



ACHTUNG
ENTHALT
ASBEST

Gesundheits-
gefährdung bei
Einatmen von
Asbestfeinstaub
Sicherheits-
vorschriften
beachten



b a u a :

Bundesanstalt für Arbeitsschutz
und Arbeitsmedizin

National Asbestos Profile – Germany 2014



b a u a :



Packroff, BAUA

Declaration of Parma/Italy, 2010

...to develop national programmes for the elimination of asbestos-related diseases (ARDs) by 2015 in collaboration with WHO and the International Labour Organization (ILO).



**WORLD HEALTH ORGANIZATION
REGIONAL OFFICE FOR EUROPE**

Targets of the National Profiles

- Provides information on the asbestos situation to the member state
- Defines the baseline situation to measure the progress made towards the objectives and targets set by the national programs
- To increase the awareness on the...

“The Human and Financial Burden of Asbestos in the WHO European Region”

Topics (WHO-questions)

- **Consumption of the various types of asbestos**
- **Populations at risk from current and past exposures**
- **the social and economic burden of asbestos-related diseases (“DALYs”)**
- **the system for inspection and enforcement of exposure limits and the asbestos ban**

Asbestos – „The magic material“

- **Non-flammable**
- **Fireproof**
- **Chemical resistance**
- **Electrically insulating**
- **Tensile strength**
- **Spinnability**

Asbestos – indelible, indestructible

Import and consumption of asbestos (1)

The Past: Sum of asbestos import*:

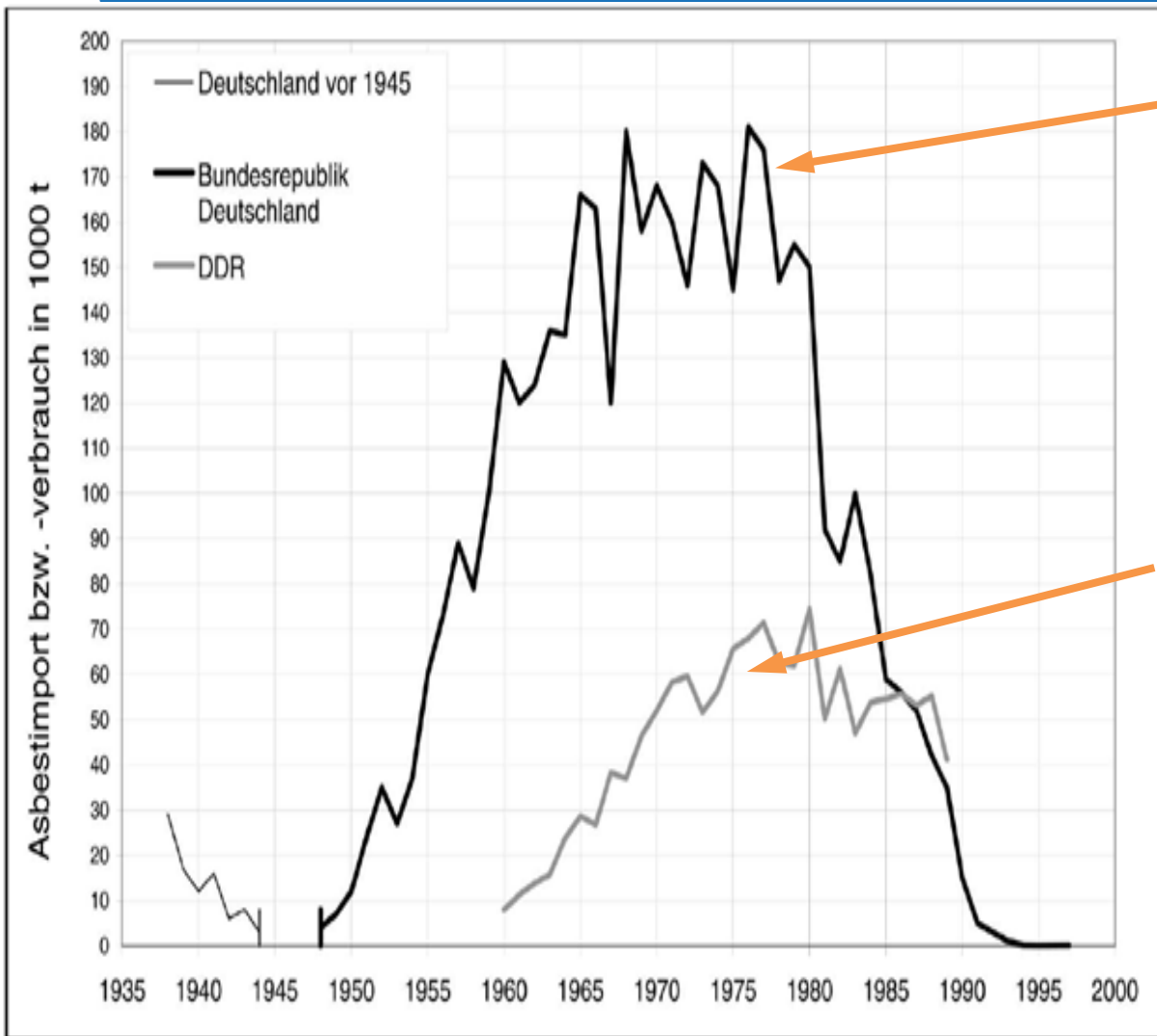
- former FRG (1950 – 1990): **4.35 Mio. Tons**
- former GDR (1960 – 1989): **1.40 Mio. Tons**

