

Thermal Treatment – an Essential Element of Sustainable Waste Management

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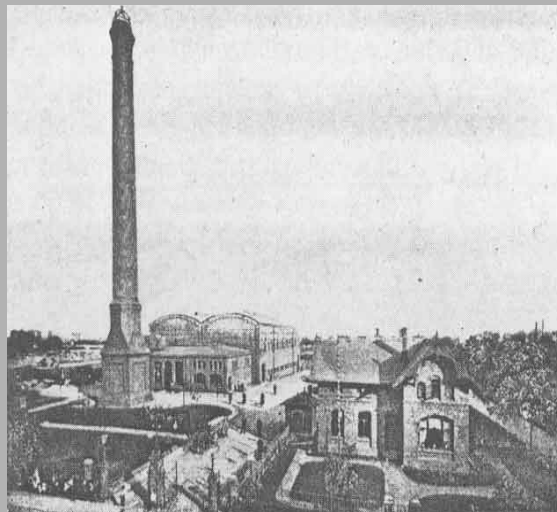
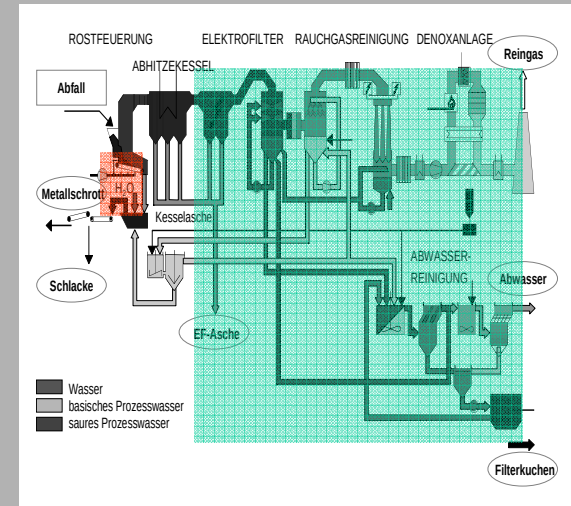
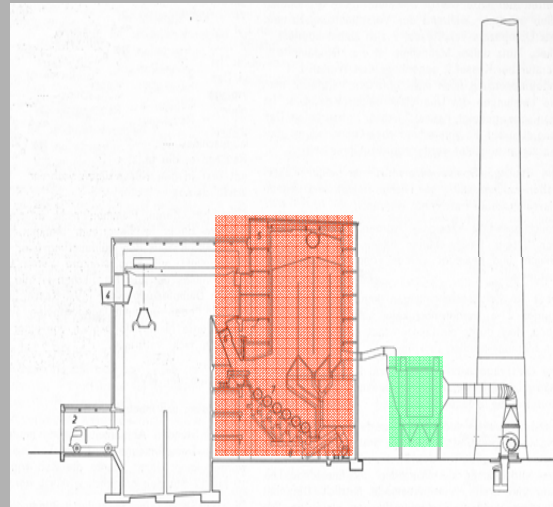
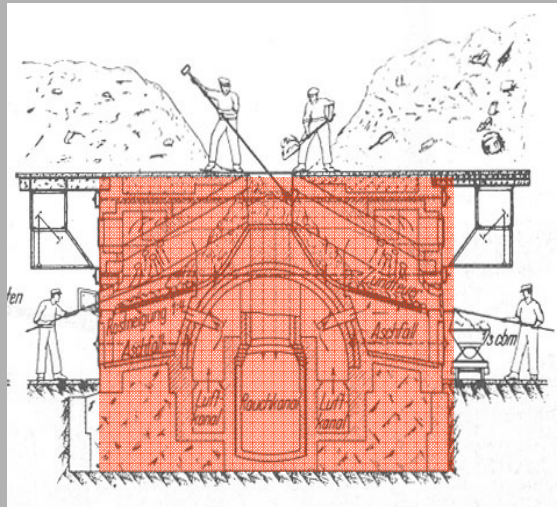
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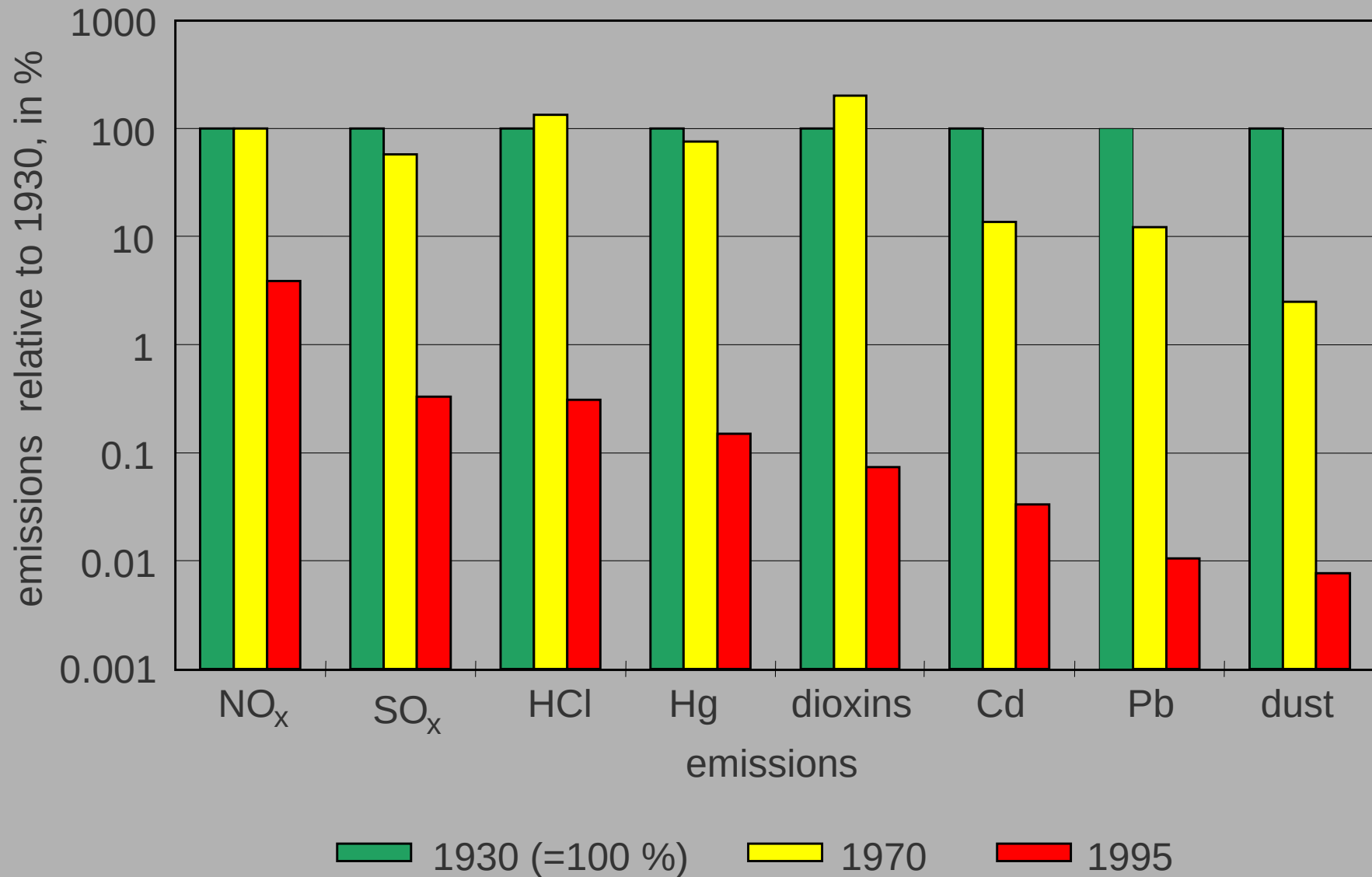
1896



