



Malignant pleural mesothelioma epidemic and transfer of hazardous asbestos industry in Mexico

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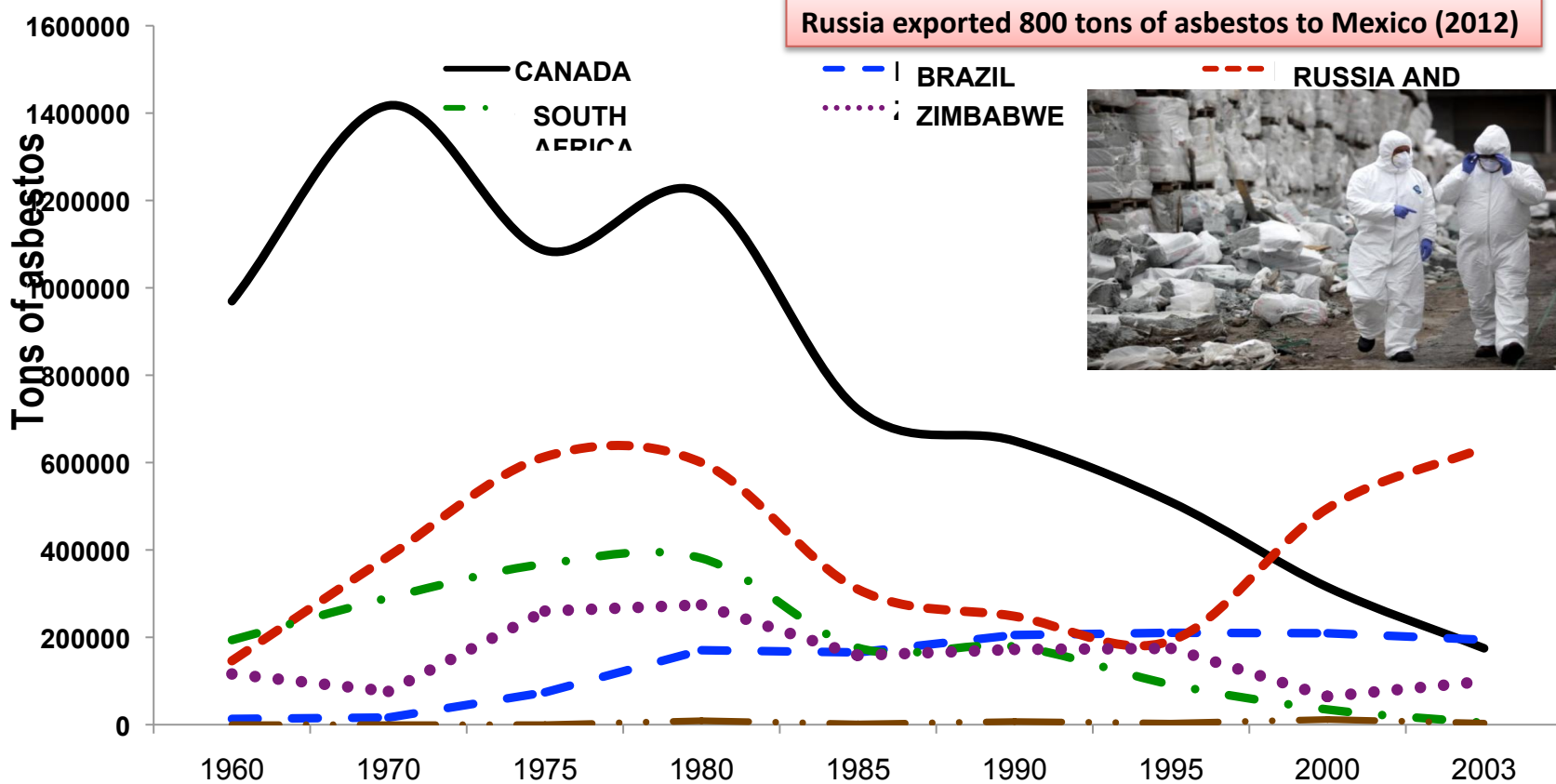
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Leading countries to export asbestos (1960-2003)