Current situation - diaphragms for electrolysis**

- 2010: **72.5 Tons** (2 factories)
- Successful substitution in 1 factory in 2012
- Substitution is planned for end of the service life of the diaphragms also in the second factory.

Source: *DGUV 1995, 2003; **Federal Statistical Office

Import and Consumption of asbestos* (2)



West-Germany:

- 4,35 Mio. t (1950 – 1990)
- \approx 1,8 kg per capita & year

East-Germany (GDR):

- 1,40 Mio. t (1960 – 1989)
- \approx 2,8 kg per capita & year

*DGUV

Asbestos products – its uses (1)

Strongly bound

- Asbestos cement products (corrugated roofs, construction sheets, pipes)
- Joint sealer

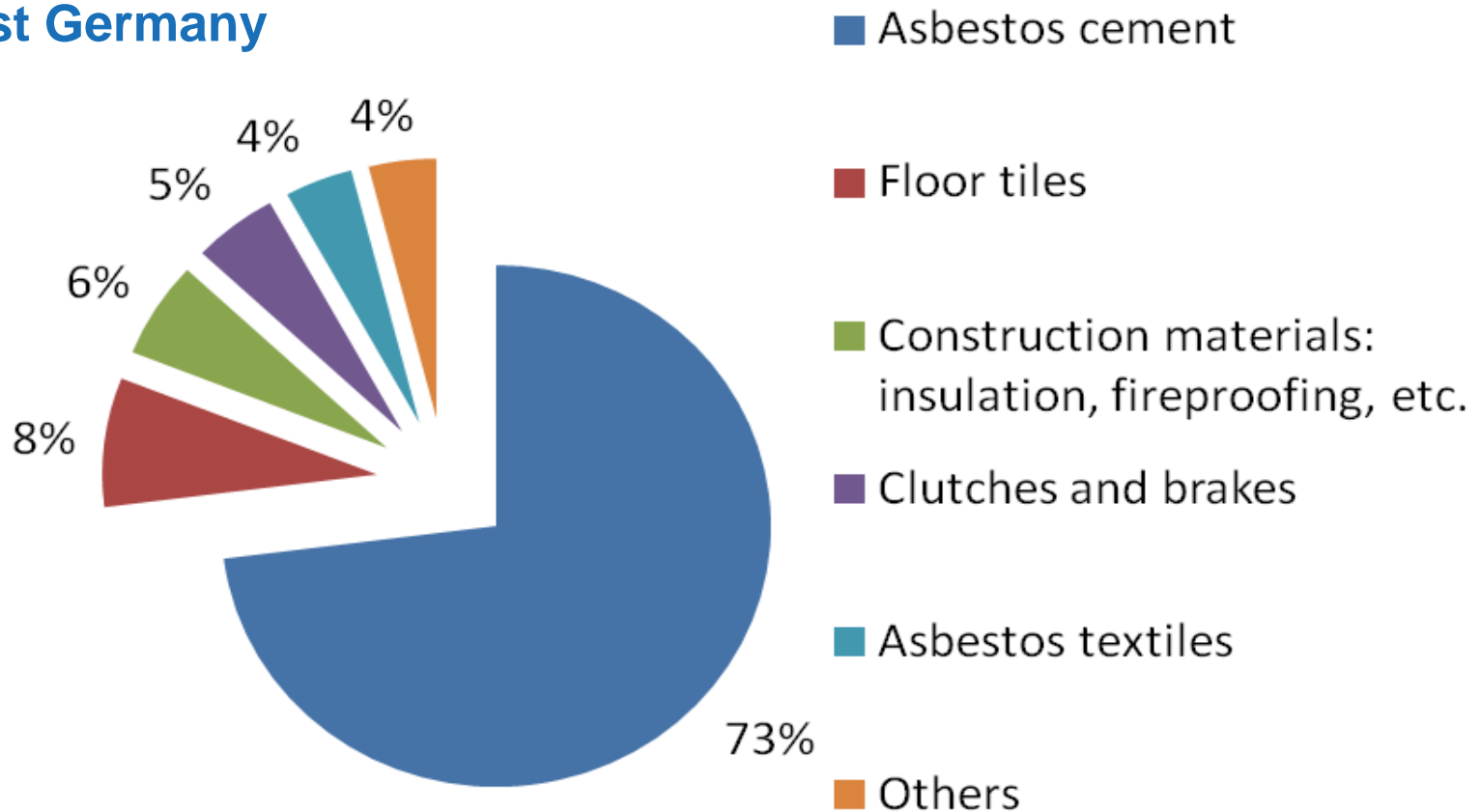
ca. 70% of asbestos

Weakly bound asbestos products

- Construction boards (Promabest, Neptunit, Sokalit)
- Sprayed material (FRG, “Palast der Republik”)
- Textiles (fireproof clothing)
- Floor covering, night storage heater
- Card board, paper
- Filter materials
- Building chemicals (Bitumen, fillers, underbody protection (Phonex))

Asbestos products - its uses (2)

West Germany



*Source: Bundesinstitut für Bau-, Stadt- und Raumforschung, Gefahrstoff Asbest, 2010

Asbestos consumption and waste disposal

Asbestos imports (East & West-Germany)	5.7 Mio. t
~70% consumption for asbestos cement products	3.97 Mio. t
Asbestos cement production (~10% crude asbestos)	39.8 Mio. t
Asbestos containing building materials (2001 – 2011)	4,18 Mio. t
Asbestos cement remaining (2011)	35.62 Mio. t

→ ca. 90 % of Asbestos cement still available

National Asbestos Profile

Estimated number of workers exposed to asbestos

Central registration and medical care agency (GVS):

- Registry of all occupationally asbestos exposed persons
- Medical surveillance examinations after and during potential exposure

	2009	2010	2011	2012
Number of workers formerly or currently exposed	545.825	550.554	555.809	564.927
Included: Currently at risk of exposure	73.434	75.206	77.318	88.979

Industry: Construction building **87%: Demolition, Reconstruction or Maintenance works**

Expert estimation: 2,5 Mio.

Asbestos burden of disease: The fiber principle

Fibers, which are sufficiently

1. long,
2. thin, and
3. biopersistent are carcinogenic.

**Asbestos fibers are long, thin and bio persistent !
Latency period (exposure – cancer): 30 – 38 years**

Burden of disease – Key indicators*

OD Number		OD 4104	OD 4105	OD 4113
		Lung cancer, larynx cancer	Mesothelioma	Lung cancer, asbestos, and PAH
Exposure time (years)	<i>M</i>	20,1	17,7	22,2
	<i>(SD)</i>	(12,8)	(13,3)	(16,9)
Latency period	<i>M</i>	37,3	38,4	41,3
	<i>(SD)</i>	(20,3)	(16,2)	(18,5)
Age of diagnosis	<i>M</i>	66,9	67,1	69,9
	<i>(SD)</i>	(8,5)	(13,8)	(9,1)
Time span – diagnosis - death	<i>M</i>	1,8	1,4	0,6
	<i>(SD)</i>	(2,9)	(9,6)	(0,7)