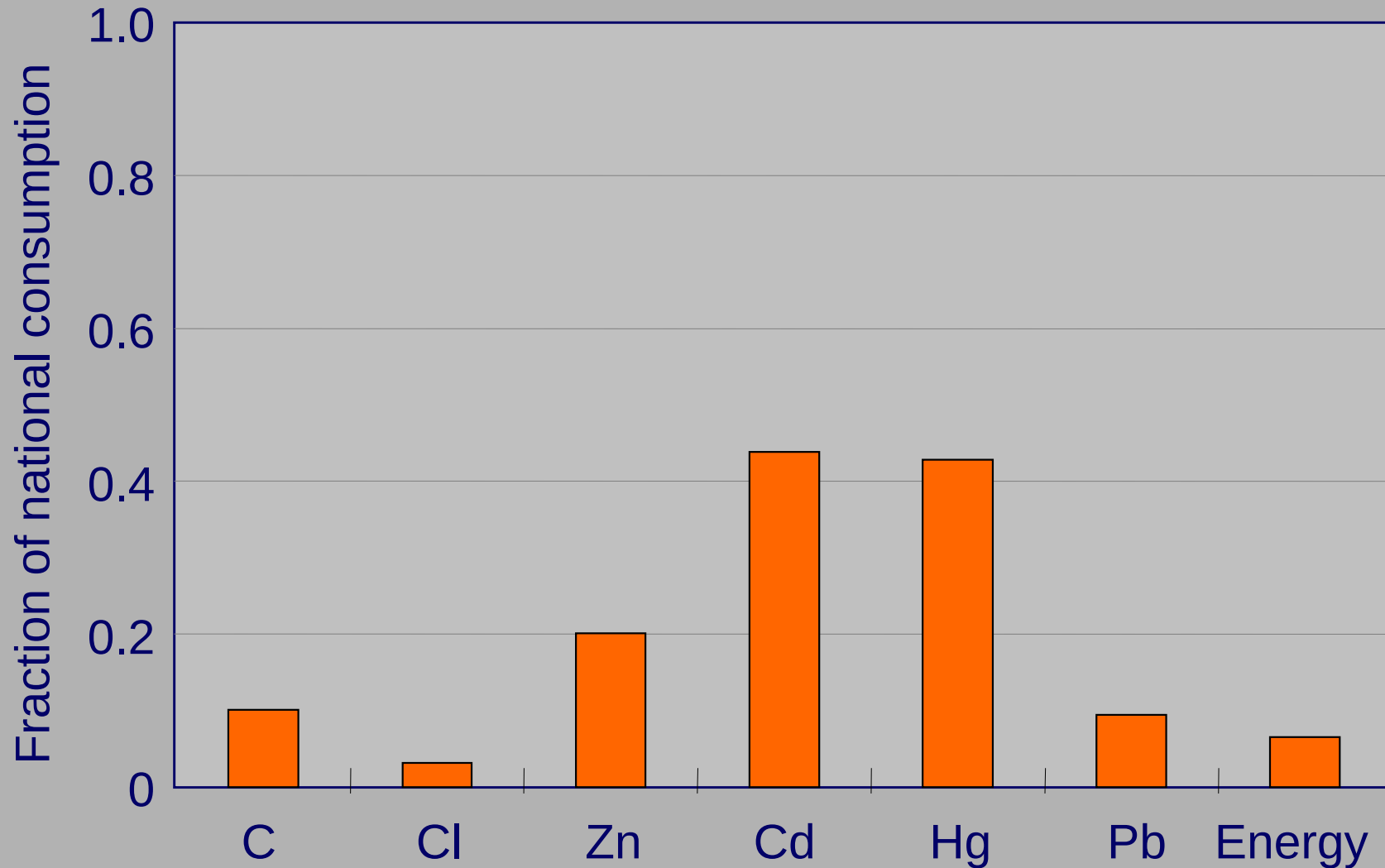
1970



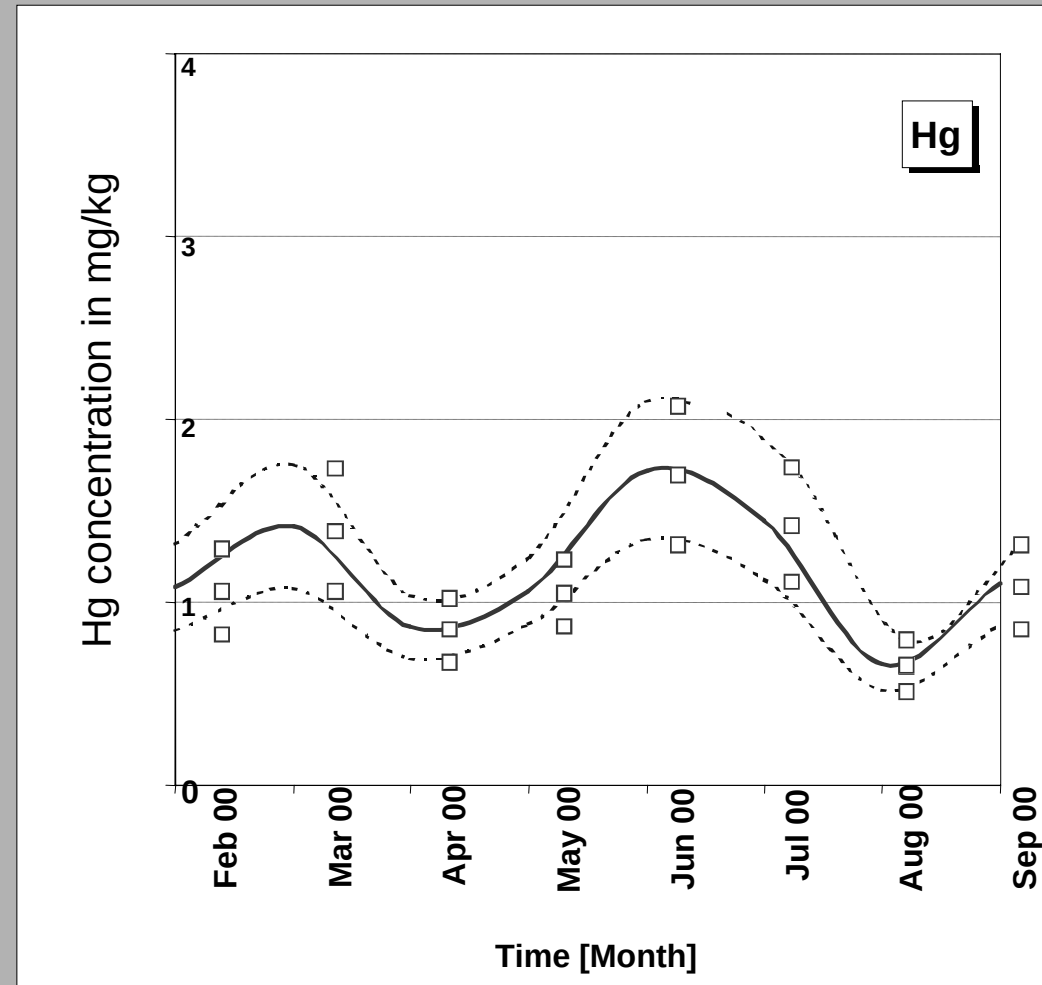
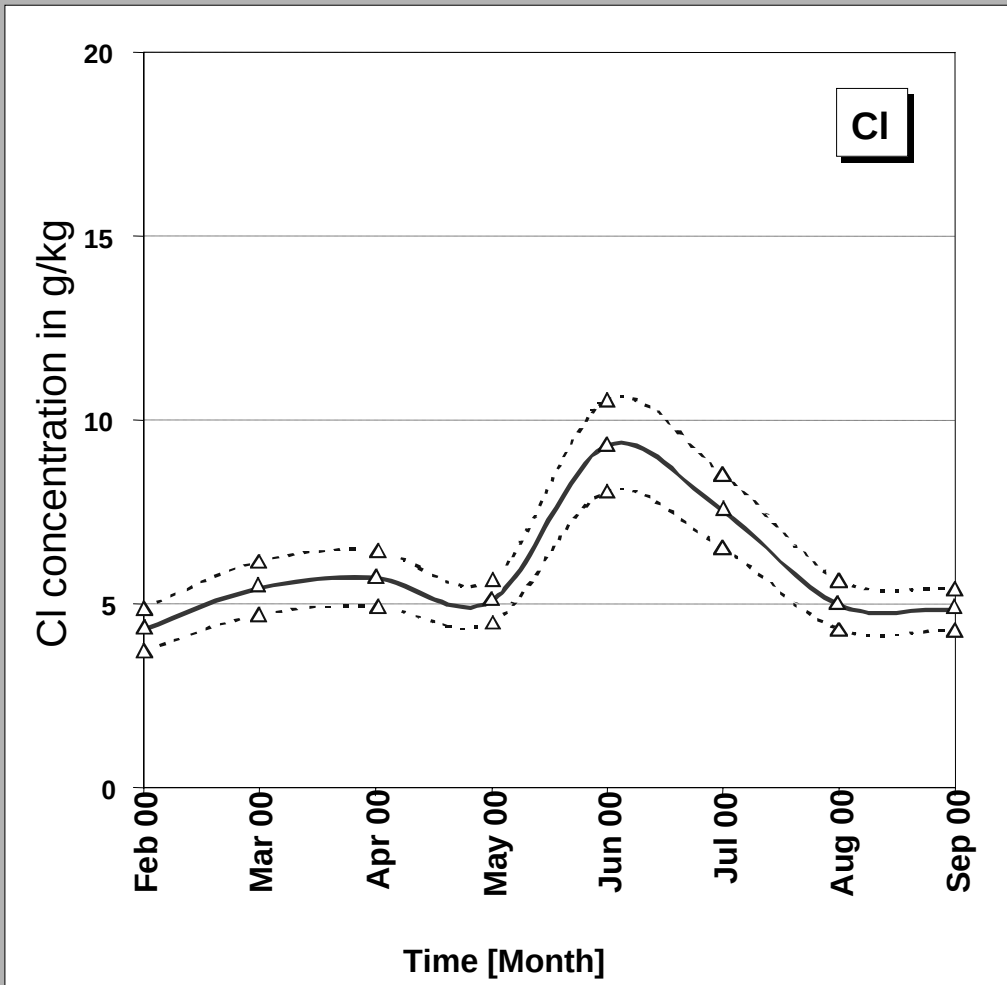
1990



