’s buildings. This order underlines the serious unprecedented environmental and occupational health crisis with regard to the unnoticed epidemic of asbestos related diseases in West Bengal in particular and in the country in general. The Court’s order reads: “When the entire renovation is undertaken, it is expected that the High Court and the PWD or, any other body entrusted with the renovation will ensure that the asbestos-sheets, which have been used for roofing, would be replaced by any other materials which are non-carcinogenic” (Calcutta High Court, 2017)[[10]](#footnote-10).

This order of the High Court is consistent with, Supreme Court’s verdict in CERC case. Upholding the jurisprudence of personhood, it observed, “The development of the carcinogenic risk due to asbestos or any other carcinogenic agent, does not require a continuous exposure. The cancer risk does not cease when the exposure to the carcinogenic agent ceases, but rather the individual carries the increased risk for the remaining years of life.” This observation referred to medical and scientific literature to arrive at its inference. The Court recorded that “The exposure to asbestos and the resultant long tragic chain of adverse medical, legal and societal consequences, remains the legal and social responsibility of the employer or the producer not to endanger the workmen or the community of the society. He or it is not absolved of the inherent responsibility to the exposed workmen or the society at large.”

The Court underlined that “Mere adoption of regulations for the enforcement has no real meaning and efficacy without die professional, industrial and governmental resources and legal and moral determination to implement such regulations” (SC, 1995)[[11]](#footnote-11). Despite such clear directions the legal responsibility of the employers, producers and regulators with regard to grave threats to workers, the proximate community at risk, consumers and the society in general has not been fixed so far. It is apparent that the concerned public institutions have turned the workers and the unsuspecting communities into risk bearers who can be exposed to the harmful consequences of asbestos based products.

**NHRC relies on NIOH’s doctored research**

Amidst ban on all kinds of asbestos by some 60 countries[[12]](#footnote-12), this paper presents experiences from Gujarat based National Institute of Occupational Health (NIOH)[[13]](#footnote-13) and New Delhi based National Human Rights Commission (NHRC) (Allen 2019). It brings forth the violation of ethics by these two institutions in the matter of research on white chrysotile asbestos by the former and the use of the outcome of this research by the latter.

Ignoring scientific and medical evidence of public health hazard and its own order about the harmful effect of asbestos, NHRC refrained from prohibiting use of carcinogenic mineral fibers of white chrysotile asbestos using an irrelevant and an admittedly questionable study by NIOH. NIOH did not factor in the admission of the Union Health Minister who informed Parliament that “as regards the issue pertaining to banning of asbestos, as a health issue, the government certainly has not taken it up. It is an occupational hazard and people working in the asbestos factories are prone to lung cancer”. The minister revealed that decision regarding ban is not being taken because of the enormity of the usage of asbestos and not because of its harmlessness.[[14]](#footnote-14) NHRC committed a grave error by merely reproducing the submission of one Assistant Industrial Advisor, Ministry of Chemicals & Fertilizers, Department of Chemicals and Petrochemicals as part of its “Directions” (NHRC, 2016)[[15]](#footnote-15).

In doing so, NHRC ignored its own order (NHRC, 1998)[[16]](#footnote-16). In this case NHRC’s direction reads: “Replace the asbestos sheets roofing with roofing made up of some other material that would not be harmful to inmates. It is evident from it that the NHRC considered asbestos sheets as harmful but it allowed itself to be misled by NIOH’s study. In effect, it illegally and illegitimately reviewed its own order.

**Scientific unanimity about harmful impact of white chrysotile asbestos**

As early as 1898, Chennai born Lucy Deane, a factory inspector in the UK was the first to warn about "The evil effects of asbestos have also attracted my attention….the effect have been found to be injurious, as might have been expected.” Her report in this regard recorded the harmful effects of asbestos in the Annual Report of the Chief Inspector of Factories and Work (Deane, 1900)[[17]](#footnote-17).

