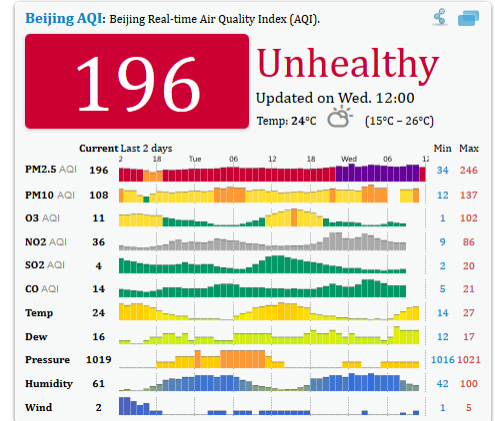




MONITORING AND MEASUREMENT

- All countries measure air quality on an hourly basis.
- The following is measured – PM_{2.5} (fine particulate matter), PM₁₀ (particulate matter), NO₂ (nitrogen dioxide), SO₂ (sulfur dioxide), CO (carbon monoxide), O₃ (ozone).
- PM_{2.5} and O₃ are the most hazardous to human health. **PM_{2.5} is not measured in Malaysia, Thailand and Brunei. PM_{2.5} and O₃ is not measured in Indonesia, Cambodia, Myanmar and Laos.**
- This data is used to calculate the Air Quality Index (AQI) number.
- AQI's from around the world can be seen at <http://aqicn.org> and on associated AQICN smartphone apps.
- The Safety Educator independently measures the PM_{2.5} AQI for Kuala Lumpur at <http://KualaLumpurAir.com>



HIGH AQI - IMPACT ON HEALTH

Level	AQI	Meaning	Activities
Good	0 to 50	Air quality is considered satisfactory.	All activities OK.
Moderate	51 to 100	Air quality is acceptable; however some pollutants may affect unusually sensitive groups.	Sensitive groups should reduce exertion outside.
Unhealthy for Sensitive Groups	101 to 150	Sensitive groups may experience health effects. The general public is not likely to be affected.	All groups should reduce prolonged exertion outside.
Unhealthy	151 to 200	Everyone may begin to experience health effects; sensitive groups may experience more serious effects.	Avoid prolonged exertion outside.
Very Unhealthy	201 to 300	Health warnings of emergency conditions. The entire population is more likely to be affected.	Avoid all outdoor activities.
Hazardous	301 to 500	Health alert: everyone may experience more serious effects.	Remain indoors.

SENSITIVE GROUPS ARE:

- O₃ – Active people / babies & children.
- PM – People with heart / lung disease.
- CO – People with artery diseases.
- SO₂ – People with asthma.

The World Health Organisation estimated that in 2012 air pollution with the cause of 3,700,000 premature deaths globally.

The World Health Organisation states the higher the AQI the greater the risk of:

- Heart Disease / Stroke
- Lung Disease, including asthma
- Lung Cancer

PURCHASING A FACE MASK

When AQI is **100-300** stay **inside**, if you go **outside**:

- Wear a proper N₉₅ mask certified for PM_{2.5}.
- To ease breathing get one with an exhalation valve
- **FIT** the mask correctly (see **3M** source).
- Activated carbon (with Al/KMnO₄) removes O₃ / benzene (carcinogen) but are rarely in face masks.
- Only buy certified brands (see **CDC/AQICN** sources)
- Surgical masks are **NOT** effective.



PURCHASING AN AIR FILTER

When AQI is **100-300** and you are **inside**:

- Use a **True HEPA** air filter, certified to remove 99.97% of particles down to 0.3 microns.
- It must include a certificate for the filter itself.
- 'HEPA-Type' filters are **NOT** true HEPA.
- It must have a pre-filter, be correctly sized for the size of your room (Clean Air Delivery Rate [CADR]), use activated carbon with Al/KMnO₄ (O₃ / benzene removal) and spare filters must be available.
- Test indoor air for PM_{2.5} (Dylos or Speck Sensor).
- **You pay for what you get** (see **APP** source).

Sources:

1. World Air Quality Index [AQICN] - <http://aqicn.org/mask/>
2. Air NOW - http://www.njaqinow.net/App_AQI/AQI.en-US.pdf
3. WHO - http://www.who.int/phe/health_topics/outdoorair/databases/cities/en/
4. CDC - http://www.cdc.gov/niosh/npptl/topics/respirators/disp_part/n95list1.html
5. APP - <http://www.air-purifier-power.com/top-10-air-purifiers.html>
6. 3M - http://solutions.3m.co.uk/wps/portal/3M/en_GB/PPE_SafetySolutions_EU/Safety/Resources/RespiratorFitTesting/

Document Number			
TSE-	SHP-	FSH-	001
By	Checker	Revision	Date
SS	MH	2	11 Nov 2015

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