

Improving air quality in Asia and the Pacific region

The challenge...

Pollution caused by airborne particulate matter (APM) is recognized as a problem with a global reach. It has a serious impact on human health, particularly that of the young and the aged, on visibility, and on climate change. Asia suffers from specific air pollution issues, for example, Asian brown haze (caused by human activities), and Asian dust (caused by natural conditions). The Asia and the Pacific region also suffers from air pollution from urban and industrial sources such as highly pollutant motor vehicles and inadequately monitored diesel buses.

APM can cause serious respiratory problems, cardiovascular damage, lung cancer and even death. To determine the source of origin of pollutants, nuclear technology is an ideal forensic tool, as it supports the analysis and monitoring of microscopic particles, as well as the mapping of their pathways through the air.

The project...

Through the IAEA's technical cooperation programme, Member States in the region were helped to apply advanced nuclear analytical techniques (NATs) to assess APM pollution, with the ultimate objective of contributing to the improvement of air quality in the Asia and the Pacific region.

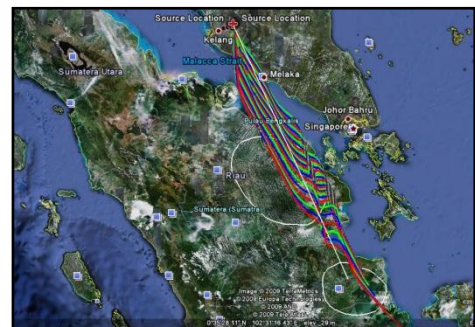
The IAEA facilitated knowledge transfer on NATs related matters, provided technical equipment and training, and established sampling stations. Under the project, counterpart institutions applied NATs to assess, characterize and identify the source of particulate pollution.

A regional database, the Asia-Pacific Aerosol Database (A-PAD) for fine and coarse particular matter, was created and disseminated to all Member States in November 2010. It contains data on 14 countries from 2003 to 2008.

The impact...

Through the project, many Asian and Pacific countries have acquired the skills and facilities to utilize NATs effectively in the monitoring and assessment of APM pollution. The 'world first' database created under this project provides useful information that helps air quality managers to make informed decisions on pollution abatement and control strategies. The data has been used in over 95 referenced journal publications in ten Member States, and a significant end user community has been established in the region. In addition, the Clean Air Initiative for Asia has expressed interest in using the database.

Many countries have benefited from the studies and data on APM produced by NATs, leading to the introduction of new control measures to cut the concentration of pollutants in the air.



Example of the results obtained for study of transboundary pollution.



Sample collection and analysis.