mixing process removed the heterogeneity that originally existed between the grab samples, but the information about individual variability was lost. For slag, the composite procedure used seems to be non-effective. (3) The number of samples taken and analysed reduced uncertainty in the estimated mean heavy metal concentrations to an acceptable level. This should also be true for indirect estimation of the mean elemental composition of municipal solid waste, since the mass flow of waste input, slag and filter ash within the measuring periods can be measured with negligible errors. It must be assumed that the elements considered are transferred only into slag and filter ash. This is true for the elements considered in this article *(→ Fig. 3)*.

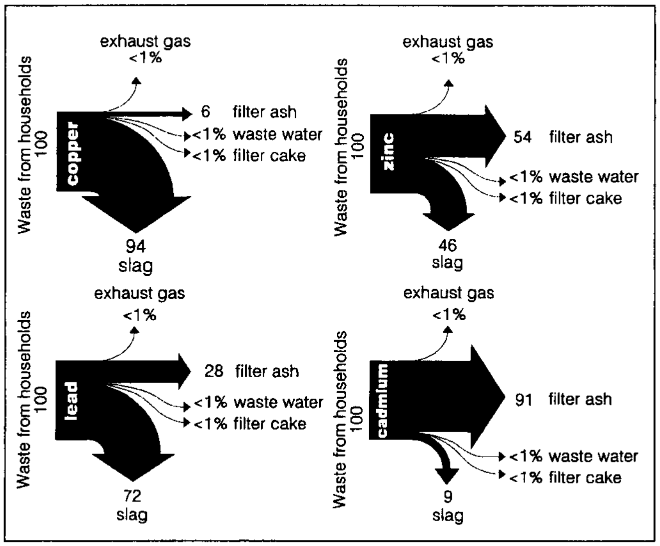

Fig. 3: Transfer of copper, zinc, lead and cadmium through a municipal solid waste incinerator (SCHACHERMAYER et al., 1994)

(4) Significant differences, especially for filter ash, between two data sets due to different incinerated waste were found within acceptable laboratory work (64 samples of analysis for filter ash, and 76 samples of analysis for slag). Since most heavy metals are transferred in filter ash and slag, this shows that indirect detection of changes in the chemical waste composition over time via these two residues of incineration is possible. To improve this instrument, sampling frequencies and sampling preparations have to be defined on a basis of empirical work. This also includes questions of grab and composite sampling. Solving this problem ensures the comparability of different measuring programs and reduces sources of misinterpretation to a minimum.

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Erratum

from ESPR Vol. 2, No. 3 (1995), "Substance Flows Through the Economy and Environment of a Region, Part II: Modelling" by E. VAN DER VOET et al., pp. 137–144. Please replace the equation on p. 142 by the equation below.

By calculating A^∞ this can be proven:

$$A^\infty = \begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0.045 & 0 & 0 \\ 0.4 & 0 & 0 & 0 & 0 & 0 & 0 & 0.4 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0.7 \\ 0.32 & 0 & 0 & 0 & 0 & 0 & 0 & 0.32 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 & 0.955 & 0 & 0.7 \\ 0.6 & 0 & 0 & 0 & 0 & 0 & 0.045 & 0.6 & 0 \\ 0.08 & 0 & 0 & 0 & 0 & 0 & 0 & 0.08 & 0.3 \end{bmatrix}^\infty = \begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0.24 & 1.24 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 1.25 & 1.25 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0.25 & 0.25 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 1 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 5.32 & 27.54 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 2.11 & 3.11 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0.36 & 0.36 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$