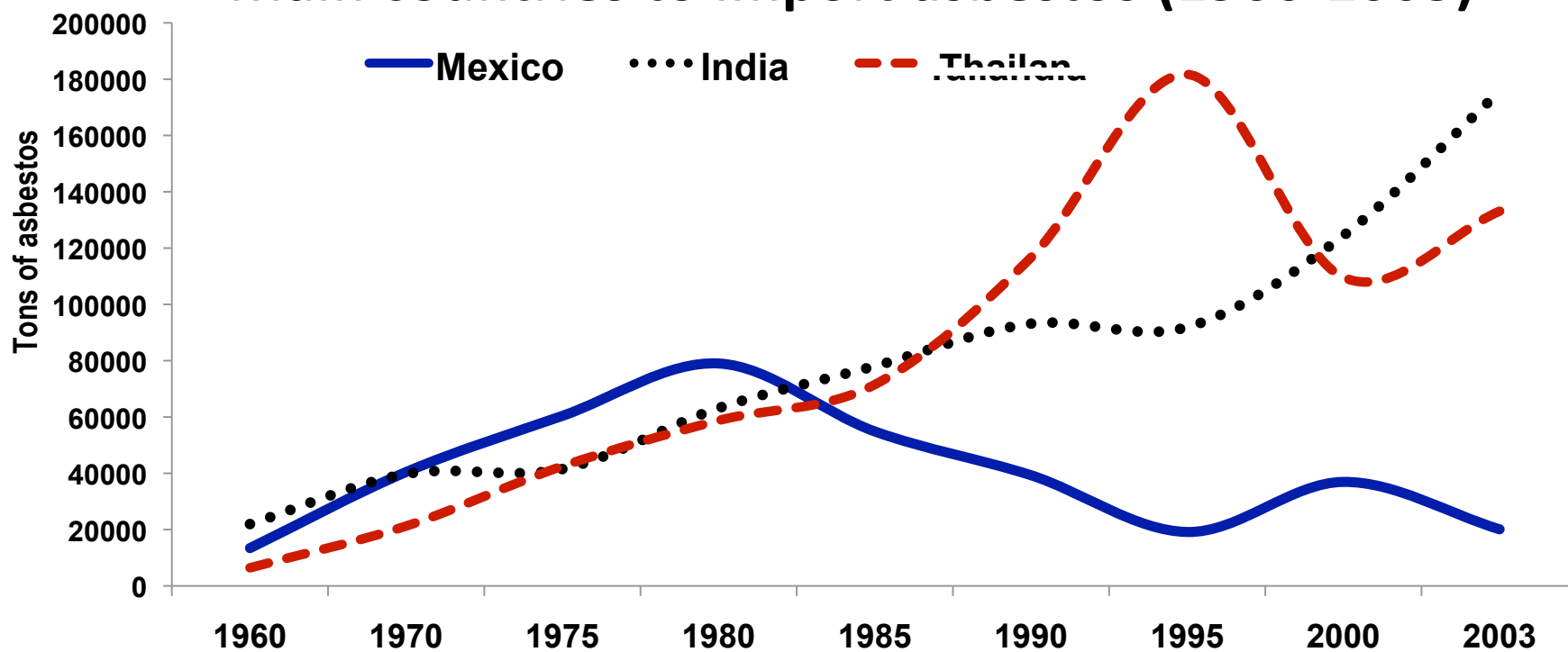
Russia exported 800 tons of asbestos to Mexico (2012)



Exports: Virta. 2006 (1960-2003). Canadian Mineral Yearbooks.

SECOFI, México. Aguilar-Madrid.2010

Main countries to import asbestos (1960-2003)



Imports: SECOFI (1992-2000). Aguilar-Madrid, 2009, Virta. 2006 (1960-2003). Canadian Mineral Yearbooks.

In Mexico, the most common used asbestos type and the main source of exposure among workers is chrysotile.

Chronology of Industries of asbestos in Mexico *

Business	Location	Year of establishment
Techo Eterno Eureka,, S. A. de C. V.	Ciudad de México	1932
Asbestos de México, S. A. de C. V.	Estado de México	1943
Mexalit, S.A. (División Centro)	Estado de México	1952
Eureka del Norte, S. A. de C. V.	Nuevo León	1956
Asbestos del Noroeste, S. A. de C. V	Sonora	1956
Mexalit, S.A. (División Norte)	Chihuahua	1960
Eureka de Occidente, S. A de C. V.	Jalisco	1960
Mexalit, S.A. (División Occidente)	Jalisco	1960
Asbestolit de Guadalajara, S. A.	Jalisco	1976
Asbestos de Hidalgo, S. A.	Hidalgo	1977
Asbestolit del Sureste, S. A.	Tabasco	1977
Mexalit, S.A. (División Sureste)	Tabasco	1979

* Source: American Association of Manufacturers of Asbestos-Cement, AC 1985.

