

## **Improper Chemical Usage and Poor Waste Management Practices in Small Scale Jewellery Sector of Sri Lanka**

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Sri Lankan jewellery manufacturing industry mainly functions as a small-scale business or as a cottage industry. Though the output is a fascinating product, a considerable amount of carcinogenic, hazardous and harmful chemicals are used in the industry. This study evaluated the chemical usage and waste management practices in Small Scale Jewellery Sector (SSJS) of Sri Lanka. SSJS is mostly confined to Colombo, Gampaha, Kandy, Badulla, Jaffna, Galle, Matara and Hambanthota districts. This study was conducted through a structured interview and a questionnaire survey among 345 goldsmiths from these districts. It was found that concentrated Nitric acid, concentrated Sulphuric acid, Cadmium-Gold alloy, Potassium Cyanide, Potassium Nitrate, and Mercury are extensively used without any safety precautions. During the process most of these chemicals are heated in open air to high temperatures of about 1100 °C using wind blowing furnaces, which leads to vaporization of chemicals and subsequent mixing with air. In addition, chemical wastes are directly discharged into drainage systems or natural water bodies without proper chemical waste treatment. This improper usage and discharge of chemicals may cause severe environmental problems and serious health issues. Main cause behind this issue is that over 70% of the goldsmiths working in the industry have only studied up to the Ordinary Level or less, so they have little knowledge on the harmful effects of ill-use of chemicals. Very poor ventilation facilities were found in 60% of the inspected workshops, thus increasing the susceptibility of exposure to toxic vapors. An average person engaged in SSJS works around 10 hours per day and 6 days per week. This extended working period with poor level of health and safety measures within the workshops expose them to high workplace risk. We suggest to carry out a bio-monitoring investigation to assess the exposure levels and health impacts of the community engaged in the industry.

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