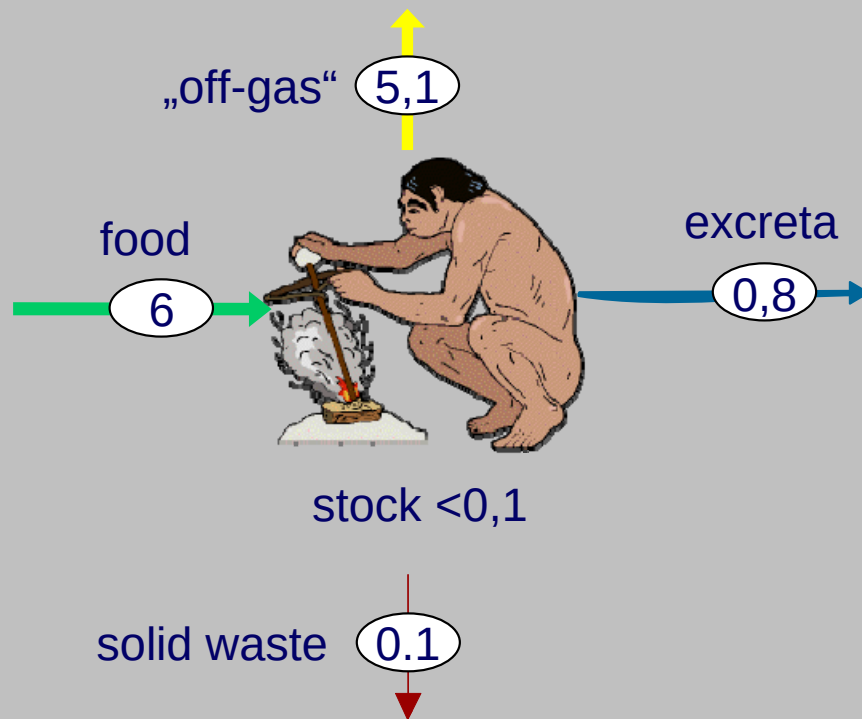
Fraction of total turn-over of C, Cl, Cd etc. in combustible wastes



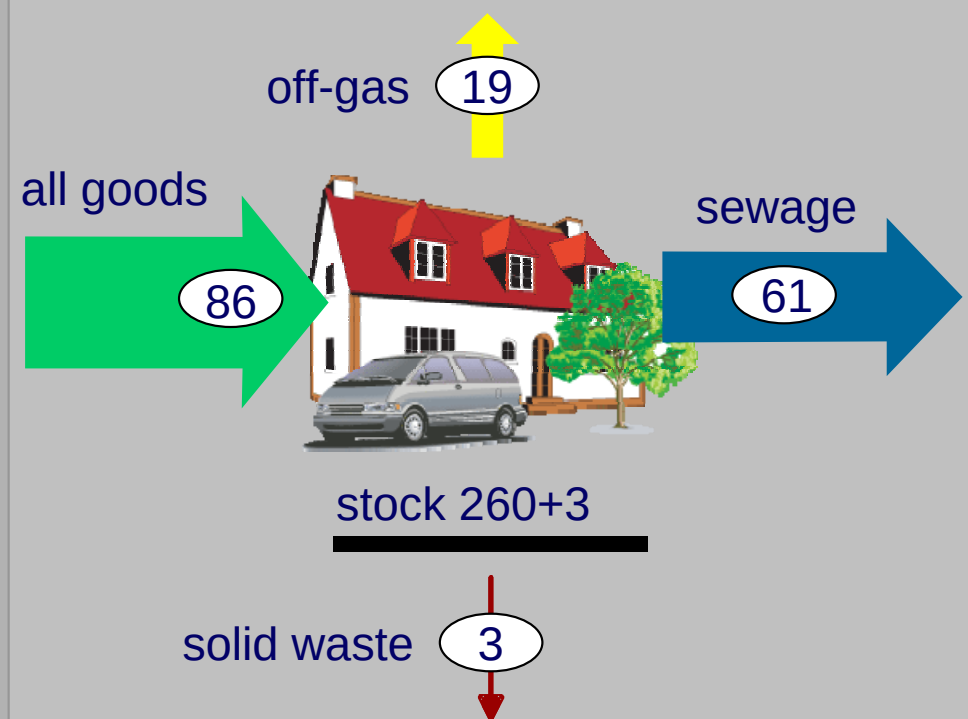
Incineration as a tool to analyse MSW composition