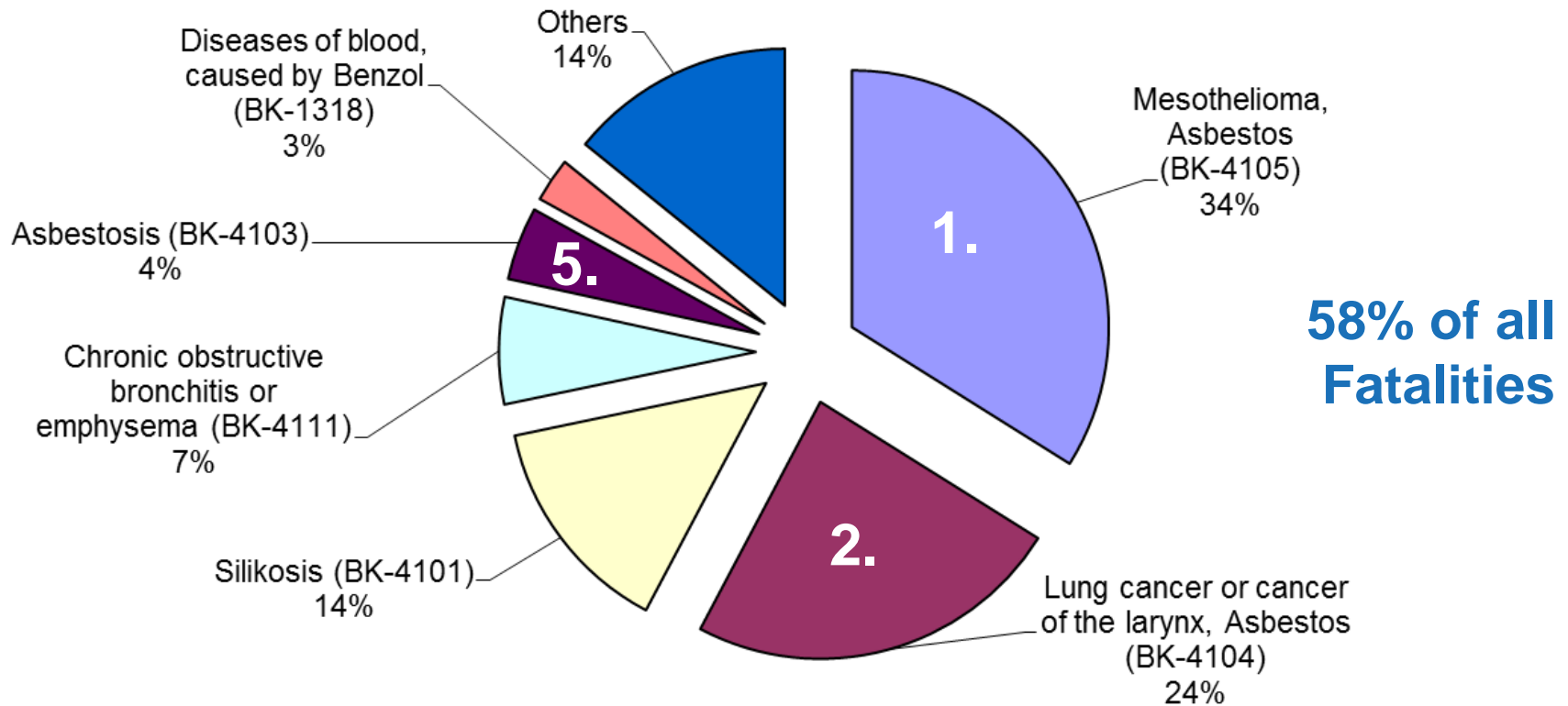
Legend: *M* = Mean value, *SD* = Standard deviation

*Source: Beruflich verursachte Krebserkrankungen, 1978-2010, DGUV

