(149)

Study on Awareness on the Mercury Usage in Sri Lankan Small Scale Jewellery Sector

De Silva A.D.C., Rubasinghe T.M., Manthrirathne M.A.N.C.*, Wewegedara W.G.C.N., Diyabalanage R.S., Jaysinghe R.M.N.P.K., Dharmaratne T.S.

Gem and Jewellery Research and Training Institute, Walivita, Kaduwela
**nadeekamn@gmail.com*

Abstract

Mercury is utilised in extensive amounts for gold recovery from the waste produced during the traditional gold jewellery manufacturing particularly in the Small Scale Jewellery Sector (SSJS). Due to its toxicity and bioaccumulation potential this can cause for serious health effects and environmental pollution. Colombo and Gampaha districts are the main two districts where SSJS is mostly confined. Therefore, this study was focused to assess the amount of mercury usage in SSJS through a structured interview and a questionnaire survey among 120 goldsmiths from these districts. It was revealed that, gold is recovered once in a six month period or annually by using significant amounts of mercury which is totally depends on the workload and amount of waste collected.In this process, the waste is mixed with mercury to form Hg-Au amalgam and it is roasted to recover gold while mercury gets removed through vitalisation. It was disclosed that, about 4 g of mercury is used to refine one pound of gold (8 g). None of the respondents practice any safety precautions or proper ventilation techniques during this process. Therefore they get readily exposed to mercury vapor. Among the interviewees, only 10% of manufacturers were aware about the toxicity of mercury and do not use mercury in gold refining process while 20% of the individuals were not aware about the harmful effects of mercury. However, 70% of the respondents were aware about the toxic effects of mercury but use extensively as a rapid way off extracting gold from waste. 90% of the inspected workshops had very poor ventilation facilities thus increase the susceptibility of exposure to mercury vapor. 24% of the respondents store mercury in unsafe plastic bags which can easily get damaged and released into the environment. Approximately 25% of the respondents revealed that they had some health issues after they engaged in gold refining. Therefore biomonitoring assessment is recommended for a better understanding of mercury exposure levels of the people engaged in gold refining in SSJS.

Keywords: Gold refining, Mercury, Small scale jewellery sector

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