

Case Study

Dubai Trusts Aeroqual with its Air Quality Monitoring Network

Dubai is known throughout the world as a bold and forward-thinking city. When Dubai Municipality needed to upgrade their air quality network they chose to explore alternatives to traditional US EPA-type analyzers.



Project

Dubai Municipality

Services

14 AQM60 monitoring stations

Location

Dubai, UAE

Measurements

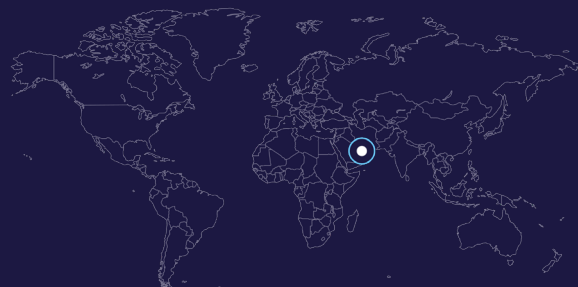
PM₁₀, PM_{2.5}, NO₂, O₃, SO₂, CO

Date

2011

Sector

Outdoor



The customer

Dubai is known throughout the world as a bold and forward-thinking city. The Burj Khalifa soaring up from the desert sands, the Palm Jumeirah spreading out across the Arabian Gulf – these are landmarks made possible by the Emirate's growing wealth and influence. But with growth comes change, and with influence comes responsibility.

Dubai Municipality is the organisation charged with managing the city's growth and improving the quality of life enjoyed by the more than two million people who live there. Ensuring the quality of the air they breathe is an on-going challenge. The number of cars on the roads has soared, placing Dubai amongst cities with the highest rates of car ownership in the world. Furthermore Dubai's population is expected to increase by as much as 300% over the next decade.

The problem

To report on and manage air quality, Dubai Municipality Environment Department (DM-ED) had invested in a network of six Ambient Air Quality Monitoring Stations (AAQMS). At the time they were installed, in 1994, care was taken to select the most suitable sites and locations from which to measure and report the quality of the air in the city.

But Dubai is growing and changing so fast that, after just a few years, the network of six monitoring stations were left stranded in locations no longer as indicative as they once were. Weighing over one tonne and being the size of a removal van, the stations could not be easily moved in response to the city's evolution.

As a result Dubai Municipality initiated a procurement process to select a suitable equipment supplier for expansion of the air quality monitoring network. The supplier would need to meet the DM ED's requirements for price and performance as well as demonstrating the ability to deal with the extreme temperatures and frequent dust storms common in the region.

The solution

Aeroqual, with its local partner, Enviro' & Industrial Solutions ME, won the tender in competition with a number of global instrumentation suppliers. Dubai Municipality was drawn to the proposal based on the AQM60 air quality monitoring station for a number of reasons.

At a third of the price of traditional monitoring stations, for the same budget they were able to buy fourteen (14) AQM60s AAQMS rather than just five if they went with the traditional reference monitoring stations. This would allow Dubai Municipality to increase their density of measurement which would give them a better understanding of air quality in their rapidly developing city.

In addition, the AQM60's compact size and lightweight format (weighing ~95% less than a reference monitoring station) allowed the stations to be located in places where traditional monitoring stations could not go. And, as the city grows and develops further, the network can be quickly and easily expanded to include locations of interest.



Total cost of ownership was another key consideration. The power draw of an AQM60 station is 10% of a traditional reference monitoring station, and the cost of spares and maintenance was calculated to be 20% of the equivalent running costs of a reference monitoring station. An optional integrated automatic calibration system reduces the number of technician visits, an attractive feature when temperatures can reach over 40°C in the hottest months.

Performance and conformity to international standards was another factor in Dubai Municipality's decision. Because the AQM60 does not use the same measurement principles as analyser technology used in traditional reference monitoring stations, it does not carry the same US EPA equivalence approvals. However, by operating a mixed-asset solution based on fourteen AQM60s and one mobile EPA reference station, Dubai Municipality was able to have the best of both worlds – another example of Dubai's tendency for forward-thinking.

Evaluation

The AQM60-based network extension of 14 stations has been operational since early 2012, and the equipment has been providing Dubai Municipality with more comprehensive air quality data than ever before. As a leader in the region Dubai Municipality hopes other cities will follow their example.

“Our vision is for each of the seven emirates to standardize our equipment and data collection methods into a central database with a view to a sustainable air quality monitoring network for all of UAE,” says Mr M. Hamdam Al Shaer - Head of Environmental Planning & Studies Section, Environment Department, Dubai Municipality.

