



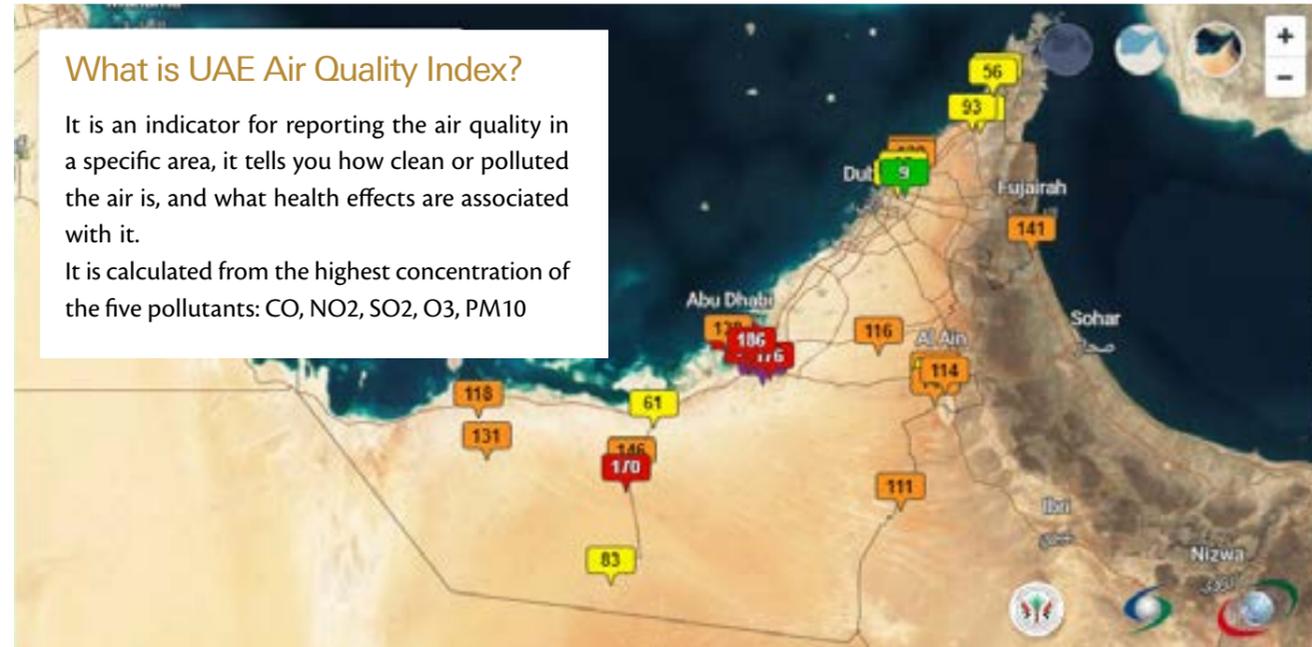
UNITED ARAB EMIRATES
MINISTRY OF CLIMATE CHANGE
& ENVIRONMENT

UAE AIR QUALITY INDEX MANUAL

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UAE Air Quality Index



The ground monitoring stations

The quality of the air in the country is monitored by high quality monitoring stations that conform in their specifications with stations approved by the European Union and the US Environmental Protection Agency. At present, there are 54 stations across the country, compared to only 22 stations in 2007.

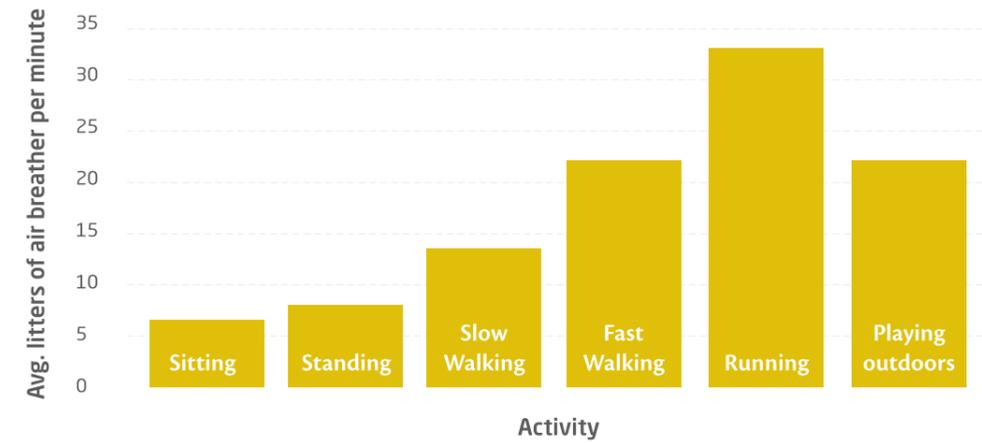
What is the importance of air quality monitoring?

As a result of a wide range of natural and human factors, air quality has decreased significantly throughout the world. Air quality is closely related to the size of natural and human activities practiced in a given geographical area.