As per the information shared with Parliament by the Union Minister for Health and Family Welfare in a written reply, Indian Council of Medical Research (ICMR) has “informed that major health hazards of asbestos include cancer of lung, mesothelioma of pleura and peritoneum and specific fibrous disease of lung known as asbestosis. All types of asbestos fibers are responsible for human mortality and morbidity….Directorate General Factory Advice Service and Labour Institutes, (DGFASLI) under Ministry of Labour & Employment has intimated data of workers suffering from Asbestosis in factories registered under the Factories Act, 1948.As per the information provided by DGFASLI, it is informed that 21 no. of Asbestosis cases were reported in Gujarat in 2010 and 2 cases in Maharashtra in the year 2012” (Azad, 2014)[[18]](#footnote-18).

It is significant that the Ministry of Mines has informed that “the Grant of fresh mining leases and renewal of existing mining leases for Asbestos are presently banned in the country on Health Grounds”(PIB, 2003)[[19]](#footnote-19). Government had imposed this ban on mining of all kinds of asbestos in 1986. Although India has banned mining and trade of asbestos waste (dust and fibers), India has emerged as the biggest consumer of Russian white chrysotile asbestos even as Indian railways is currently phasing out of asbestos roofs from some 8000 railway stations across the country (Nair, 2018)[[20]](#footnote-20). In such a backdrop, both the tutored “findings” of the study by NIOH and unscientific “Direction” by NHRC have grave ethical implications that undermine their stature as public institutions.

While numerous studies have established the harmful impact of all kinds of asbestos including white chrysotile asbestos, in an apparent unethical exercise aimed at creating doubt in public mind, Asbestos Cement Product Manufacturers Association, an industry body which claims to be a non-profit NGO co-sponsored a “study on Health Hazards/Environmental Hazards resulting from the use of Chrysotile variety of Asbestos in the country” to be undertaken by NIOH[[21]](#footnote-21) (NIOH, 2006). NIOH ended up taking the fiscal support from the chrysotile asbestos industry to complete a study which is consistently being used at UN’s Rotterdam Convention meetings.

Studies by NIOH conducted in that past defended workers' health but the asbestos industry association co-sponsored study along with Union Ministry of Chemicals & Fertilizers has damaged its ethical reputation. The study's terms of reference revealed the intent. Here is what the ministry's April 2006 letter demanded of NIOH[[22]](#footnote-22): "The deliverables will include generation of data which would justify the safe standards of its usage and the reasons justifying its non-inclusion/or otherwise in the pic (Prior Informed Consent) ambit." The minutes of an April 2007 meeting of the ministry's review committee (half of which comprised of asbestos industry representatives) gave NIOH a sharper focus: "It will specifically indicate as to how technology has made working conditions better. The same will include relevant photographs showing protective measures being undertaken." The minutes of the Review Committee obtained through Right to Information Act dated 19 December, 2006 reads: "The report will be finalised after due discussions with the asbestos industry"[[23]](#footnote-23). (Krishna, 2008)

Revealing the tainted character of the study by NIOH, Union Minister of State for Environment and Forests informed the Rajya Sabha in a written reply that the study of the health status of the workers and the residents in the vicinity of the asbestos industry by NIOH, Ahmedabad was co-sponsored by the Asbestos Cement Products Manufactures Association (ACPMA). Out of a total of Rs. 59.66 lacs allocated for the study by Ministry of Chemicals and Fertilizers, the Asbestos Cement Products Manufactures Association has contributed Rs. 16 lacs (PIB, 2008)[[24]](#footnote-24). The reply demonstrated that NIOH became complicit in an unethical work.

**NHRC’s acts of omission**

Ignoring glaring and indisputable scientific, medical and judicial findings and submissions, Justice H.L. Dattu headed NHRC has issued the following Direction: “Pursuant to the directions of the Commission, Dr. Rohit Misra, Assistant Industrial Advisor, Ministry of Chemicals & Fertilizers, Deptt. of Chemicals and Petrochemicals, Government of India vide letter dated 4th July, 2016 has informed the Commission that in order to take an appropriate and scientific stand in the International Forum on the issue related to health hazards posed by Chrysotile variety of Asbestos, Department of Chemicals and Petrochemicals had entrusted National Institute of Occupational Health (NIOH) to carry out a study on Health Hazards/Environmental Hazards resulting from the use of Chrysotile variety of Asbestos in the country.”

