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Sources and trends of environmental mercury emissions in Asia

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Abstract

This paper focuses on environmental mercury emissions in Asia and elaborates its probable trend in the future and associated implications given the anticipated socioeconomic outlook and other macro-environmental factors. Among the various regions, Asia has become the largest contributor of anthropogenic atmospheric Hg, responsible for over half of the global emission. In the next few decades, a significant increase in anthropogenic Hg emissions in Asia is likely owing to rapid economic and industrial development, unless drastic measures are taken. In particular, the dominance of Asia in some Hg-emitting industries, such as coal combustion, steel production and gold mining, provokes a serious environmental concern over their potential contributions of incidental Hg in the region. Moreover, the increasing prevalence of electrical and electronic manufacturing industry as a user and a contributor of Hg in Asia is also worrying. Specifically, disposal of obsolete electrical and electronic wastes represents a phenomenon increasingly encountered in Asia. In addition to escalating anthropogenic Hg emissions in Asia, associated environmental and health implications may also exacerbate in the region for the probable effects of a unique combination of climatic (e.g. subtropical climate), environmental (e.g. acid rain) and socioeconomic factors (e.g. high population density). Hence, much effort is still needed to understand the role of Asia in global Hg cycle and associated environmental and health effects in the region.