It is known that we need to breathe more air in physical activity compared to what we need when we do not exercise, so the increased concentration of pollutants in the air necessarily means the increase in the amount of pollutants that we breathe. It is therefore advisable to avoid outdoor physical activities during periods of low air quality.

Air quality particularly affects people in the sensitive category, such as children, the elderly, individuals with lung disease, and individuals with asthma, bronchitis, or emphysema. The graph below shows the volume of air inhaled by children compared to the type of activity they perform.

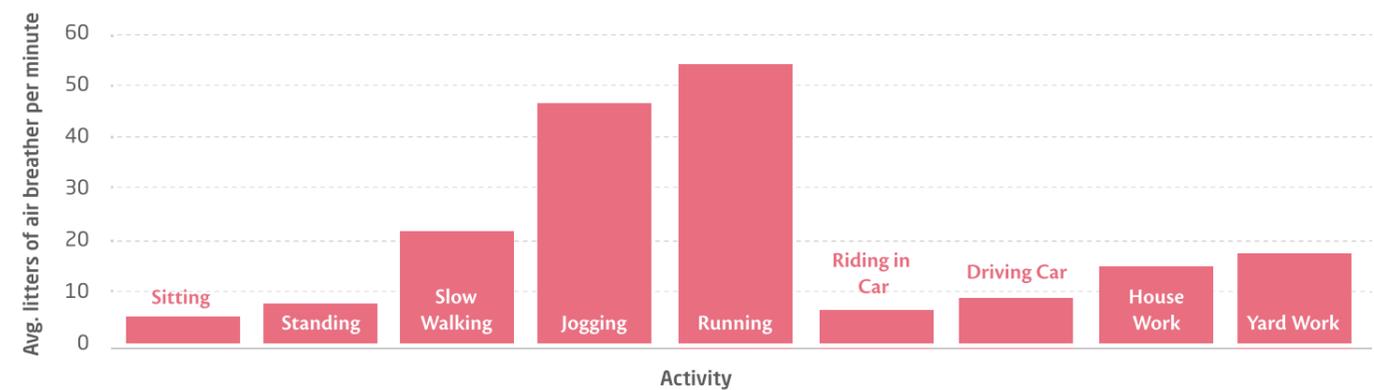
Volume of Air Breathed by Children



As shown in the diagram children who are running breathe in about 32 liters of air per minute, 80% or 4.5 times more compared to when sitting.

The diagram above shows the volume of air breathed by female adults. Adults consume more air during physical activities than children, yet healthy adults have much higher lung surface area than children, thus the lungs can tolerate higher concentrations.

Volume of Air Breathed by Adult Female



How can we read the Air Quality Index (AQI)?

Air quality index calculations are based on the measurements of five main pollutants Nitrogen dioxide NO₂, Carbon monoxide CO, Ground ozone O₃, Sulphur dioxide SO₂, and particulate matter with of diameter less than 10 micron PM₁₀.

Air quality data requires a lot of analysis that can be complicated to understand, but as ambient air quality is something that can affect our health, the information should be known by the public, thus an air quality index has been developed to provide an easy to understand index through color coding the levels of air quality.

The daily AQI will indicate the color, value and the dominating air pollutant that is affecting the air quality. Air quality index values starts from 0 to +500, representing diminishing air quality as the index increase, which means higher air pollution concentrations which could result in greater threat to health, the more impaired value indicates better air quality.

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The below figure shows the indicator values with the color those numbers represent.

POLLUTANT	AVERAGING PERIOD	STANDARDS	
		UG/M ³	PPB
SO ₂	1 hour	350	133
	24 hours	150	57
	Annual	60	23
CO	1 hour	30000	25000
	8 hours	10000	8700
NO ₂	1 hour	400	220
	24 hours	150	83
O ₃	1 hour	200	102
	8 hours	120	60
TSP	24 hours	230	-
	Annual	90	-
PM10	24 hours	150	-
LEAD	Annual	1.0	-

Due to its harsh hot and arid climate, UAE environment consists mostly of desert land with a long coastal line, in addition to wind current that changes daily and seasonally. These factors affect air quality.

In the UAE, we usually have high values of air quality index as a result of increasing sandstorms and formation of natural dust in the air. Therefore, it is usual to find high amounts of particulate matter suspended in the air which affect the value of air quality index.

Hot weather also increases the chemical formation of Ground Ozone, which in turn also affects the Air Quality Index. These two pollutants currently have the highest impact on the UAE AQI, and will usually be found as a dominant pollutant throughout the year.

Also, the AQI values can increase due to the rise in emissions or from a lack of dilution of air pollutants, stagnant air, temperature inversion and low wind speeds which let air pollution remain in local areas leading to higher pollutant concentrations allowing for hazy conditions.

The air quality index is based on the concentration of SO₂, NO₂, O₃, CO and PM10 over set periods of time. Health effects corresponding to the given categories of colors are established through epidemiological resections may vary from time to time while further research is established.