National Asbestos Profile

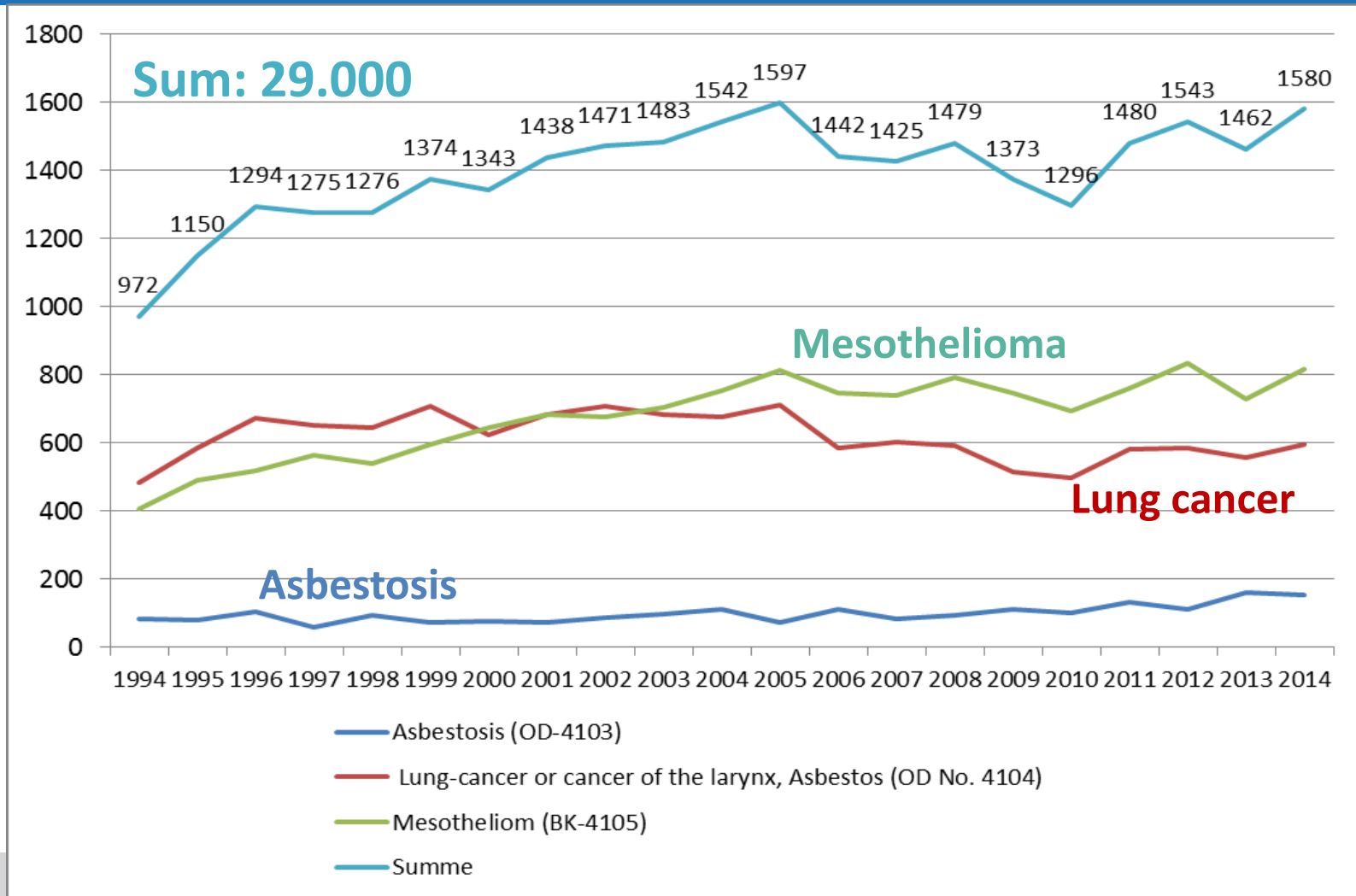
Burden of disease – Deaths attributable to asbestos exposure

