

AIR QUALITY MODELLING IN CHIANG MAI CITY, THAILAND

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The levels of air pollution in Chiang Mai city, Thailand, are somewhat higher than in most western cities and are a cause of concern. Within the city, air pollution monitoring stations are few and modelling is potentially an important planning aid. For the present study the use of the ADMS-Urban model was tested using data for Chiang Mai – a tropical city. Pollutant concentrations calculated by ADMS-Urban were compared with concentrations recorded at two monitoring stations within the city. Source information on emission rates, street canyons and meteorological data (for both dry and rainy seasons) were inputs to the model. Good correlations were only obtained when corrections were made for the high levels of imported ambient background pollution. The reasons for the limitations in applying the existing ADMS-Urban model to a tropical city are being explored and recommendations for modifications will be made. The model was used to identify ‘hot-spots’ within the city (along Highways 106 and 108). The results produced are influencing the selection of sites for investigating the potential impacts of air pollution on respiratory health. Schools were located in the hot spot areas and a preliminary respiratory health survey using the standardised questionnaire was later conducted in 4 urban schools in identified ‘hot spots’, and 2 rural schools (total 511 children aged 6 – 12). The results showed that the prevalence of asthma, rhinitis and eczema were a little higher in the urban schools (5.5%, 24.4% and 12.2, respectively) than in rural schools (5.4%, 15.7% and 7.2%, respectively).