“Prehistoric” men

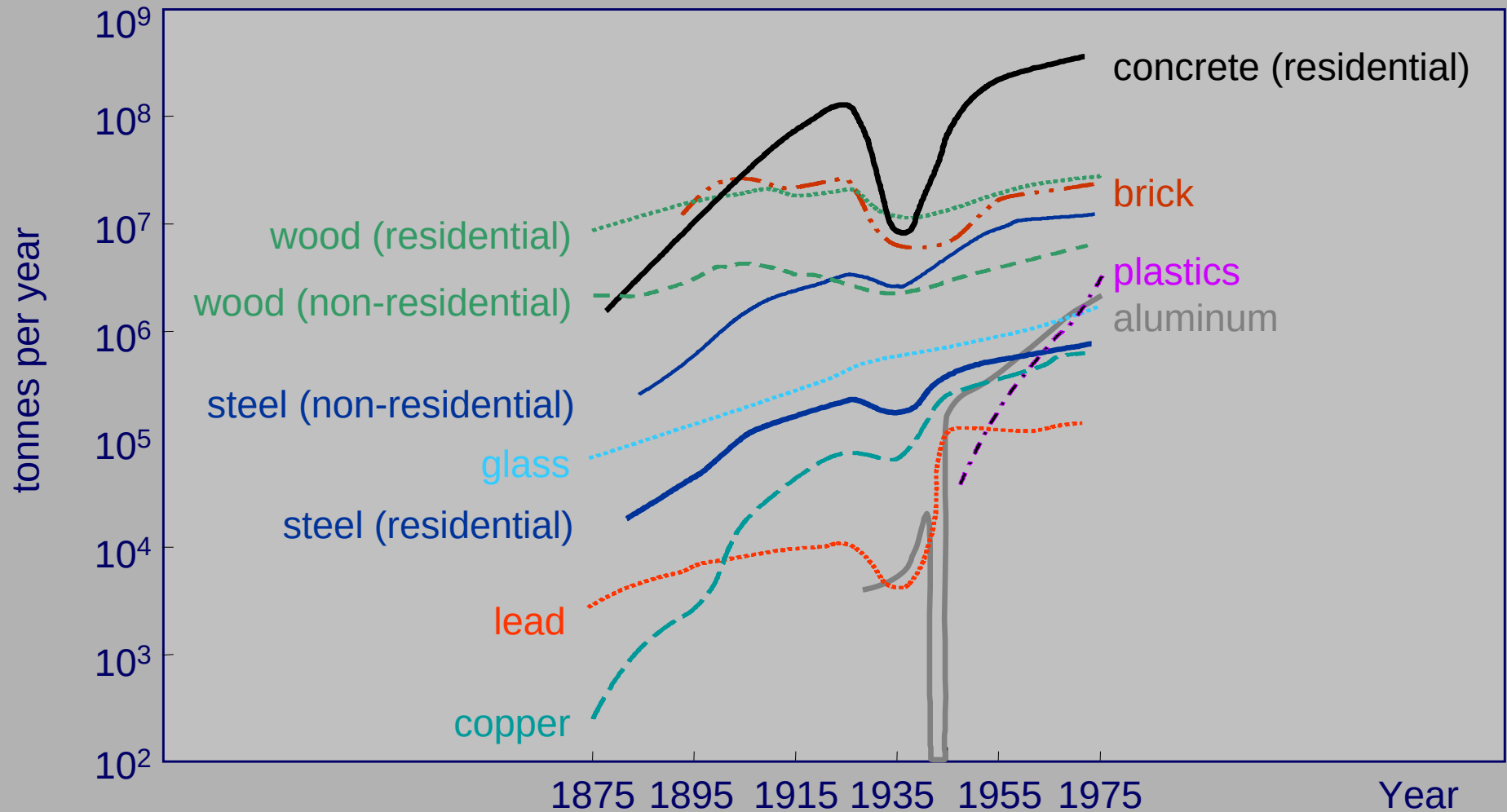


“Modern” men

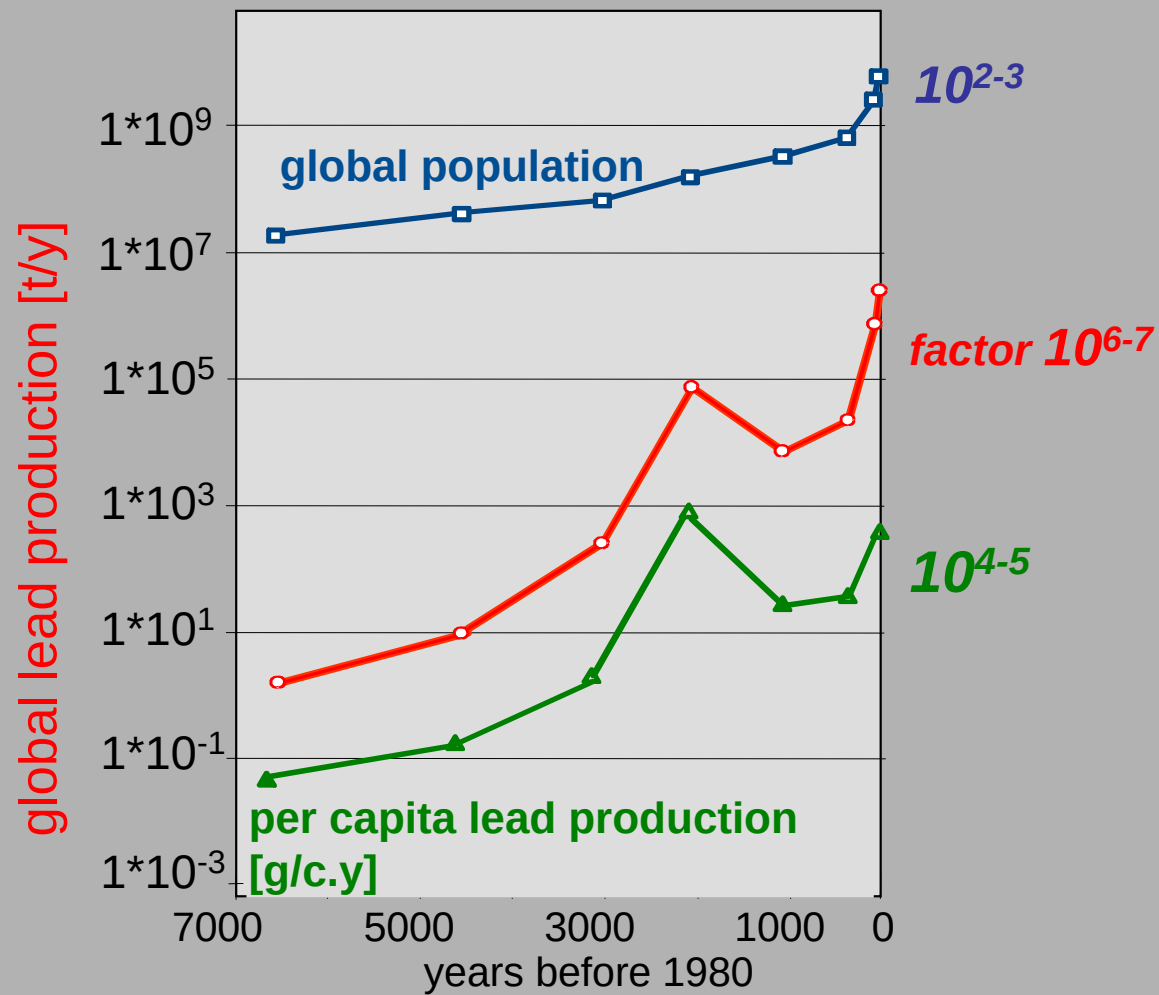


flows [t/(c.yr)]
stocks [t]

