

# **Environmental Impact of Petroleum Fuels used in Urban Area**

## **ABOUT M.A. QUDDUS**

M.A. Quddus has 30 years experience in Oil & Gas and Scientific Organizations. He has worked both in National and Multinational Institutions. He is holder of Ph.D. Degree in Petroleum Technology from University of Karachi. 25 research papers and Patent published in national and international journal of repute. Trained in USA & Indonesia in his field of interest.

## **Environmentalists Say:**

About 90% environmental pollution in  
Urban Areas is due to petroleum fuels?  
(Petrol & Diesel)

# Petroleum Crude Oil



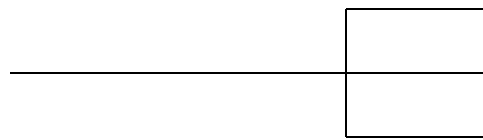
“Natural occurring mixture consisting of hydrocarbons and S, N, O derivatives of hydrocarbons which is removed from the earth in liquid form”

# FUEL RELATED ENVIRONMENTAL ISSUES

★ VOC's

★ Unburnt HC

★ Toxic Gases



Oxides of Carbon (CO<sub>2</sub> CO)

Oxides of Nitrogen (NO<sub>x</sub>)

Oxides of Sulfur (SO<sub>x</sub>)

★ Toxic Lead Compounds

★ Particulate Emission (soot, smoke)

# Characteristics of Petroleum

## Crude oil

- Water white liquid, brown, reddish, black, green, viscous semisolid substance
- Pleasant aromatic odour
- Garlic, rotten eggs smell due to sulfur compound
- Boiling Point                      -ve 161 – 700 °C
- Density                                0.75 – 1.0
- Carbon atom                        1 – 100
- Chemical compounds 300 - 400

# Emissions and their Effects

## CO

- Toxic poisonous gas
- Affects Cardiovascular system
- Major pollutant from automobile industry

## VOC's & HC

- Benzene – Carcinogen
- UBHC – Source of major emissions

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Ozone Deterioration,  
vegetation hazards

## NOx / Aldehyde Emission

- Health hazards
- Vehicle related NOx – Urban areas
- Aldehyde – suspected carcinogen

## Pollution Levels as Compared to CNG

Emissions	CNG	Petrol Regular	Petrol Super	Diesel
Carbon monoxide	1	10.4	9.0	1.2
Unburnt HC	1	2.0	1.4	1.2
Nitrogen oxides	1	1.2	1.4	1.1
Particulates	Negligible	Present	Present	Very high
SO <sub>2</sub>	Negligible	Negligible	Negligible	Very high
Lead g/l	Nil	0.42	0.35	Nil