Relative share of fatalities due to occupational diseases*:



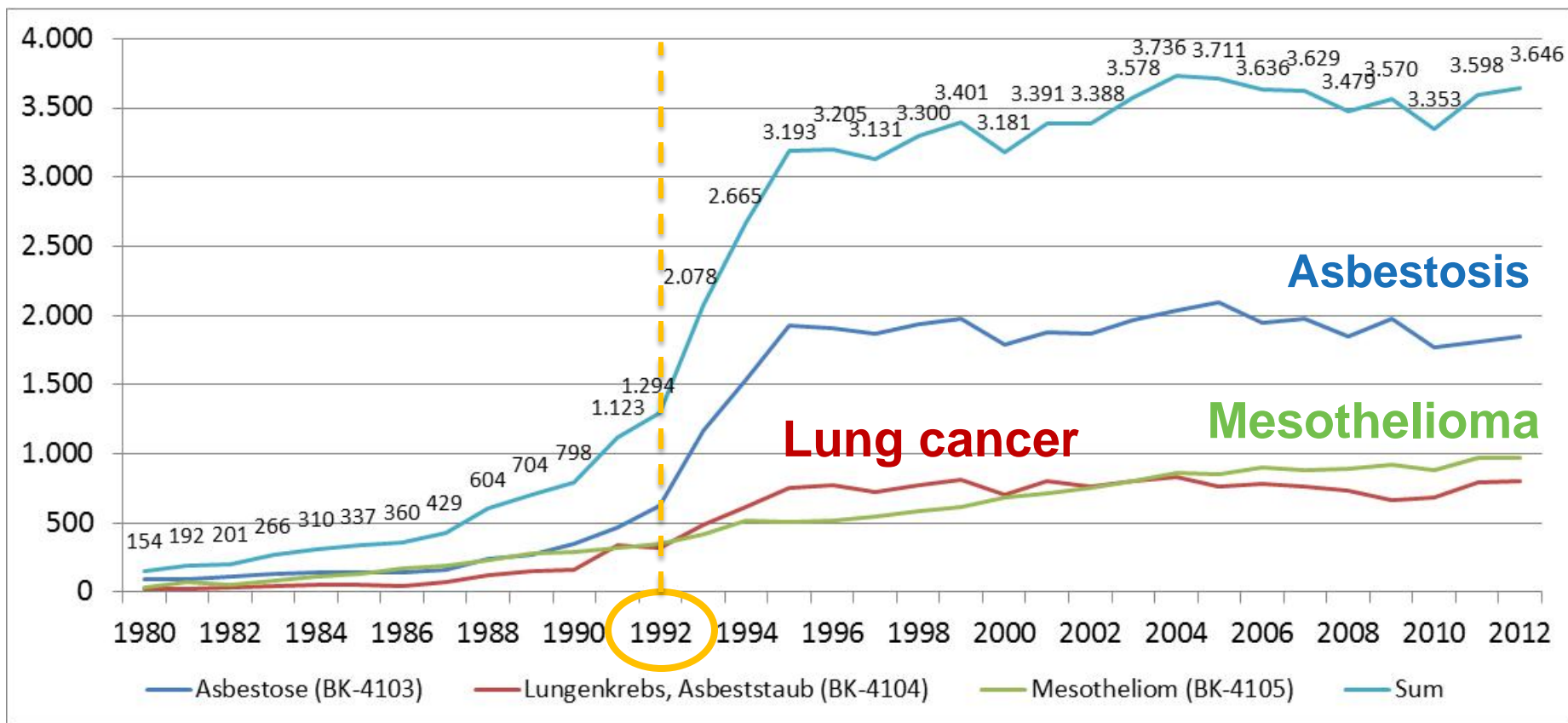
Source: DGUV 2013

Burdens of disease – Deaths (1994 – 2014)