Use of construction material in the US 1875-1975

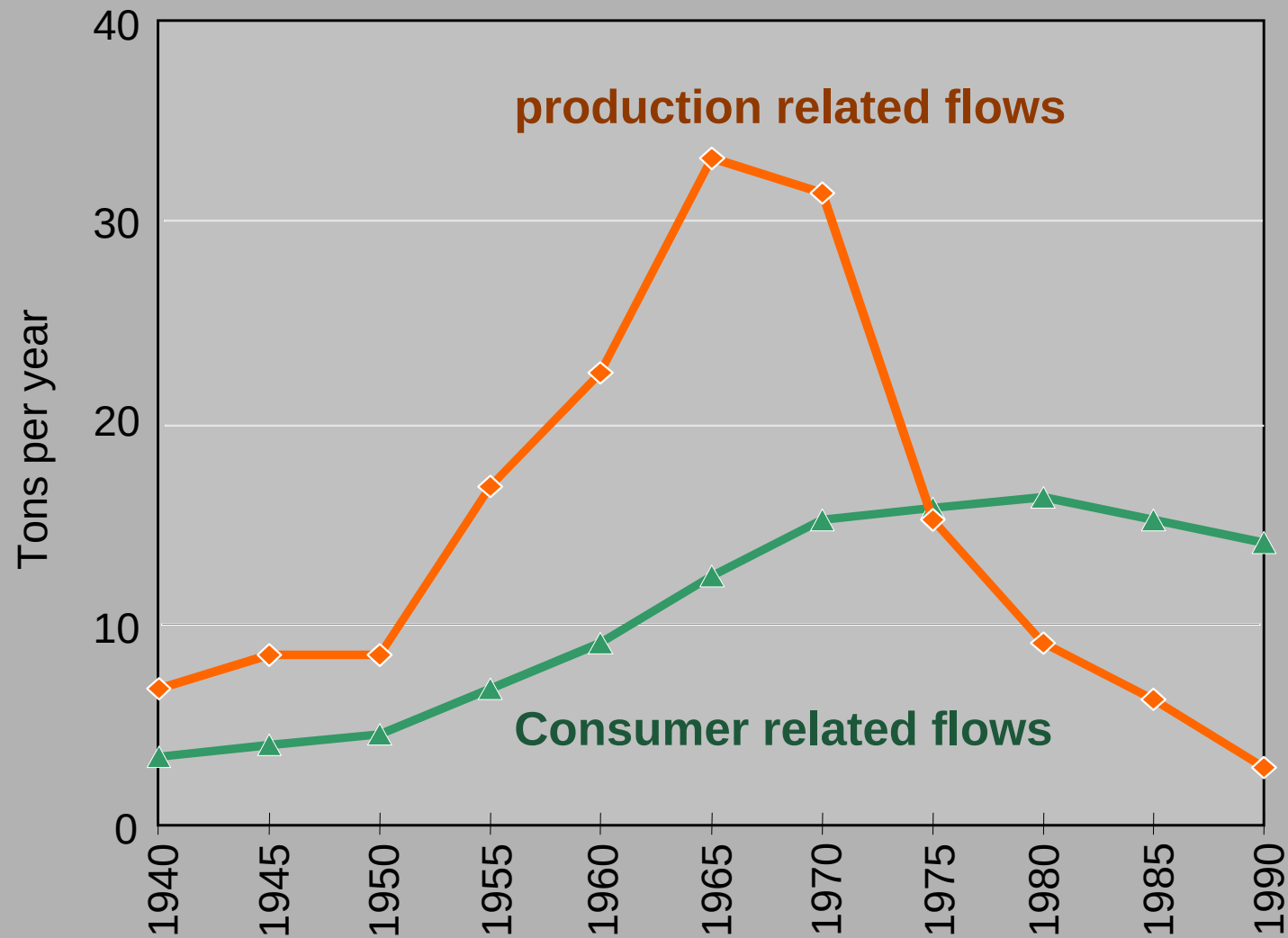


example lead



Source: Settle & Patterson

example cadmium

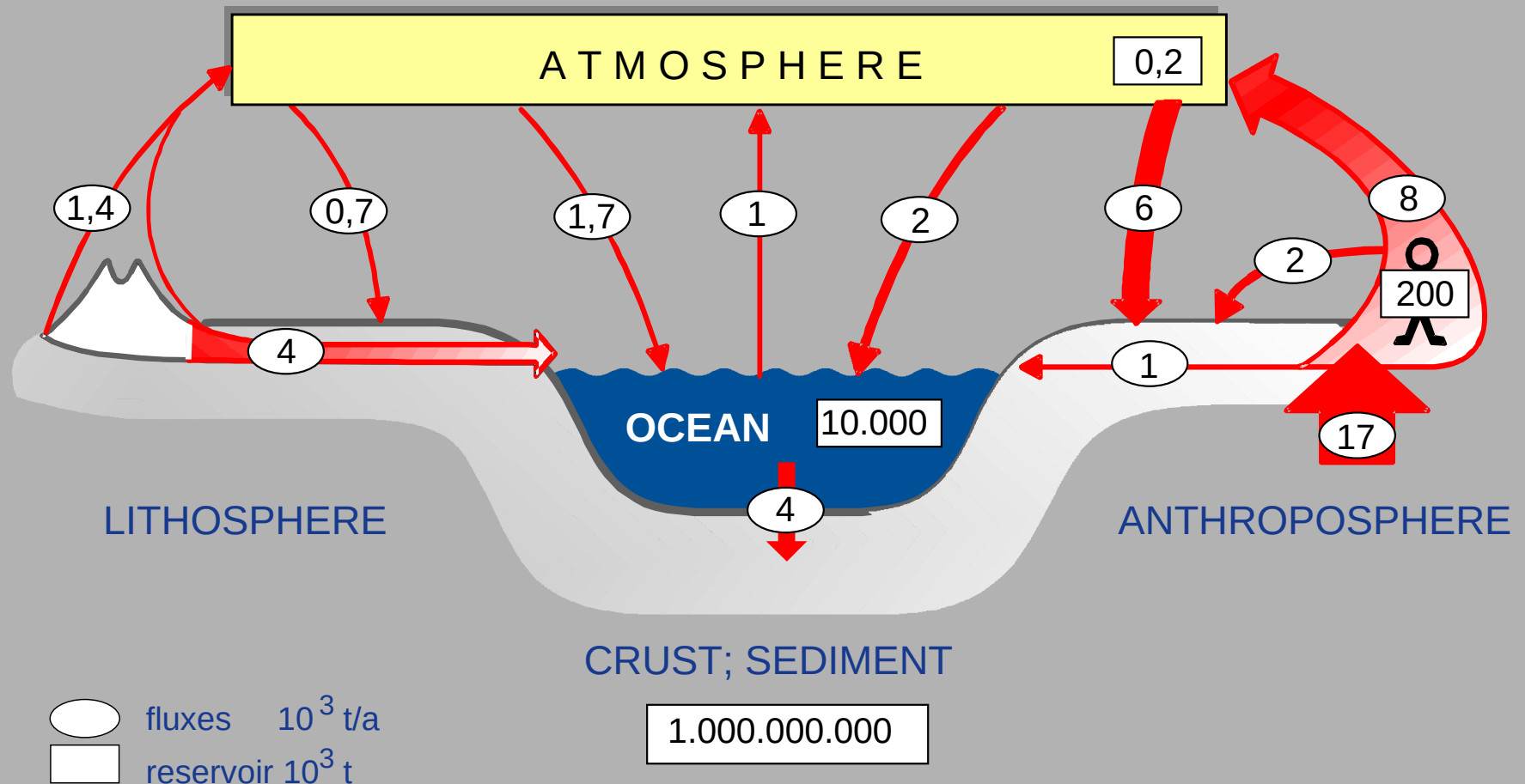


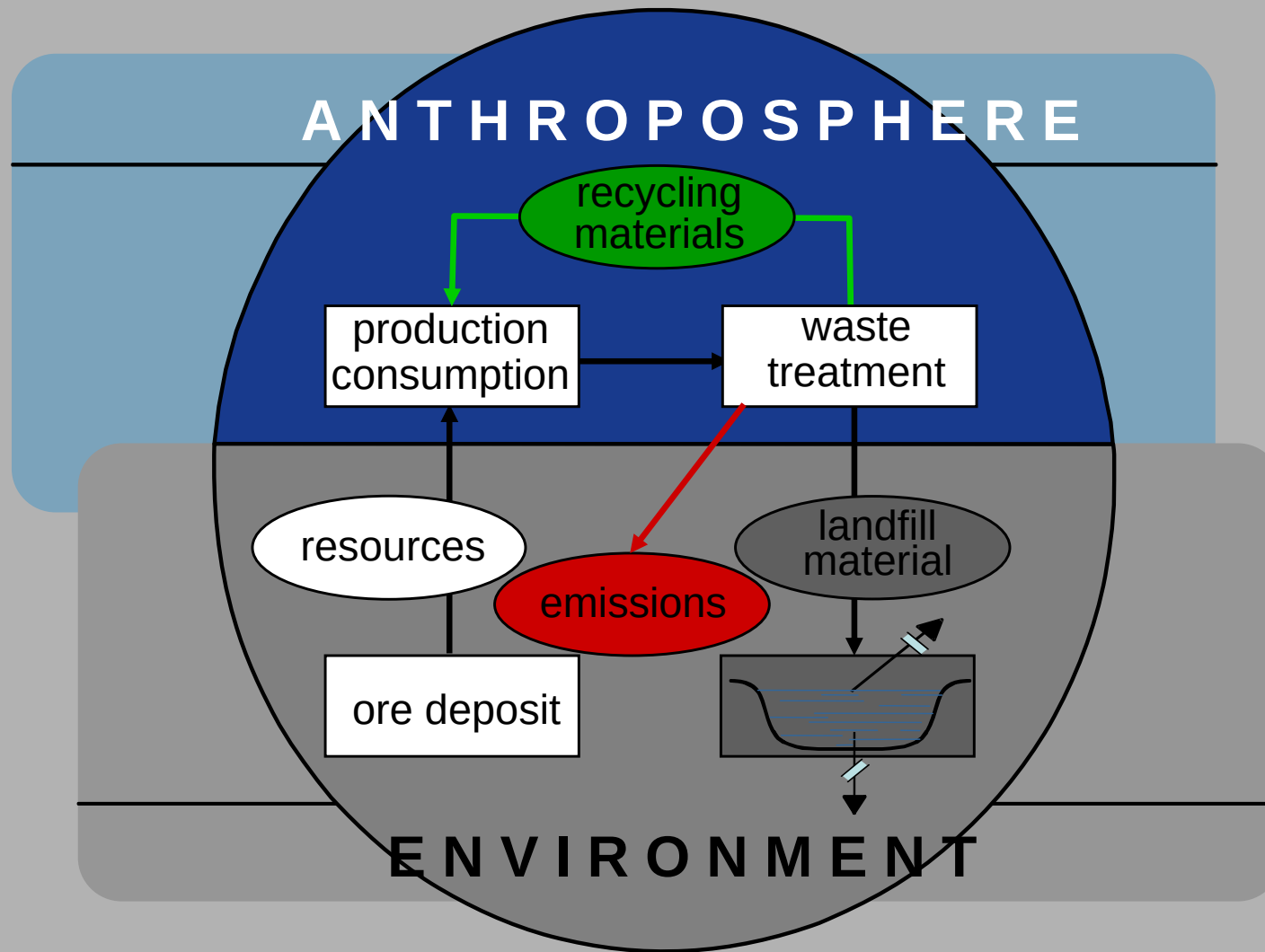
Quelle: Bergbäck, 1992

example cadmium

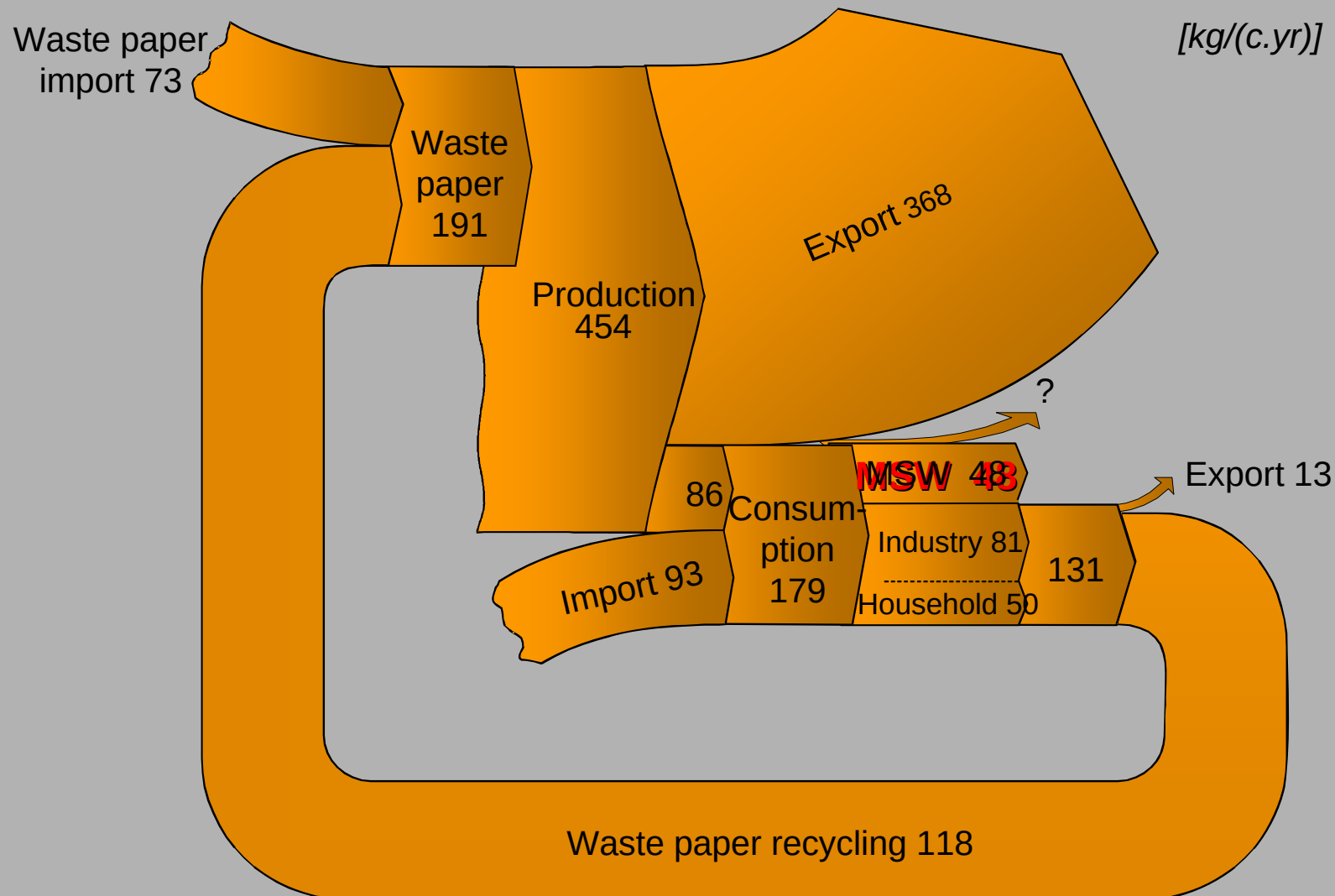
geogenic

man made

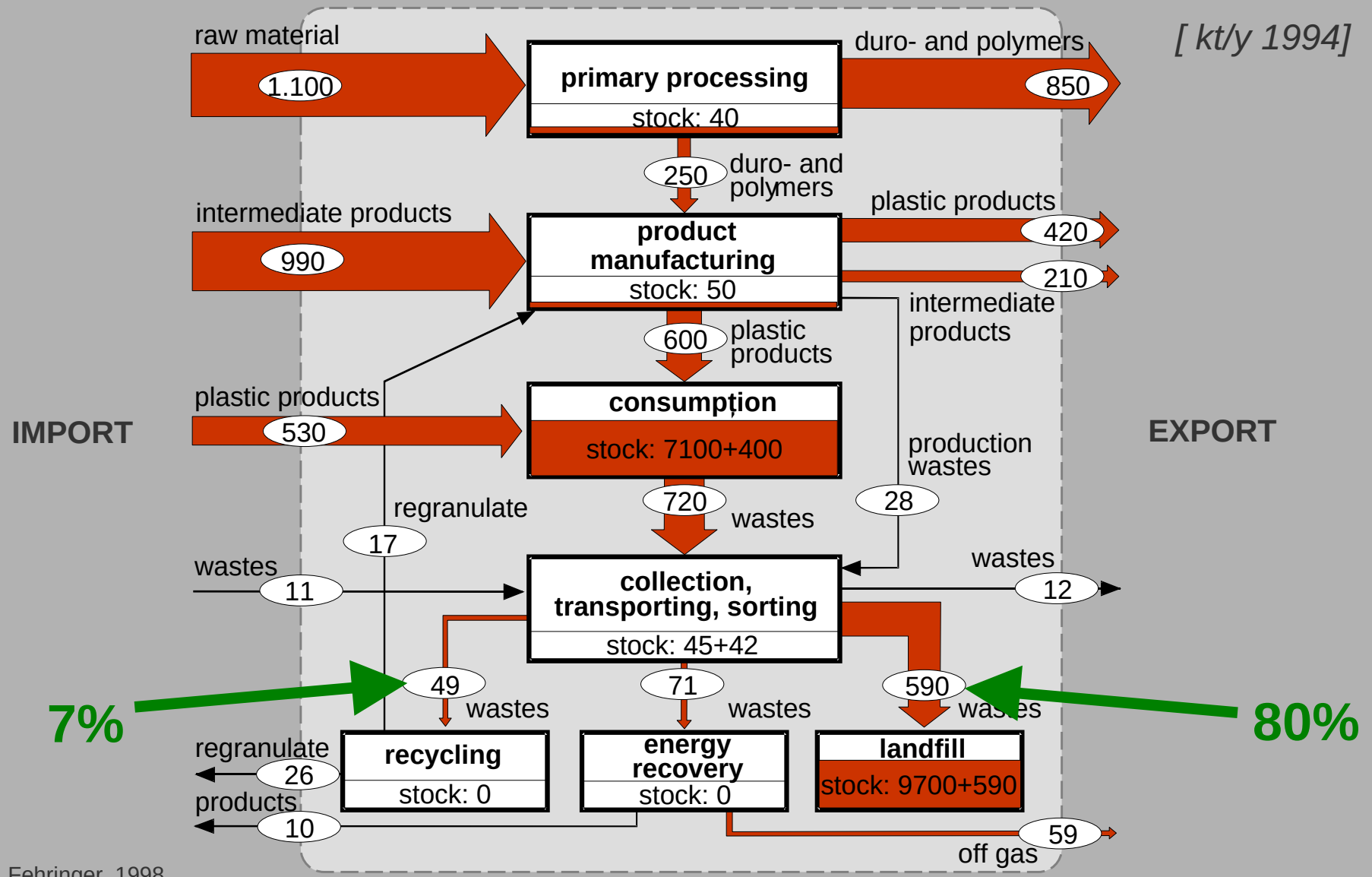




paper cycle Austria 1996



