

Waste landfill site fire crisis in Thailand; sulfur dioxide pollution and estimation of cancer risk

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Dear Editor,

Waste is a common problem for any big city including Bangkok metropolis of Thailand. Waste land fill site is specifically prepared for the waste from the city. In March 2014, a big fire crisis occurred at waste land fill site in Tambon Phraeksa, Samut Prakan of Thailand. According to this fire, a smoke pollution occurred and it is concerned for the toxic smoke. It was found that the concentration of sulfur dioxide in the area 1 km around the land fill site is equal to 2-4 ppm. An interesting concern is the chronic health effect of exposure to sulfur dioxide. Although sulfur dioxide is not classified

as a carcinogen, some reports mentioned its relationship to carcinogenesis. According to a recent report by Katanoda *et al.*, the relationship between exposure to sulfur dioxide and lung cancer was observed.^[1]

Katanoda *et al.*, also mentioned that “hazard ratios for lung cancer mortality” was relating to “10-unit increase in sulfur dioxide part per billion (ppb)” and the ratio was equal to 1.26.^[1] To estimate the cancer risk due to the present pollution due to waste land fill site crisis in Thailand, the author calculated the increased lung cancer mortality risk due to the present waste land fill crisis. Based on the previously mentioned data, the reported level of 2-4 ppm (or 2000-4000 ppb) is significantly higher than the normal acceptable value (0.075 ppm or 75 ppb according to Environmental

Protection Agency: EPA). The reported level is 26.67-53.33 times of normal level or 1,925-3,925 unit increase in sulfur dioxide. In term of 10-unit increase, it is 192.5-392.5 times implying the risk equal to 242.55-494.55 times higher than general population. Based on the present estimation data, it can be seen that the long term following of the lung cancer among the local people living nearby the crisis area is required.

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Reference

1. Katanoda K, Sobue T, Satoh H, Tajima K, Suzuki T, Nakatsuka H, *et al.* An association between long-term exposure to ambient air pollution and mortality from lung cancer and respiratory diseases in Japan. *J Epidemiol* 2011;21:132-43.