

# COMMUTERS' EXPOSURE TO AIR POLLUTION IN MEXICO CITY

**J.E. Gómez-Perales<sup>1</sup>**, R.N. Colville<sup>1</sup>, M.J. Nieuwenhuijsen<sup>1</sup>, A. Grossinho<sup>1</sup>,  
A.A. Fernández-Bremauntz<sup>2</sup>, V. Gutiérrez-Avedoy<sup>3</sup>, V.H. Páramo-Figueroa<sup>4</sup>,  
S. Blanco-Jiménez<sup>3</sup>, E. Bueno-López<sup>3</sup>, R. Bernabé-Cabanillas<sup>3</sup>, F. Mandujano<sup>3</sup>, M. Hidalgo-Navarro<sup>3</sup>

<sup>1</sup>*Department of Environmental Science and Technology, Imperial College London, London, UK*

<sup>2</sup>*Dirección General De Investigación Sobre La Contaminación Urbana, Regional Y Global, INE-SEMARNAT, Mexico City, Mexico*

<sup>3</sup>*Centro Nacional De Investigación Y Capacitación Ambiental (CENICA), INE-SEMARNAT, Mexico City, Mexico*

<sup>4</sup>*Dirección General De Gestión Ambiental Del Aire, Secretaría De Medio Ambiente GDF, Mexico City, Mexico*

In recent years, local authorities have pursued a policy of improvement of the road network in Mexico City to reduce congestion and traffic emissions that threaten population health. Before these infrastructure modifications, a field campaign was conducted in the winter of 2003 to investigate levels of commuter exposure to PM<sub>2.5</sub>, CO, and benzene in public transport. The main objective of the study was to identify the contribution to daily total exposure attributable to commuting activity for people living along two important avenues from residential areas located in the north and south to downtown Mexico City. This approach comprises a combination of commuters' exposure levels, ambient monitoring data, traffic counts, meteorological records and road geometry. In addition, a spatial interpolation method, within a geographical information system (GIS), was used to create surfaces of ambient air pollution levels. This information was used to build a regression model to identify which determinants may have an important influence on exposure to commuters and people living close to the selected corridors, and to examine the capability of such a model to predict the effect of transport infrastructure development. The study not only identified the levels of exposure for the selected modes of transport and determinants thereof, but also detected hot spots in street junctions where air pollutants may have health effects on commuters and people doing different daily activities. Further recommendations will be addressed to national and local authorities to lessen levels of air pollution originated mainly from traffic emissions.