Data: Austrian Paper Industry, 1996

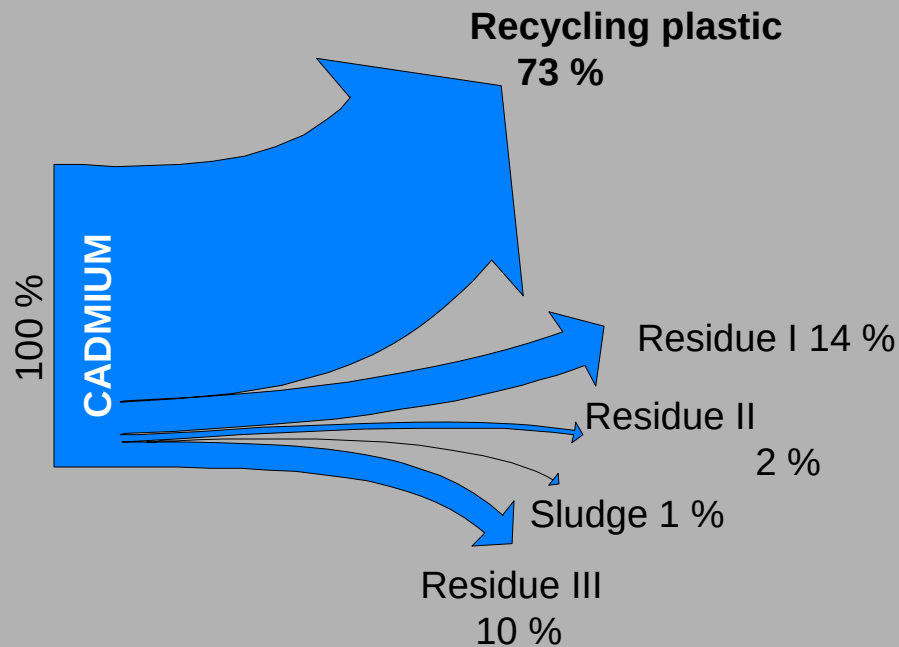


Source: R. Fehringer, 1998

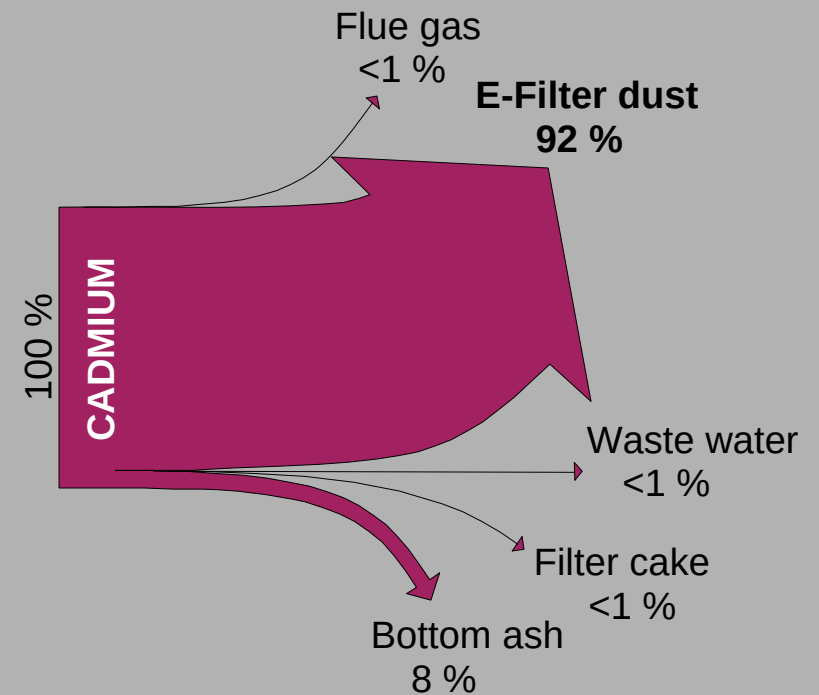
Material	Total consumption		Packaging material		Total stock
	in kt/yr		in kt/yr	in %*	in kt
Plastics	1,100		200	18	7,100
Softeners	14		0.2	2	140
Ba/Cd- stabilizers	0.27		0.0002	<1	2.6
Pb-stabilizers	1.8		0.002	<1	18
Fire retardants	2.3		0	~0	22