NHRC’s direction reports that “with the approval of Minister of State (Independent Charge) Chemicals & Fertilizers, it was decided to set up an Inter-Ministerial Committee for considering the issue of continuance or otherwise of the use of Chrysotile variety of asbestos in India, taking into account of NIOH report and other related issues. On 27.8.2014, a meeting was held under the Chairmanship of Minister (Chemicals & Fertilizers) to consider the NIOH report.”

The direction records: “It was decided in the meeting that the NIOH report does not indicate any significant health/environment hazards resulting from the use of Chrysotile asbestos under proper conditions, coupled with the fact that asbestos products are quite cost effective for use by the masses, India may not support the inclusion of Chrysotile in Annexure-III at the (Seventh) Conference of Parties (COP) Meeting in 2015” held in Geneva during 4–15 May 2015. The final official brief for the Indian delegation to the meeting of Rotterdam Convention stated that “The implication of listing of chemicals is rise in trade cost” and delay in import/export of hazardous chemicals. This is far from the truth. National Health Portal discloses that “The prevalence of asbestosis in four cement factories (Ahmadabad, Hyderabad, Coimbatore and Mumbai) varied from 3% to 5%” and “In asbestos textile industry prevalence of asbestosis was 9% in workers having less than 10 years exposure, in contrast to the reported average duration of over 20 years” (National Health Portal, Government of India)[[25]](#footnote-25). In effect, India’s position is guided by the same admittedly conflict of interest ridden NIOH study on which NHRC relied blindly on the submission of the Assistant Industrial Advisor. Despite the findings report on NHP, India’s position on the listing of chrysotile asbestos in the UN list of hazardous chemicals under Rotterdam Convention remains unchanged.

NHRC concluded: “In the light of the above report, no further action by the Commission is called for. The case is closed.” The NHRC concluded the case on August 8, 2016 disregarding the findings of UN’s Chemical Review Committee and the views of Secretary, Medical Education & Research & Assistant Labour Commissioner, Chandigarh Administration and Joint Secretary, Uttarakhand Government have been disregarded by NHRC. NHRC ignored the fact that at the first meeting, the Chemical Review Committee (CRC) under the Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, the committee agreed to recommend to the Conference of the Parties that Chrysotile Asbestos should be listed in Annex III of the Rotterdam Convention. NHRC chose to ignore the decision of Kerala Human Rights Commission dated January 31, 2009 recommending replacement of asbestos roofs of all school buildings under its control with country tiles in a phased manner. NHRC ignored the reply to NHRC dated May 29, 2012, Joint Secretary, Government of Uttarakhand, wherein it submitted: “There is no cure. Stopping exposure to asbestos is essential.”

NHRC did not pay any heed to the submission of Secretary, Medical Education & Research, Chandigarh Administration which has categorically informed NHRC that “No. of cancer deaths due to asbestos requires further large scale study from India and that it is “definitely harmful material, causing cancer and other related diseases.” The Chandigarh Administration concluded saying, “Hence, use of white asbestos should be completely banned in India also and the same may be replaced by some safe alternative material.”

NHRC was kept in the dark about the findings reported on the National Health Portal (NHP). NHP reports: “The burden of asbestos-related diseases is still rising, even in countries that banned the use of asbestos in the early 1990s. Because of the long latency periods attached to the asbestos related diseases, stopping the use of asbestos now will result in a decrease in the number of asbestos related deaths only after a number of decades. There is no safe use of asbestos and no safe limits set by WHO, ILO”. It is significant that bitter protests of villagers has led to Chief Minister’s announcement[[26]](#footnote-26) regarding State Government’s policy against setting up of asbestos based factories after the cancellation of asbestos based factories in Bhojpur[[27]](#footnote-27), Muzaffarpur[[28]](#footnote-28), Vaishali, West Champaran and Madhubani[[29]](#footnote-29) in Bihar[[30]](#footnote-30). The protests by villagers led to stoppage of asbestos based factory in Sambalpur[[31]](#footnote-31) and Bargarh[[32]](#footnote-32), Odisha as well.

