UNITED ARAB EMIRATES
MINISTRY OF CLIMATE CHANGE
& ENVIRONMENT

UAE AIR QUALITY INDEX MANUAL

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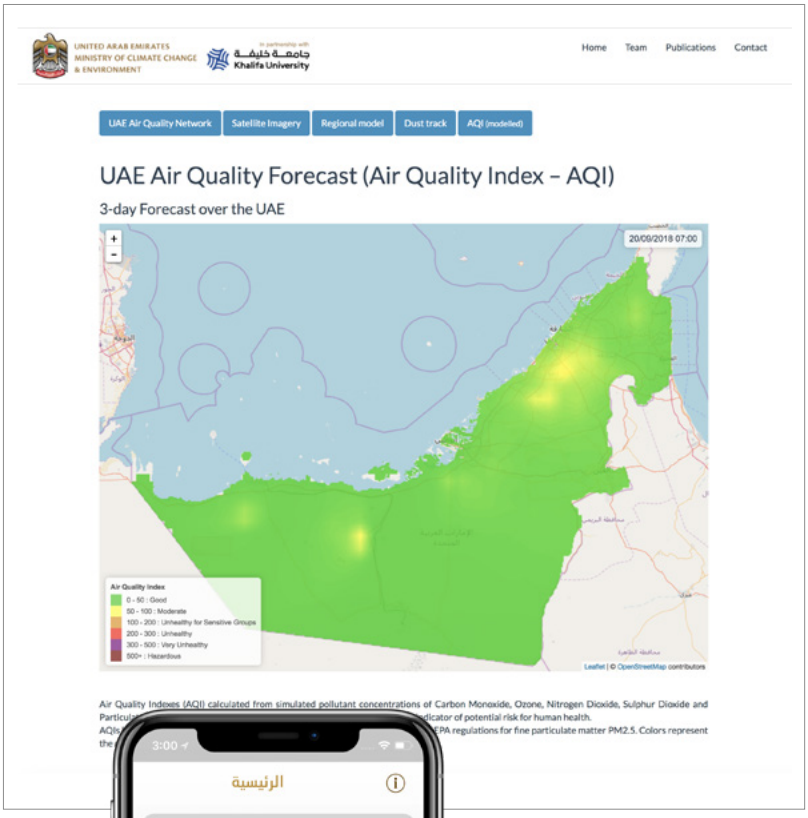
UAE Air Quality Index

What is UAE Air Quality Index?

Accessible through the MOCCAE app, the UAE AQI is an AI platform that displays real-time, highly accurate air quality readings based on satellite data. It monitors and analyzes air quality and produces calculated forecasts to drive data-informed decision making and strategies that reduce air pollution.



Features of UAE Air Quality Index

The UAE AQI employs cutting-edge technologies in live monitoring of air quality and, by using specific algorithms, it forecasts the AQI status for up to three days in advance, in addition to predicting the concentration of dust and particulate matters with a diameter of less than 2.5 microns (PM2.5).

(1) Particulate matter

(2) Air Quality

(3) Air Quality Index

To use the Index, download the MOCCAE Smart application through Apple & Andriod stores

Or Scan the following QR code:

What about 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 41 stations across the country, compared to only 22 station in 2007.

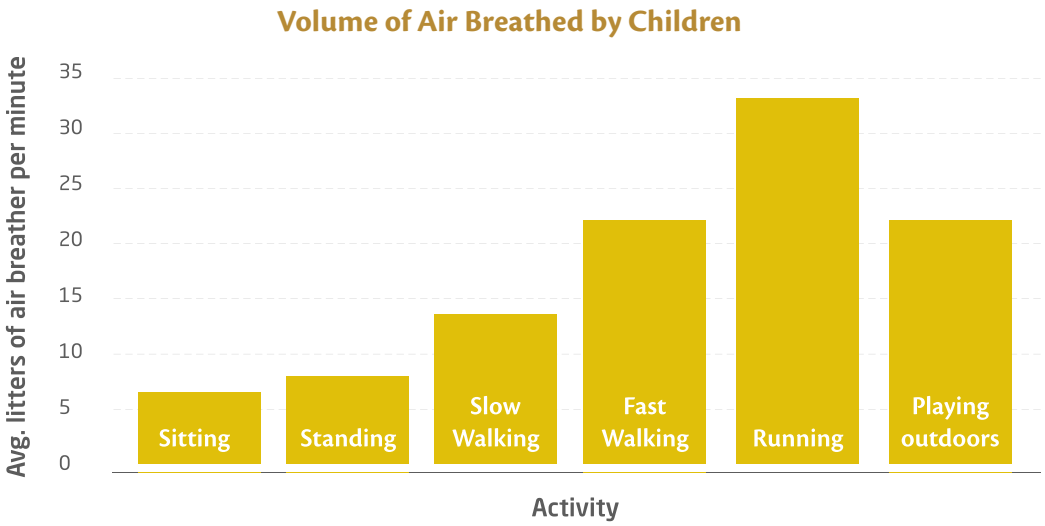
Despite the remarkable increase in the number of ground monitoring stations during the last few years, it does not cover all areas of the country, especially rural and remote areas. Therefore, the UAE Air Quality program will provide an extensive coverage with accurate results for the air quality status.