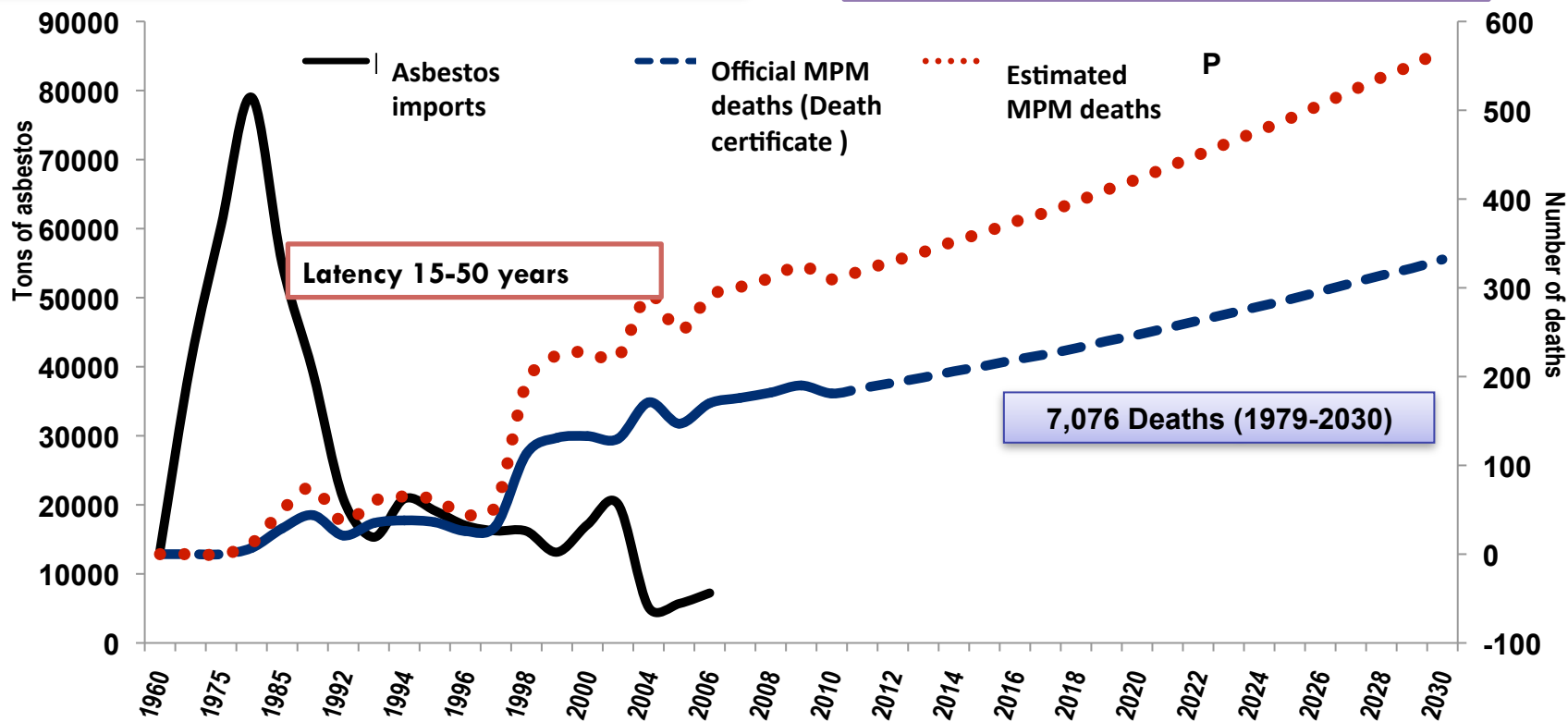
TRANSFER OF HAZARDOUS INDUSTRY OF USA AND EUROPE TO MEXICO.