Unmindful of these verdicts, official announcements, scientific findings and people’s movements, it is evident that the recommendations of NHRC is caught in a time warp. In its unethical and doctored myopia, it did not factor in the health cost incurred due unrestricted trade in hazardous substances like asbestos.

**Conclusion**

The Conference of the Parties to the Rotterdam Convention deliberated on the listing of chrysotile asbestos in Annex III list of hazardous substances at its third, fourth, fifth, sixth, seventh, eighth and ninth meetings but no consensus on its listing could be reached despite meeting all the requirements set out in Articles 5 and 7 of the Convention for listing in Annex III UN list had been met for chrysotile asbestos. Given the lack of consensus at the ninth meeting held during Geneva, 29 April–10 May 2019, it has been agreed to defer further consideration of the issue to its tenth meeting most like likely in Nairobi, Kenya in 2021. It is germane to note that relying on the same NIOH study, India opposed listing of chrysotile asbestos at the Ninth Conference of the Parties to the Rotterdam Convention.

It emerges from the UN findings, Court’s verdicts, policies of state governments, National Health Portal and the reply of Minister of Health and Family Welfare is based on the considered scientific opinion of the ICMR and revised opinion of NIOH that the NHRC erred in disregarding the submission of the Union Health Minister in Parliament in February 2014 and in according superior status to the letter of an Assistant Industrial Advisor, Ministry of Chemicals & Fertilizers, Department of Chemicals and Petrochemicals, Government of India. It did not factor in the admission of conflict of interest in the research by two ministers in the Parliament. The ‘conflict of interest in research’ refers to “situations in which financial or other personal considerations may compromise or have the appearance of compromising a researcher's professional judgment in conducting or reporting research.” The researchers of NIOH had a real opportunity to prefer the interests of the organisation which co-sponsored the research. It compromised judgment of the researchers in conducting, evaluating, or reporting on research because the research was co-sponsored by a related body.

It is evident that NIOH and its co-sponsor had a significant interest in the results benefited from any inappropriate dissemination of research results. Here is case wherein private benefits or significant personal or professional advantage of NIOH and its co-sponsor was dependent on research outcomes. NHRC failed to recognize that researchers of NIOH had financial interests in research sponsors and in entities with business interests closely related to their research.

NHRC also erred in closing the case by merely reiterating Assistant Industrial Advisor’s position on the inclusion of white chrysotile asbestos in the list of Rotterdam Convention on Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade. Its inference stating that “no further action by the Commission is called for” is flawed. NHRC also recorded that the complainant had sought “grant of a compensation package for present and future victims of Asbestos diseases” (NHRC, 2011)[[33]](#footnote-33). NHRC also noted that it has been alleged that government is taking “contradictory position” with regard to mining asbestos and trade, manufacturing and use of white chrysotile asbestos. It failed to appreciate that no one has disputed the fact regarding government’s “contradictory position”. NHRC’s recommendation based on NIOH’s research ends up facilitating employers and regulators to escape their legal, moral and social responsibility for all those who are exposed to the harmful consequences of asbestos based products and related diseases.

Disregarding Court’s findings and global health practices, admittedly questionable study by NIOH and directions of NHRC based on such a study has made Indian position scientifically and ethically inconsistent. Such manifestly unethical and unscientific position is endangering the life and public health of present and future generations with impunity.

*\*The author is editor of ToxicsWatch Journal, E-mail: krishnaruhnai@gmail.com*

**Disclosure**: The author was the complainant in the NHRC Case No.2951/30/0/2011

1. Consumer Education and Research Centre V Union of India and others, 1995 AIR 922, 1995 SCC (3) 42, https://sci.gov.in/jonew/judis/10927.pdf accessed on 25 September, 2019 [↑](#footnote-ref-1)
2. Prevalence of Asbestosis and Related Disorders in a Asbestos Fiber Processing Unit in West Bengal, http://www.dgfasli.nic.in/newsletter/jan\_march\_96.pdf accessed on 12 January, 2018 [↑](#footnote-ref-2)
3. Asbestos-related diseases, National Health Portal, Centre for Health Informatics, National Institute of Health and Family Welfare, Ministry of Health and Family Welfare,