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.

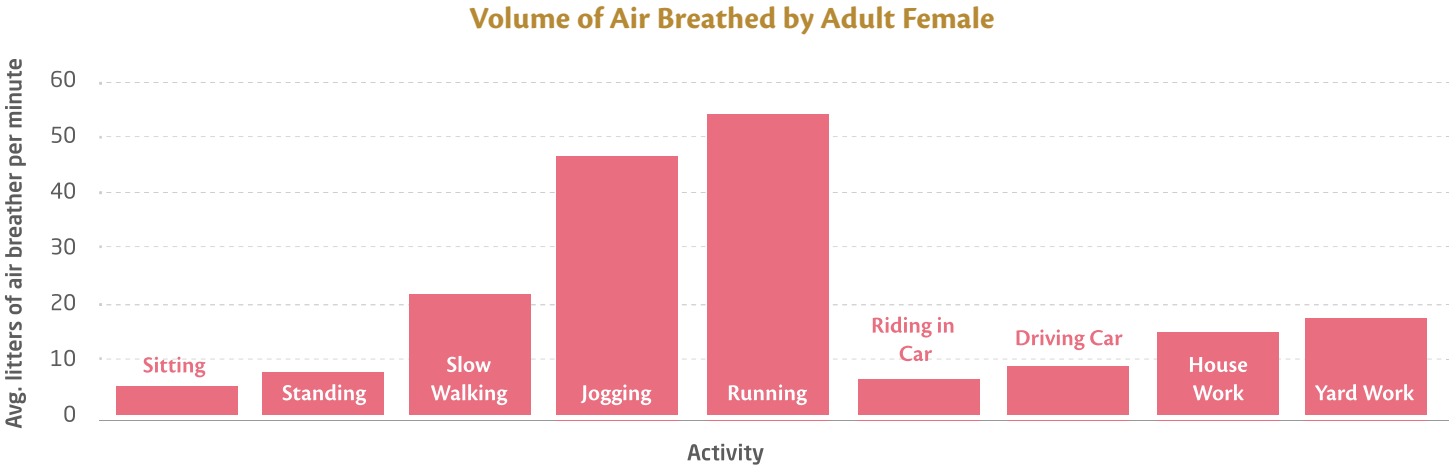
It is known that we need to breathe more air in physical activity compared to what we need when we do not exercise, so the increased concentration of pollutants in the air necessarily means the increase in the amount of pollutants that we breathe. It is therefore advisable to avoid outdoor physical activities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



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.



What is Air Quality Index (AQI) and how can we read it?