National Asbestos Profile

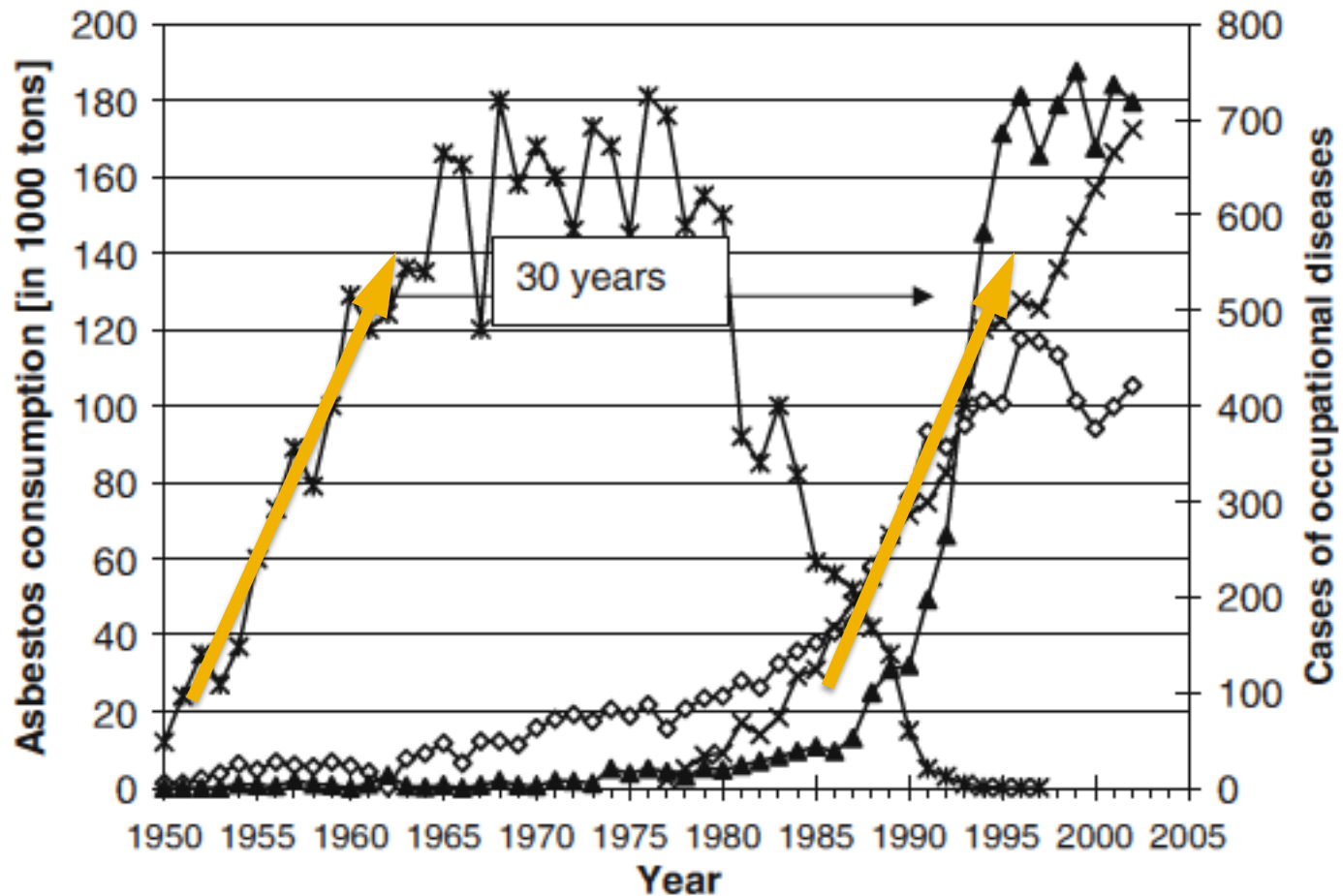
Burden of disease: Prevalence of asbestosis, asbestos-related lung cancer and mesothelioma



