

## Trends in anthropogenic mercury emissions estimated for South Africa during 2000-2006

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### ABSTRACT

Recent studies suggest an increase in mercury (Hg) emissions to the global environment, particularly as a result of anthropogenic activities. This has prompted many countries to complete Hg emission inventories, based on country-specific Hg sources. In this study, information on annual coal consumption and Hg-containing commodities produced in South Africa, was used to estimate Hg emissions during 2000-2006. Based on the information, the UNEP toolkit was used to estimate the amount of Hg released to air and general waste from each activity; using South Africa specific and toolkit based emission factors. In both atmospheric and solid waste releases, coal-fired power plants were estimated to be the largest contributors of Hg emissions, viz. 27.1 to 38.9 tonnes  $y^{-1}$  in air, and 5.8 to 7.4 tonnes  $y^{-1}$  in waste. Cement production was estimated to be the second largest atmospheric Hg emission contributor (2.2-3.9 tonnes  $y^{-1}$ ), while coal gasification was estimated to be the second largest Hg contributor in terms of general waste releases (2.9-4.2 tonnes  $y^{-1}$ ). Overall, there was an increase in total atmospheric Hg emissions from all activities, estimated at ca. 34 tonnes in 2000, to 50 tonnes in 2006, with some fluctuations between the years. Similarly, the total Hg emissions released to general waste was estimated to be 9 tonnes in 2000, with an increase to 12 tonnes in 2006.