Exposure-response relationships for annoyance and self-reported sleep disturbance from road traffic noise in a dense city in Asia

A. Lex Brown[1], Kin Che Lam[2], Irene van Kamp[3]

1 Urban Research Program, Griffith School of Environment, Griffith University, Australia, Lex.Brown@griffith.edu.au

2 Department of Geography and Resource Management, The Chinese University of Hong Kong

3 National Institute of Public Health and the Environment, The Netherlands

ABSTRACT

There has been extensive work on estimating exposure and exposure-response relationships for road traffic noise, but most is based on data gathered in cities in Europe and North America. Particularly in Asia but also elsewhere, dense, traffic-intense, and usually high-rise cities are now increasingly the norm. Is existing knowledge on the extent of exposure to road traffic noise, and on the way people respond to such exposure equally pertinent to these cities with their very different urban forms, their locations in different climatic zones, and peopled by different ethnicities and cultures? This paper reports a very large study in one such city, Hong Kong, including detailed assessment of the exposure of the Hong Kong population to road traffic noise, the extent of annoyance and sleep disturbance by this exposure, and exposure-effect relationships for annoyance and self-reported sleep disturbance. These provide benchmarks for road traffic noise for a dense and high-rise city in the subtropics that can be compared with exposure data from cities in Europe, and exposure-response relationships synthesized from much earlier studies conducted largely in Europe and North America.