



مركز الإحصاء
STATISTICS CENTRE

Air Quality

Statistics Methodology

www.scad.gov.ae

    | adstatistics

Table of Contents

Overview.....	3
Importance.....	3
Objectives.....	3
Concepts & Definitions.....	4
Coverage (Geographic– Statistical Units).....	4
Frequency.....	4
Classifications.....	5
Main Data Sources.....	5
Questionnaires.....	5
Sample Design.....	5
Data Collection.....	5
Data Editing	5
Indicators Calculation	6
Timeliness.....	6
Dissemination.....	6

Overview

Monitoring the ambient air and providing relevant statistics periodically is a necessary requirement to ensure that all members of society have good air quality, as well as to analyse the types of pollutants, measure their size, and identify the factors influencing it. It also provides decision-makers with such statistics in order for them to implement the necessary practices and measures for improving air quality and ensuring the sustainability of high-quality air.

The UAE National Agenda includes the goal of ensuring high-quality air. As a result, the air-quality indicator was chosen as one of the indicators included in the UAE Vision 2021 National Agenda. It is also one of the SDGs (Sustainable Development Goals) (Sustainable Development Goal No. 11).

Furthermore, because a country's official statistics must be relevant to the country's needs and objectives, as well as aligned with international recommendations, and in accordance with the international recommendations pertaining to environmental statistics in terms of their development, as issued by the United Nations Statistics Division in 2013, the ambient-air-quality file is yearly updated, at the national level, based on the available data.

Importance

Air pollution is one of the most serious environmental threats to human health. Lowering air pollution levels can help countries reduce the global disease burden caused by infectious respiratory diseases, cardiovascular diseases, and lung cancer.

Objectives

To provide statistics on the average annual and monthly concentrations of the main air pollutants as observed by the air monitoring stations across the Emirate of Abu Dhabi:

- Mean concentration of particulate matter with a diameter of 10 micrometre or smaller (PM10) suspended in the air;
- Mean concentration of particulate matter with a diameter of 2.5 micrometre or smaller (PM10) suspended in the air;
- Mean concentration of sulphur dioxide (SO₂);
- Mean concentration of nitrogen dioxide (NO₂);
- Mean concentration of ground-level ozone;
- Mean concentration of carbon monoxide (CO).

Concepts and Definitions

Monitoring Station: A facility dedicated to measuring the emissions or concentrations of pollutants in the environment.

Air Pollutant: Any material whose release into the air, whether happening directly or indirectly, intentionally or accidentally, would change its characteristics in a way that harms human beings, living creatures, natural resources, ambient air, or touristic areas, and thus interfere with other legal uses of ambient air.

Air Quality Criteria (Standards): Levels of air pollutants determined by relevant regulations that should not be exceeded during a specific period within a specific region.

Sulphur Dioxide (SO₂): A heavy colourless gas with a pungent and irritating odour, produced by the combustion of fossil fuels. It is toxic to humans and vegetables, and it contributes to the acidification of rain.

Nitrogen Dioxide (NO₂): A reddish brown gas, commonly seen above cities. It irritates the lungs and has an adverse impact on the environment.

Inhalable Molecules (Molecules of 10 micrometres or less than 2.5 micrometres): Fine solid or liquid particles, such as dust, smoke, fog, fumes, or smog that are formed or released in the air as a result combustion, industrial activities, or natural sources.

Ground-level Ozone (O₃): Colourless and toxic gas with pungent and irritating odour, an ozone molecule is made up of three Oxygen atoms. The gas is present as a secondary pollutant in the lower atmosphere. Other pollutants may foster its formation. A colourless, toxic gas with a pungent and irritating odour that contains three oxygen atoms in each of its molecules and is present as a secondary pollutant in the lowermost layer of the atmosphere. Other pollutants may contribute to its formation.

Carbon Monoxide (CO): A colourless, odourless gas resulting from incomplete combustion of fossil fuels. Carbon monoxide binds to haemoglobin in human blood, reducing its capacity to carry oxygen and causing harm to humans.

Coverage (Geographic– Statistical Units)

The Data covers The Emirate of Abu Dhabi, including its regions of Abu Dhabi, Al Ain, and Al Dhafra.

Frequency

Monthly, quarterly, and annually

Classifications

Classification adopted by the World Health Organization, the United States Environmental Protection Agency, and the Environment Agency – Abu Dhabi.

Classification has been carried out in accordance with the Framework for the Development of Environment Statistics (FDES-2013) as well as the Basic Set of Environment Statistics included therein, as follows:

- Component 1: Environmental Conditions and Quality
 - Subcomponent 1.3: Environmental Quality
 - Topic 1.3.1: Air Quality

Main Data Sources

Data are collected from the Environment Agency – Abu Dhabi. Sources are linked to the databases of the Statistics Centre – Abu Dhabi in order to extract the relevant indicators and retrieve some values, percentages, and the factors pertaining to such indicators.

Questionnaires

Administrative records retrieved from the aforementioned data sources. Most data are linked with the Statistics Centre's Databases via automatic linking.

Administrative records obtained from the previously mentioned data sources. The majority of data are automatically linked with the Statistics Centre's databases.

Sample Design

Not Applicable

Data Collection

Administrative Records

Data Editing

Data are reviewed and compared with those of the previous years, as well as its related data, in accordance with the validation rules and automated editing listed under the data rules.

Indicators Calculations

Mean Concentrations of Pollutants in Ambient Air: The total number of measurements of the daily air pollutants' concentration indicators divided by the number of days pertaining to the reference measurement period, as per the pollutant type and the measurement source-station.

Peak Concentration of Pollutants in Ambient Air: Highest air pollutant concentration recorded for the daily air pollutants' concentration indicators recorded for the reference measurement period, as per the pollutant type and the measurement source-station.

Number of Days during which the Air Pollutant Exceeded the Guideline Limits: Number of days during which the highest air pollutant concentration exceeded the acceptable threshold margin, as recorded during the reference measurement period, as per the pollutant type and the measurement source-station.

Number of Days during which the Air Pollutant was within the Guideline Limits: Number of days during which the highest air pollutant concentration was within the acceptable threshold margin, as recorded for the reference measurement period, as per the pollutant type and the measurement source-station.

Average Noise Levels by District: The total number of measurements of the daily noise intensity indicators divided by the number of days pertaining to the reference measurement period, as per the measurement source-station.

Timeliness

- Monthly data: released during the next month following the reference month.
- Quarterly data: released during the next quarter of each quarter following the reference quarter.
- Annual data: released during the second half of each year following the preceding reference year.

Dissemination

Indicators are published monthly, quarterly, and annually in the Centre's statistical reports, newsletters, and books. They are also distributed through the Centre's social media platforms and official website, as well as executive catalogs distributed through the Centre's strategic partners.



مركز الإحصاء
STATISTICS CENTRE

رؤيتنا: الريادة والابتكار في الإحصاء
Our Vision: Leadership and Innovation in Statistics



www.scad.gov.ae

    adstatistics