In Mexico, during the period 1992-2000, there were 1881 companies importing asbestos.

Asbestos imports to Mexico (1960-2006) and estimated deaths caused by Malignant Pleural Mesothelioma. (1980-2030)

481636 tons of imported asbestos (1960-2006)

12,100 estimated deaths (1979-2030)



Mean differences between IMSS insured MPM cases and controls. Mexico, 2004-2006.

Variable	Cases				Controls			
	N	Mean	SD	Range	N	Mean	SD	Range
Age	119	61.1	11.6	33-84	353	60	15	31 - 85
Active workers	50	51	7.3	33 - 66	145	44	9	31 -65
Retired	69	69	7.3	49 - 89	208	70	6	61 - 85
Occupational exposure to asbestos (years)*	96	20	13	1- 55	111	14.6	13.6	0.5 - 52
Possible	8	12	12	1 - 40	14	12.8	14.3	0.5 - 44
Likely	6	28.5	12.6	13 - 55	21	11.3	13.5	0.5 -36.5
Certain	82	20	12.6	1-5 - 49	76	16	13.5	0.5 - 52

p<0.05

Odds ratios in case-control studies of Malignant Pleural Mesothelioma. México. 2010

References	N	Exposure Categories	OR (95%CI)
Agudo, 2000. Spain	132 cases 257 controls	Certain High probability and high intensity of exposure	13.2 (6.4-27.3) 27.1(79.3)
Spirtas, 1994. US	208 cases 533 controls	Certain	13.9
Iwatsubo, 1998. US	405 cases 387 controls	Certain	3.6 (2.4-5.3)
Tuomi, 1991 Finland	51 Cases 51 controls	Certain Likely	17.7 (3.4-253) 3 (0.9-10.6)
Aguilar-Madrid. Current data in México	119 cases 353 controls	Certain	14.3 (8 - 26)
		Likely	3.7 (1.3 - 10.4)

Estimates of Asbestos Cancers

Tabla 1. Regulaciones preventivas sobre exposición a amianto y estimaciones de casos de mesotelioma en diferentes países.

País	Regulación		Datos Analizados	Predicciones		Casos
	Primeras medidas	Prohibición definitiva		Periodo	Periodo	
Reino Unido	1969	1999	Mesotelioma	1968-1991 pleural	2020	3.300 hombres anuales
Francia	1977	1996	Cáncer pleural	1950-1995	1996-2020	20.000 hombres
Holanda	Mediados	1993 de los 70	Cáncer pleural	1969-1995 Mesotelioma	2017 1996-1998	490 hombres
Italia	1986	1992	Cáncer pleural	1970-1999	2012-2024	800 casos anuales ambos sexos
Japón	*	2003	Cáncer pleural	1980-1999	2000-2039	101.400 casos ambos sexos
EE.UU.	Finales de los 60	*	Cáncer pleural	1973-2000	2003-2054	70.990 hombres
Australia	Finales de los 70	2003	Mesotelioma	1945-2002	2002-2020	11.000 casos ambos sexos
España	1984	2001	Cáncer pleural	1977-2001	2007-2016	1.321 hombres

Mexico	Not regulated	Not prohibited	Mesothelioma	1979-2010 2663 deaths	1979-2030	12,100 deaths
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Recognition of MPM cases as occupational disease (1980-2013)

Year	Germany	Belgium	France	Italy	Switzerland	México
1980	36	0	20		0	
1985	135	12	25		11	7
1990	291	25	65	1	29	0
1995	498	35	154	40	37	0
2000	652	65	279	227	63	0
2003	788	92	421	389	54	1
2005- 2013						1
Total	2400	229	964	657	194	9

Source. Roselli M. La Mentira del Amianto Fortunas y Delitos. 2006. ST-5-IMSS. Aguilar-Madrid. 1985 and 2000- 2013

CONCLUSION

- There is a **mesothelioma** epidemic in Mexico (500 cases per/ year), with under-reported cases up to 71%.
- There is impunity for asbestos companies, mainly by the Mexican government's omission.
- **Mexico should ban the use of asbestos as an urgent measure to protect the lives of future generations.**
- Mapping out public policies for epidemiological surveillance of cases and for occupational and environmental compensation.
- Create a fund, paid by asbestos companies, for compensation to the victims, medical care, research and environmental sanitation.