About 73.000 cases since 1980

National Asbestos Profile

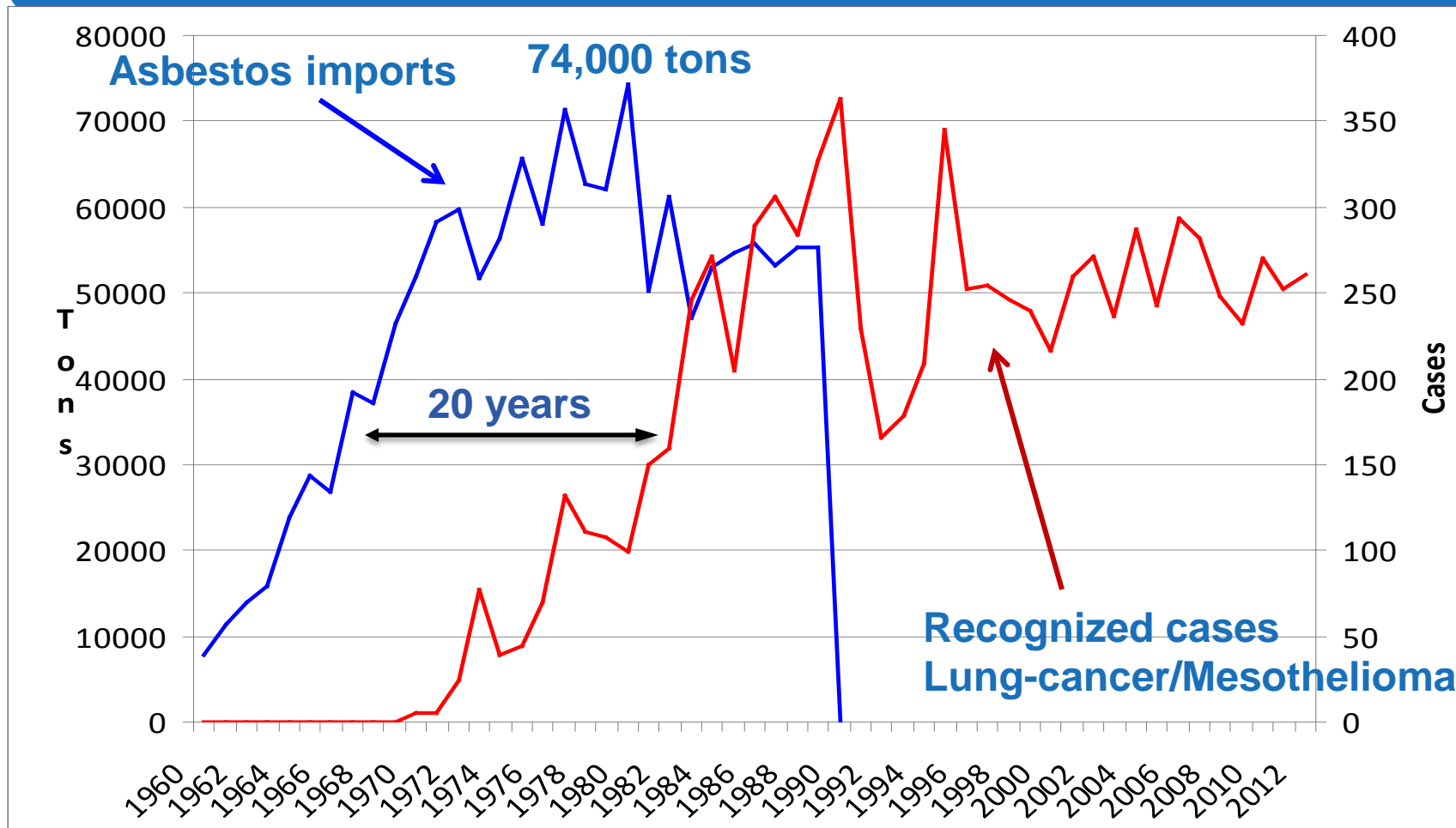
Burden of disease and consumption – West-Germany



- *— Asbestos consumption
- ◇— Asbestosis recognitions
- ▲— Lung cancer recognitions
- ×— mesothelioma recognitions

National Asbestos Profile

Burden of disease and consumption – East-Germany



Source: Statistical year books of GDR, DGUV 1995, 2003

Burden of disease and Consumption – East-Germany

Mesothelioma diseases in Saxony-Anhalt* (Office of Occupational Hygiene, Magdeburg)