* % of total consumption

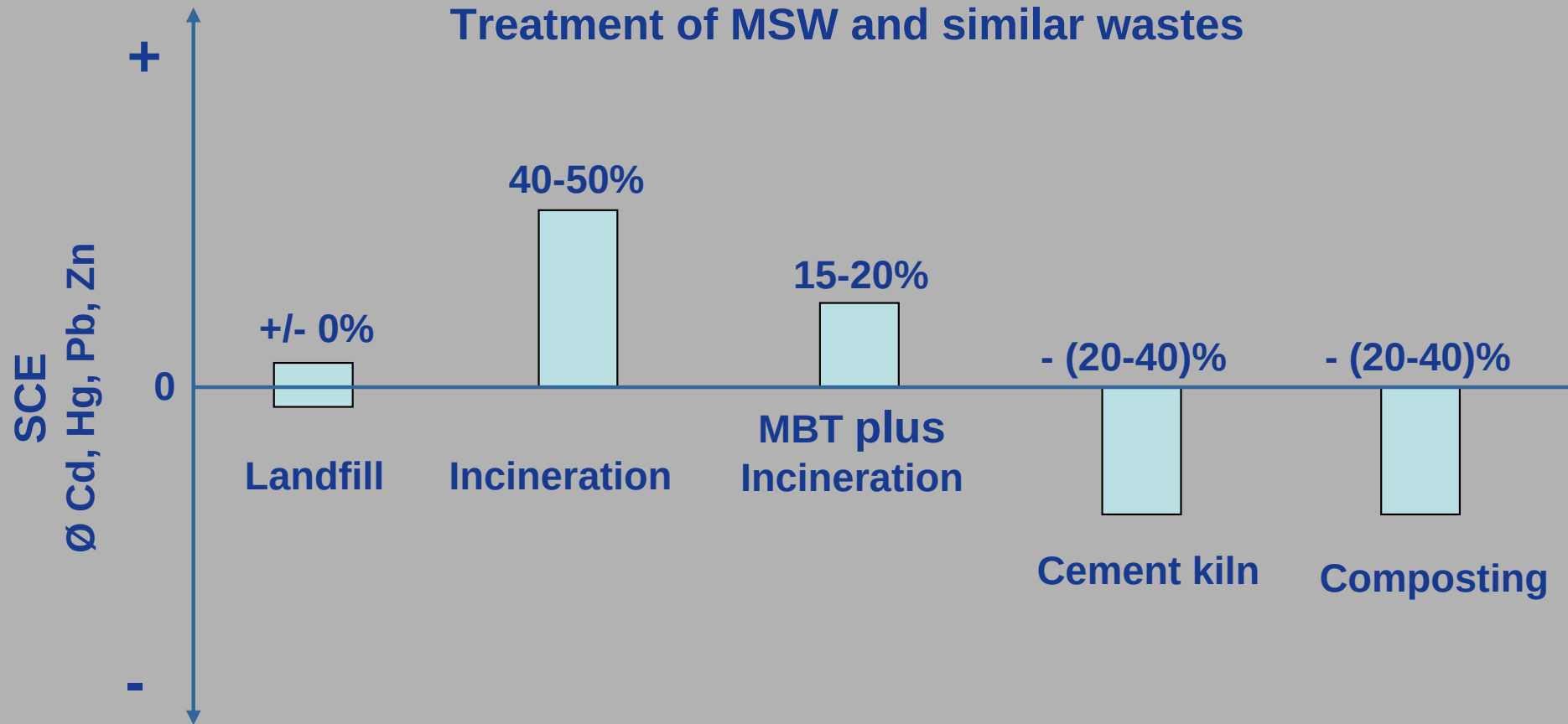
Plastic recycling



MSW incineration

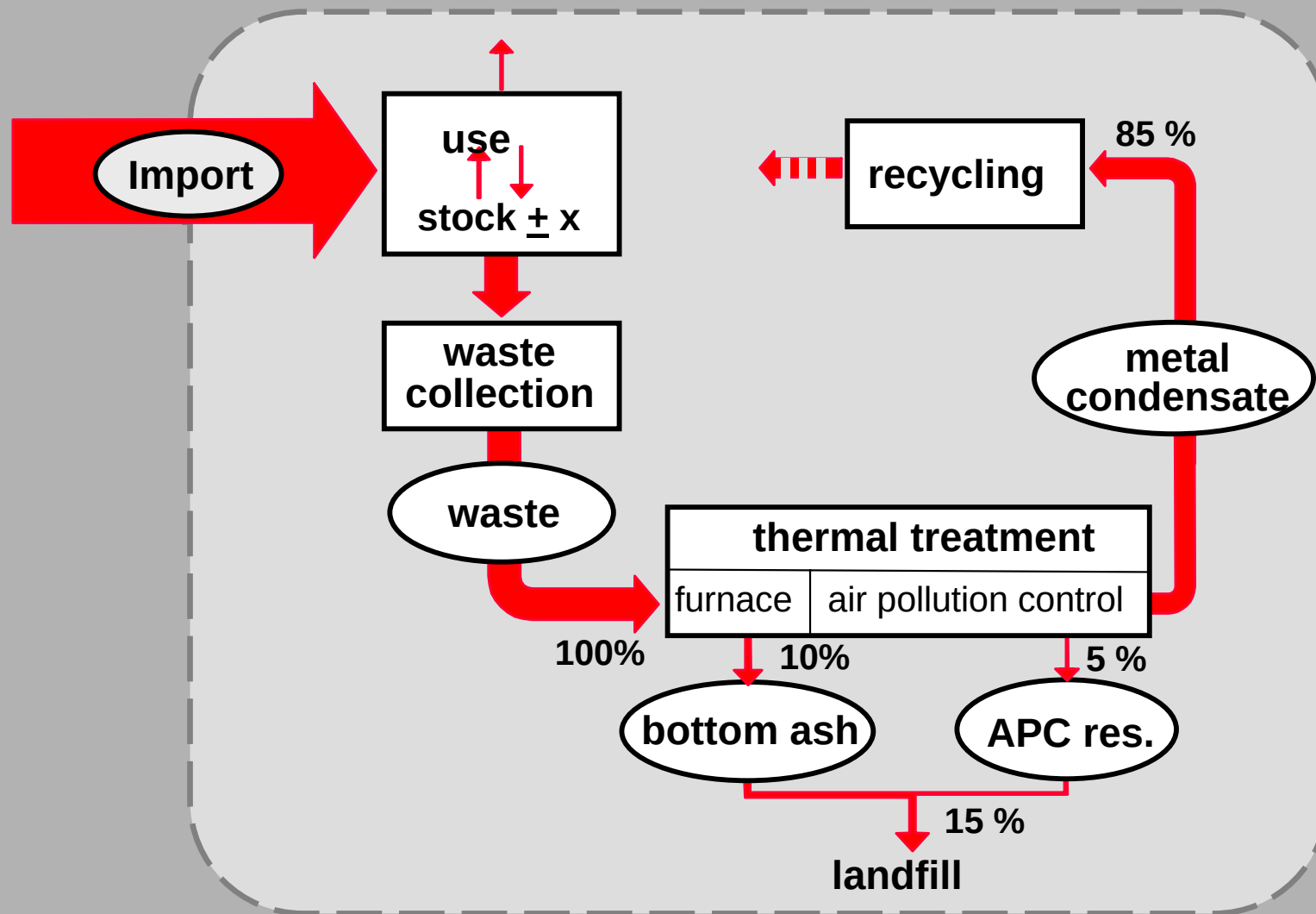


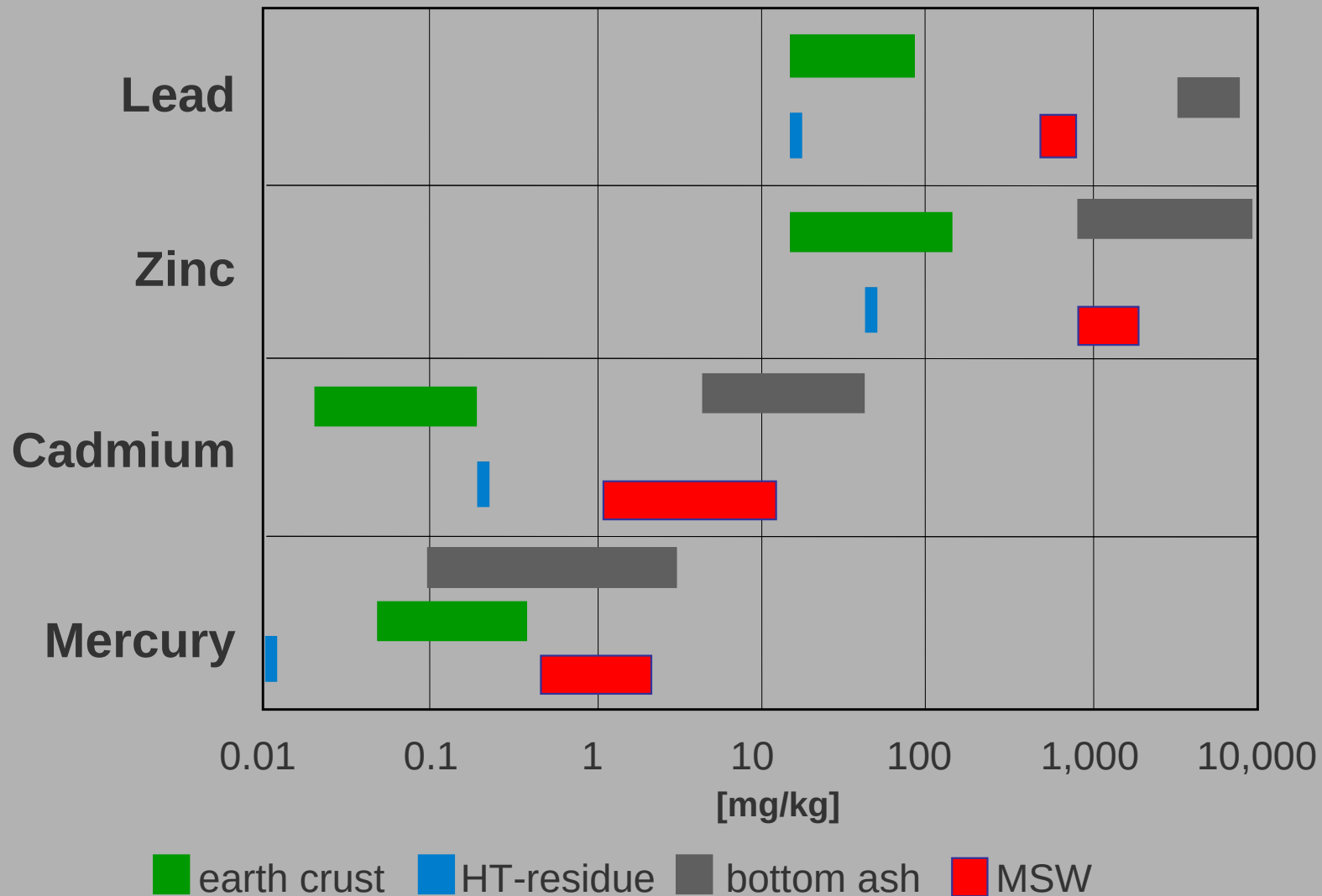
Treatment of MSW and similar wastes



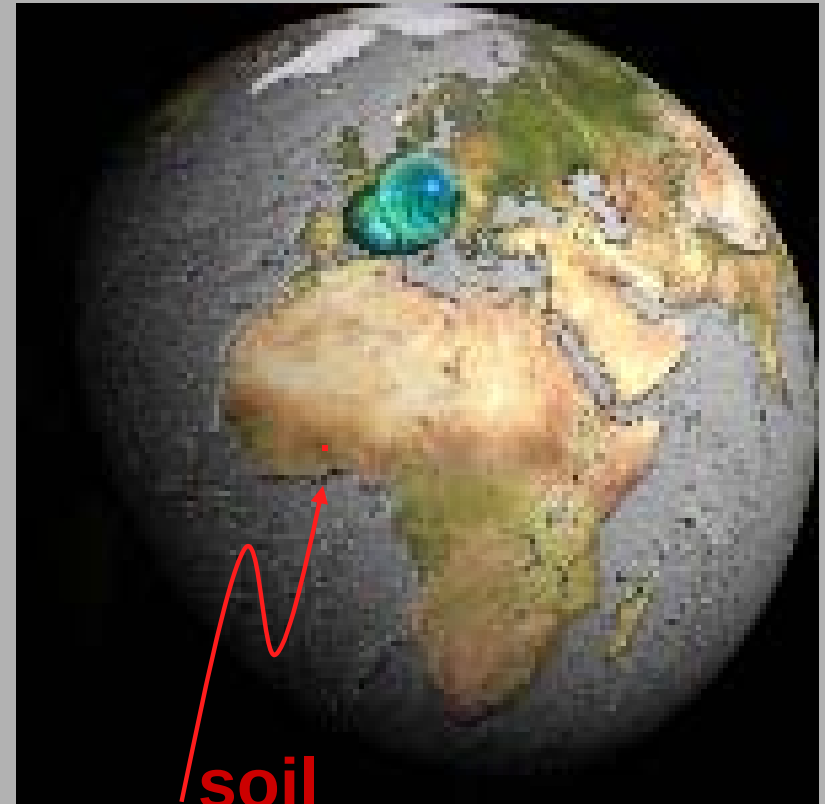