   https://www.nhp.gov.in/disease/non-communicable-disease/asbestos-related-diseases, accessed on May 4, 2019 [↑](#footnote-ref-3)
4. (2006), Resolution concerning asbestos, ILO, <https://www.ilo.org/safework/info/standards-and-instruments/WCMS_108556/lang--en/index.htm> accessed on 24 September 2019 [↑](#footnote-ref-4)
5. Cooke, W. E. (1924), Fibrosis of the Lungs due to the Inhalation of Asbestos Dust, *British Medical Journal*, July 26; 2(3317): 140-2, 147-148, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2304688/pdf/brmedj05824-0015a.pdf>, accessed on 12 November , 2018 [↑](#footnote-ref-5)
6. (1996), Diane Seligsohn, France prohibits use of asbestos 13 July, *New Scientist* https://www.newscientist.com/article/mg15120381-200-france-prohibits-use-of-asbestos/ accessed on 4 January 2018 [↑](#footnote-ref-6)
7. (2011), Supreme Court's Order, Writ Petition (Civil) No. 260 of 2004, para 16, 21 Jnauary, https://sci.gov.in/jonew/judis/37413.pdf [↑](#footnote-ref-7)
8. (2017), Brazilian Supreme Court Finally Rules on Years Old Case Declaring São Paolo Asbestos Ban Constitutional, 25 August, http://www.asbestosdiseaseawareness.org/archives/44580 accessed on 4 January 2018 [↑](#footnote-ref-8)
9. Ibid [↑](#footnote-ref-9)
10. (2017), Order in Writ Petition (Civil). No. 14729 (W) of 2016, 21 July [↑](#footnote-ref-10)
11. Ibid [↑](#footnote-ref-11)
12. Allen, Laurie Kazan (2019), Current Asbestos Bans, July 15, <http://www.ibasecretariat.org/alpha_ban_list.php> accessed on 25 September, 2019 [↑](#footnote-ref-12)
13. Krishna, Gopal (2008), Doctoring asbestos study to promote its use, *The Hindu*, March, 02, <https://www.thehindu.com/todays-paper/tp-features/tp-openpage/Doctoring-asbestos-study-to-promote-its-use/article15410112.ece> [↑](#footnote-ref-13)
14. Ibid [↑](#footnote-ref-14)
15. NHRC order in Case No.2951/30/0/2011 [↑](#footnote-ref-15)
16. NHRC order in Case No.693/30/97-98 [↑](#footnote-ref-16)
17. Deane, Lucy (1900), Report on the health of workers in asbestos and other dusty trades in HM Chief Inspector of Factories and Workshops, 1899, Second Volume, Annual Report for 1898. HMSO, London. pp. 171–2 [↑](#footnote-ref-17)
18. Azad, Ghulam Nabi (2014), Union Minister of Health and Family Welfare reply on Asbestos Related Diseases in the Lok Sabha, 21 February, http://pib.nic.in/newsite/PrintRelease.aspx?relid=104105 accessed on 1 December 2018 [↑](#footnote-ref-18)
19. (2003), Ban on Asbestos Mining, Press Information Bureau, Ministry of Mines, February 26, http://pibarchive.nic.in/archive/releases98/lyr2003/rfeb2003/26022003/r260220035.html accessed on 10 September, 2018 [↑](#footnote-ref-19)
20. Nair, Manoj R. (2018), Railways are phasing out asbestos, a suspected health hazard, *Hindustan Times,* April 23*,* <https://www.hindustantimes.com/mumbai-news/railways-are-phasing-out-asbestos-a-suspected-health-hazard/story-3laDnefgU8P1VgPXMYdTEP.html> accessed on 15 September, 2018 [↑](#footnote-ref-20)
21. (2006), Study on Health Hazards/Environmental Hazards resulting from the use of Chrysotile variety of Asbestos in the country, National Institute of Occupational Health, Ahmedabad, <https://chemicals.nic.in/sites/default/files/Asbestos_%20NIOH_May%202012_0.pdf> accessed on 10 January, 2019 [↑](#footnote-ref-21)
