Air pollution components

(these could be presented separately or together)

PM2.5 Fine particulate matter (PM) sources include burning and vehicle emissions. It is light and remains suspended in the air for a long time (it is the main visible component of pollution), causing coughing, sneezing and shortness of breath. Long term effects include asthma, chronic bronchitis and heart disease.

PM10 Heavier particulate matter such as smoke, dust from roads and construction sites, most harmful when breathed into deepest part of lungs. Primary effect on health is damage to lungs, heart and circulation.

03 Ground level ozone is created by chemical reactions between oxides of nitrogen and volatile organic compounds (VOC). Health problems include throat irritation, airway inflammation, reduced lung function and worsening asthma, bronchitis and emphysema.

NO2 Nitrogen dioxide is generated by vehicle emissions. It indicates the presence of other oxides of nitrogen (collectively described as NOX) and its reaction and inter-reactions can lead to the creation of nitrates, ozone and PM.

SO2 Sulphur dioxide is produced by burning contaminated fossil fuels – and by volcanoes! Very reactive and toxic, burning skin, damaging eyes, harming lungs and worsening asthma symptoms. Leads to acid rain and sulphur compounds present in PM pollution.

CO Carbon monoxide is formed by an incomplete reaction within motor engines, or in any flame burning with reduced oxygen. It reduces oxygen absorption by the lungs (causing headaches then unconsciousness and death in confined spaces) and strongly affects anyone with heart disease.

Smog Smoke/ fog describes the dirty fog across cities (and battlefields) when chemical pollutants mix with atmospheric water droplet suspension while certain atmospheric conditions – temperature inversion and still air – last.

Vog Volcanic fog/ smog drifts downwind from dormant volcanoes, composed of carbon dioxide, sulphur dioxide, water vapour and fine acid particles. In the Hawaiian island chain vog is blown across the other islands when the ‘kona winds’ blow.