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Atoms for Peace: The First Half Century

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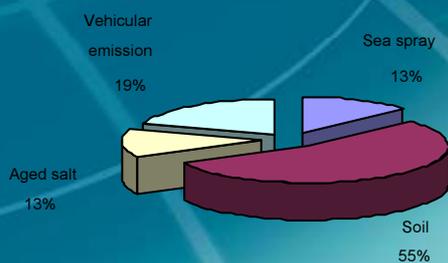
Generating data for air quality management, Metro Manila, Philippines

The challenge...

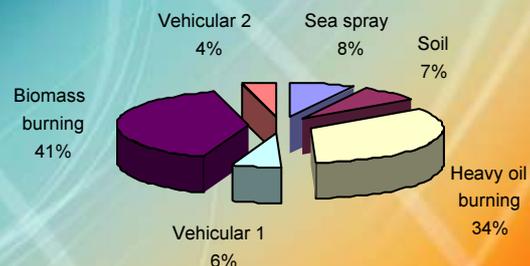
In the metropolitan area of Manila, air pollution and its adverse impacts on health are a major source of concern. In addressing this problem, the Government of the Philippines determined that it lacked scientific data on which to base policies to improve the quality of the air.

The project...

Using a Gent dichotomous air sampler, air monitoring generated the first long term data for the metropolitan area of Manila on fine particulate matter smaller than 10 micrometres in diameter (PM₁₀) and 2.5 micrometres in diameter (PM_{2.5}). Particles less than 10 micrometers in diameter are so small that they can get into the lungs and may cause serious health problems. Ten micrometres is smaller than the width of a single human hair.



Principal sources of particulate pollution in the coarse fraction sampled at the Ateneo de Manila University and obtained through positive matrix factorization analysis.



Principal sources of particulate pollution in the fine fraction sampled at the Ateneo de Manila University and obtained through positive matrix factorization analysis.

The impact...

By generating basic data for air quality management, the project led to a better understanding of air pollution in the Philippine capital. The monitoring of particulate filters provided data on particulate levels over a period of several years, including at the Ateneo de Manila University in downtown Manila. In addition, comparative data on lead concentrations at different air sampling stations demonstrated very high levels of lead at the industrial zone of Valenzuela. Further analysis of the data showed the significant contributions to pollution by emissions from combustion processes in vehicular engines or from the burning of bunker oil and biomass.