SCE: substance concentrating efficiency = $f(\text{entropy}_{st})$

source: Rechberger & Brunner, 2000



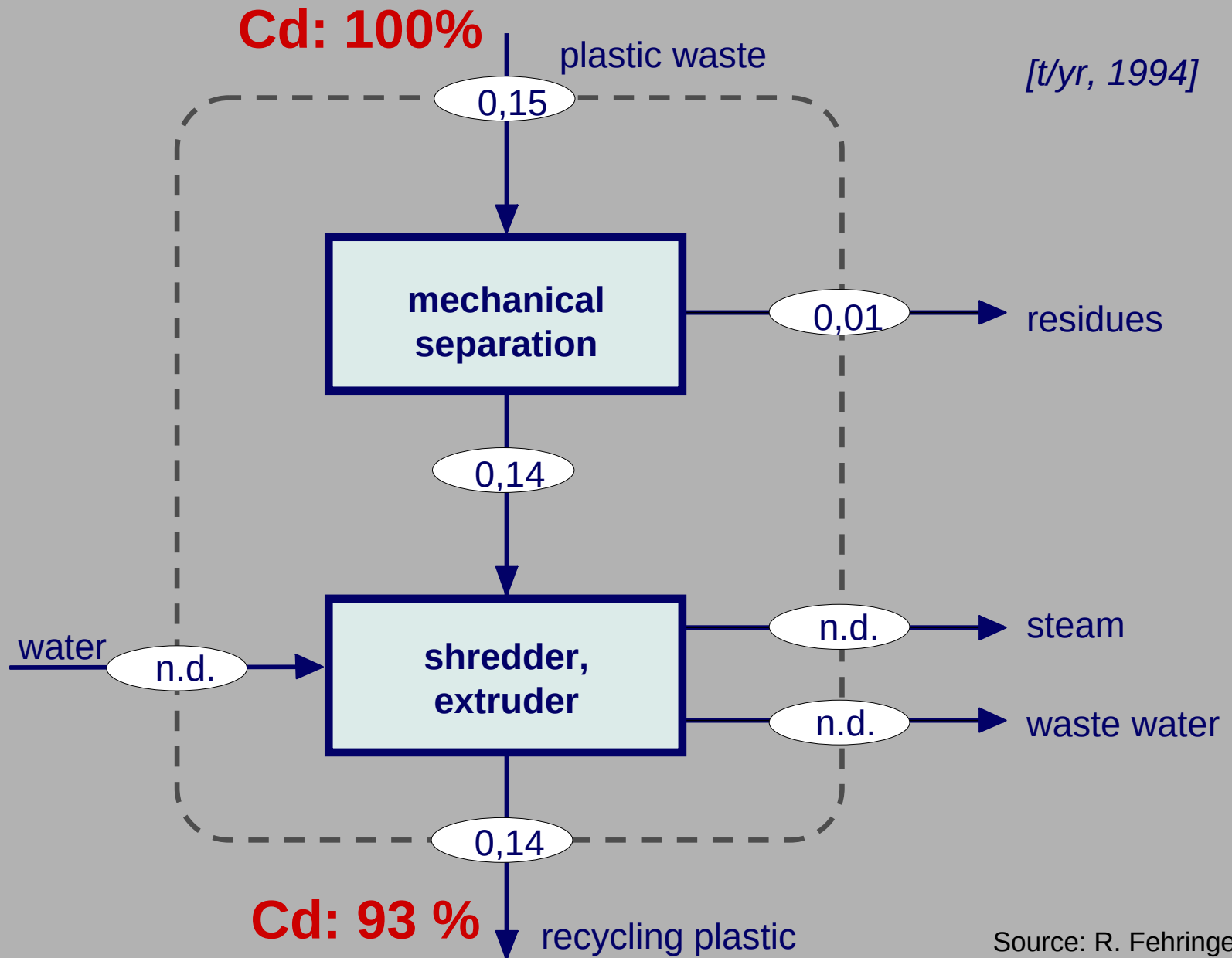


Döberl et al. (2001)



Source: Nieman/Novartis; Döberl

Thank you



Source: R. Fehring, 1996

From landfills to final sinks – a long way!

