

Air Pollution & Public Health Challenges Kathmandu

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Context

- Out door air pollution due to motor vehicles and brick kilns is high in Kathmandu and indoor air pollution due to burning solid bio mass fuel is present in rural Nepal
- Topography of Kathmandu- surrounded by mountains and wind flow is south westerly or north westerly
- Rapid urbanization leading to environmental degradation has further aggravated the air pollution in Kathmandu

Composition of Atmospheric Air

Elements	Percentage
Nitrogen	78.08
Oxygen	20.95
Argon	0.93
Carbon Di Oxide	0.03
Trace amounts	Water vapor etc

Air Pollutants

- Particulate matter (PM10) is defined as less than 10 micrometer- fine particles either solid or liquid suspended in the air
- They are very small and remain suspended in the air for longer period of time and easily inhaled into the deeper part of the lung
- PM10 is largely produced by automobile exhaust and kerosene burning in Kathmandu

Air Pollution in Different Seasons

- The air monitoring reports showed that PM10 level found very high in between 8-10 AM and 4-6 PM and very low at 4 AM in Putalisadak area of Kathmandu and slightly less in peripheral areas
- PM10 remained high during pre-monsoon, post monsoon and winter
- Total suspended particles (TSP) and PM10 values are higher in Kathmandu than the WHO Air Quality Standards and Guideline

Air Pollutants and Health

- The composition of air pollutants and their associated toxicity don't occur in isolation, but in complex mixtures that create potential for synergic effects
- The associated toxicity vary in different settings age, cultural practices, life styles, climate, season and socio-economic status

Air Pollutants and Health

- Children and elderly more affected –increase in respiratory problems observed during certain seasons and climatic conditions in Kathmandu. Poor communities are also affected more
- Air pollutants either aggravate the existing lung disease or reduce lung function
- Estimated number of deaths due to air pollution in Nepal is 95 deaths per 10,000 pollution every year, but the suffering and disease burden is estimated to be very high
- MOEST estimated 1600 additional deaths in 2005 in Kathmandu valley
- Leaded gasoline is an important source of lead poisoning in children in Kathmandu valley

Short Term Health Effects

- Irritation of eyes, throat, nose and respiratory tract
- Acute bronchitis and pneumonia
- Headache and vomiting tendency
- Skin allergy- itching or reactions
- Aggravation of existing asthma and other respiratory diseases leading hospitalization or needs additional treatment
- Smog disaster- very serious pollution

Long Term Health Effects

- Chronic respiratory disease-COPD/COAD
- Lung cancer
- Heart disease
- Damage to brain, nerves, and kidneys
- Lead poisoning in children

Summary, of Health Impacts of the Air Pollution

- It is affecting the health of the large number of people and becoming a major public health problem
- It is emerging as an important cause of the death
- It is also the cause of the premature deaths-14 years earlier
- There is growing evidence that it also can affect the baby in womb

Thank you for your kind attention