22. This happened during the tenures of Dr. S.K. Dave, Officer In Charge, National Institute of Occupational Health, Ahmedabad. Dr Dave did the study on asbestos exposure of workers in the ship breaking industry and found that 16 % of the workers are exposed. In August 2005 paper published in *American Journal of Industrial Medicine*, titled "Occupational Asbestos Exposure and Predictable Asbestos-related Diseases in India," Dr Dave's surveys of asbestos-exposed workers revealed significant occupational exposures but NIOH’s study took a contrary position. [↑](#footnote-ref-22)
23. Krishna, G. (2008), A government under an asbestos roof, *Indian Journal of Occupational and Environmental Medicine*, Vol. 12, Issue 1, p. 43-44, http://www.ijoem.com/article.asp?issn=00195278;year=2008;volume=12;issue=1;spage=43;epage=44;aulast=Krishna accessed on 6 November, 2018 [↑](#footnote-ref-23)
24. (2008), Asbestos Factories, Rajya Sabha, Release of Press Information Bureau, Ministry of Environment & Forest, 20 March, <http://pib.nic.in/newsite/erelcontent.aspx?relid=36794> accessed on 6 November, 2018 [↑](#footnote-ref-24)
25. Asbestos-related diseases, National Health Portal, Centre for Health Informatics, National Institute of Health and Family Welfare, Ministry of Health and Family Welfare, https://www.nhp.gov.in/disease/non-communicable-disease/asbestos-related-diseases, accessed on May 4, 2019 [↑](#footnote-ref-25)
26. (2019), Campaign 'victory': Bihar considers ban on asbestos, carcinogenic to humans, *CounterView*, July 9, https://www.counterview.net/2019/07/campaign-victory-bihar-considers-to-ban.html accessed on September 24, 2019 [↑](#footnote-ref-26)
27. Gupta, Alok (2015), Protests at Bihar asbestos unit, *Down To Earth*, July 4, <https://www.downtoearth.org.in/news/protests-at-bihar-asbestos-unit-42000>, accessed on 15 September, 2018 [↑](#footnote-ref-27)
28. Tewary, Amarnath (2011), Student protest halts asbestos factory in Bihar, India, *BBC News*, February 26, <https://www.bbc.com/news/world-south-asia-12354285> accessed on 15 September, 2018 [↑](#footnote-ref-28)
29. Proposals Approved by State Investment Promotion Board (SIPB), industries.bih.nic.in/News/NE-01-20-09-2011.pdf, accessed on 11 September, 2018 [↑](#footnote-ref-29)
30. (2011), Resounding ‘No!’ to asbestos plant in Bihar, *Indian Journal of Medical Ethics*, Vol 8, No 2, <http://www.issuesinmedicalethics.org/articles/resounding-no-to-asbestos-plant-in-bihar/?galley=html>, accessed on 15 September, 2018 [↑](#footnote-ref-30)
31. Moyna (2015), Odisha village wins case against Visaka Industries' asbestos plant, *Down To Earth*, July 4, https://www.downtoearth.org.in/news/odisha-village-wins-case-against-visaka-industries-asbestos-plant--38687 accessed on 15 September, 2019 [↑](#footnote-ref-31)
32. Patra, Amitabh (2012), Rally & protests against proposed asbestos cement roofing sheet factory at Naagaon-Lebidi, Sohella Block, Bargarh district, Odisha, May 22, http://www.asbestosfreeindia.org/2012/05/rally-protests-against-proposed.html accessed on 15 September 2019 [↑](#footnote-ref-32)
33. (2011), NHRC issues notices to different Union Ministries, States, Union Territories on the issue of banning use of White Asbestos, 6 July, http://nhrc.nic.in/press-release/nhrc-issues-notices-different-union-ministries-states-union-territories-issue-banning accessed on 1 December 2018 [↑](#footnote-ref-33)