- Chemical industry (Leuna/ Halle)
- 843 Mesothelioma cases analyzed between 1960 – 1990 in region of Magdeburg and Halle (3 Mio. Habitants)
- Exact knowledge on production conditions and grades of asbestos

	Amphibols only	Amphibols & Chrysotile (certain)	Chrysotile (certain) & Amphibols (uncertain)	Chrysotile only
Cases	135	279	331	67

*Sturm et al. 1993, Use of asbestos, health risks and induced occupational diseases
In the former East Germany, Toxicology letters, 1994

National Asbestos Profile

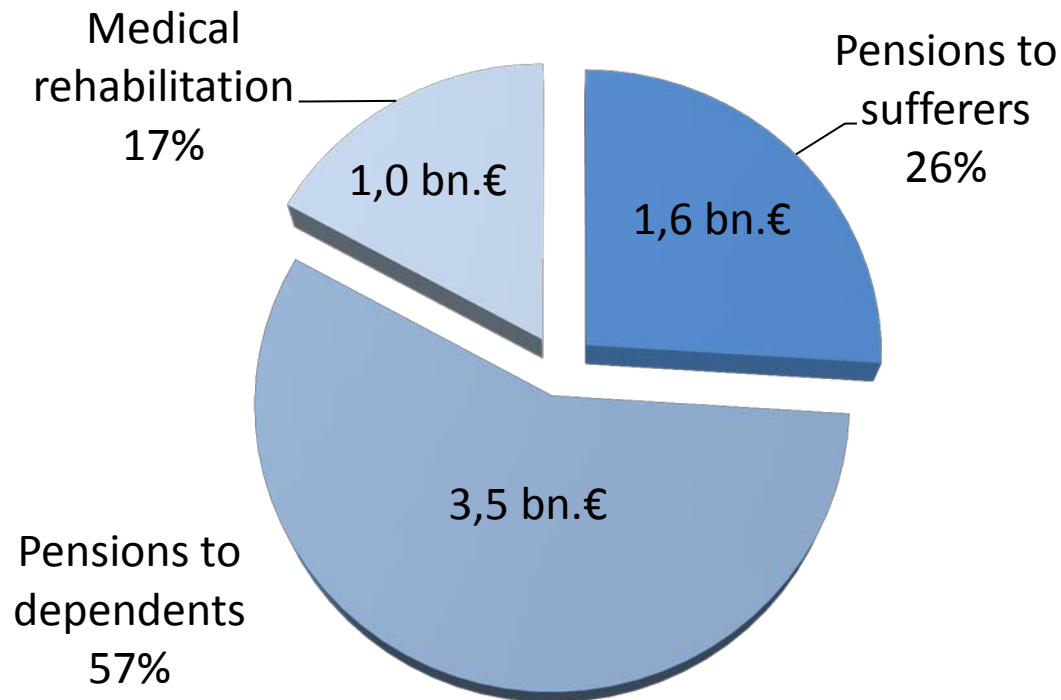
Economic burden: Expenses of the German Social Accident Insurance*

1990-2011	OD 4103	OD 4104	OD 4105	Sum
	Asbestosis	Lung cancer	Mesothelioma	
Medical Rehabilitation	143 Mio.€	423 Mio.€	457 Mio.€	1,0 bn.€
Pensions to sufferers	543 Mio.€	658 Mio.€	411 Mio.€	1,6 bn.€
Pensions to dependents	227 Mio.€	1,5 Mrd.€	1,7 Mrd.€	3,5 bn.€
Sum	0,9 Mrd. €	2,6 Mrd. €	2,6 Mrd. €	6,1 bn. €

*Deutsche Gesetzliche Unfallversicherung (DGUV), 2012, 2013

National Asbestos Profile

Economic burden: Distribution of OD-costs over cost categories*



*Deutsche Gesetzliche Unfallversicherung (DGUV), 2012, 2013

National Asbestos Profile

Burden of disease: Disability Adjusted Life Years

DALY:

- time lived with disability
- time lost due to premature mortality

2004	OD 4103	OD 4104	OD 4105	Sum		
	Asbes- tosis	Lung cancer	Meso- thelioma	Asbes- tos	Prostate** cancer	Leu- kaemia**
DALY	1,164	9,308	10,044	20,516	74,000	61,000
Deaths	113	676	753	1,542	12,300	8,000

Summary

- Ban of asbestos in 1995 – but huge amounts of asbestos still available in buildings
- High health risks also for low exposure levels
- Figures of fatalities and OD cases show significant burden of disease of past exposure
- The long-latency of asbestos diseases is a challenge for regulation of asbestos fibres

Asbestos was already banned in 1995, but presents an ongoing occupational safety problem for decades !

Thanks a lot for your attention

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