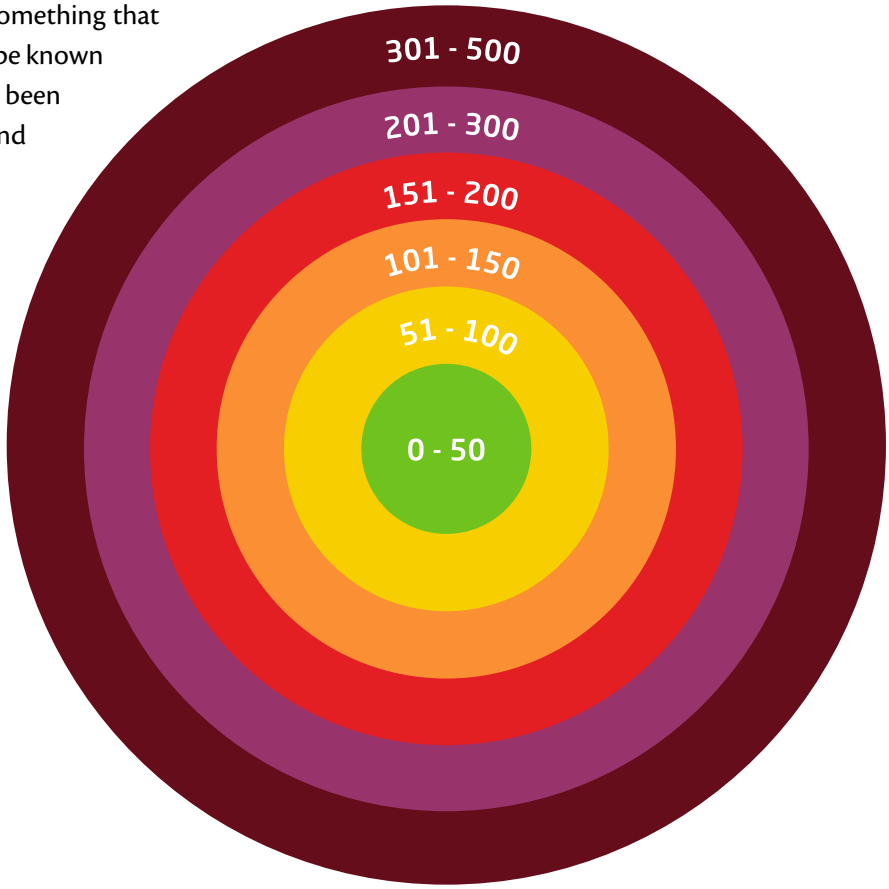
Air quality index is a daily index developed to represent air quality. It is a simplified representation of the data to determine the extent of air quality at each station throughout the UAE.

Air quality index calculations are based on the measurements of five main pollutants Nitrogen dioxide NO_2, Carbon monoxide CO, Ground ozone O_3, Sulphur dioxide SO_2, 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.

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



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 SO_2, NO_2, O_3, 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.

0-50 (Green)

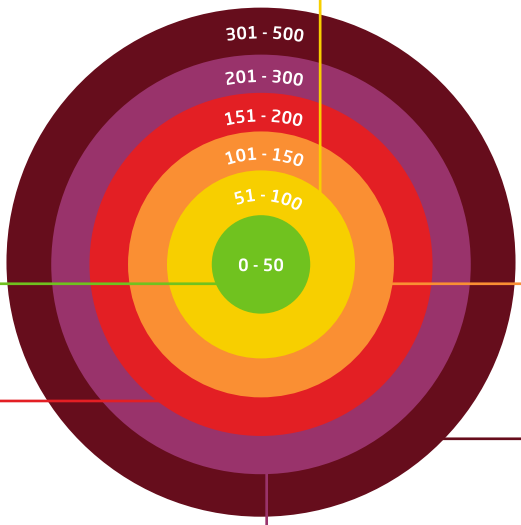
Means that the concentrations of the five pollutants are within the allowable limits, specified in the Cabinet's Decree No. 12 of 2006 (Protection of Air Pollution). Air quality in this range does not pose a health hazard and represents the best time to exercise and enjoy other outdoor activities.

51-100 (Yellow)

It is an acceptable air quality for the majority of the population, but some people, who are very sensitive, may feel little impact on their health if they exert extra effort outdoors.

101-150 (Orange)

Air quality in this range may affect the health of people in the sensitive category. Some of them may experience problems if they exercise outdoors, but the effect is little when they only walk or sit. Often, healthy people do not have any impact in this range, while a small group of people can feel little effect if they exhaust themselves with exercise or other outdoor activities.



151-200 (red)

Air quality in this range can cause some health problems for healthy people if they exhaust themselves outdoors, and this effect increases for people who fall into the sensitive category. If healthy individuals felt some symptoms while exercising outdoors such as coughing or wheezing, they should stop immediately.

201-300 (Purple)

Air quality in this range is unhealthy for individuals who fall into sensitive categories, and this group should avoid outdoor exercise & they are advised to stay at home. Healthy people may experience some health effects if they exercise outdoors for long periods. It's preferable to avoid outdoor activities.

300-500 (Maroon)

Air quality in this range has health effects on most people if they exercise outdoors, and it is recommended to stay indoors. Walking outdoors for short distances will not pose a danger to individuals as no large amounts of air are inhaled during short period of time.