THE STATUS OF AIR QUALITY IN DEVELOPING COUNTRIES- CASE STUDY OF KENYA

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Pollution of air impacts negatively on the human health and development.

Major sources of pollution include:
- Industrial activities- Energy generation, industrial chemicals etc.
- Agricultural activities- Application of pesticides
- Uncontrolled combustion activities eg. Municipal wates, biomass burning, forest fires.
- Transport industry- Motor vehicle exhaust
- Domestic activities eg. Use of firewood with no proper pollution control

Existing data is mainly for background sites.
Comparison of PCBs in background and hotspot sites in Kenya

- The levels of polychlorinated biphenyls (PCBs) is higher in impacted sites: dumpsites, industrial area etc.
Comparison of pesticide levels in background and hotspot site

- The levels of chlorinated pesticides is higher in impacted sites—dumpsites, obsolete pesticides dumpsites, industrial areas etc.
Spatial Distribution of DDT in Ambient Air

- High DDT levels in air from Kitengela Obsolete pesticide dumpsite.
- Stockpiles have been incinerated.
- But DDT releases from contaminated soil.
- Contaminated soil impact on air quality.
Spatial trends of in sum α,β,γ, δ Hexachloro cyclohexanes Ambient Air

- High HCHs levels in air from Kitengela Obsolete pesticide dumpsite.
- Stockpiles have been incinerated.
- But HCH releases from contaminated soil.
  - Contaminated soil impact on air quality.
Spatial Distribution of $\Sigma 7$ PCBs in Ambient Air

- High PCBs levels in air from industrial area and waste dumpsite.
- Combustion activities,
- Hazardous wastes disposal
- Leakages releases from contaminated sites
Spatial trends of Polyaromatic Hydrocarbons (PAHs) in Ambient Air

- High PAHS levels in air from industrial area and waste dumpsite.
- Combustion activities are main sources of PAHs eg. Plastics, tyres, biomass etc.,
Comparison of dioxin/furan concentrations in gradient and background sites in Kenya- Based on Passive air Sampling

- The levels of unintentionally produced persistent organic pollutants (UPOPs) is higher in impacted sites- e.g. dumpsites, biomass burning etc.
POPs pesticide concentrations in mothers’ milk in Kenya

- Pesticide residues have been detected in mothers milk samples.

- This is due to contaminations from environment eg. through food stuff
Dioxins and furans measured in mothers milk samples in Kenya

• Dioxins and furans have been detected in mothers milk samples.

• This is due to contaminations from environment eg. through food stuff
Key Message from POPs results

- Research activities have revealed the presence of all POPs residues in environmental media - Air, soil and human samples.
  - Limited sites for ambient air measurements.
  - Contaminated soil, foodstuff etc.?
  - Municipal dumpsites and combustion of solid wastes?
  - Medical incinerations activities?
  - Biomass burning - rice, sugarcane, firewood?
  - Industrial emissions and effluents?

- Priorities for POPs monitoring?
  - Put up POPs management interventions
  - Emphasis to reduce POPs releases and protection of the public and environment?
  - Adoption of POPs alternatives
Key messages

• There is need for POPs monitoring-
  • Currently National institutions have analytical capacities for pesticides.
  • The institutions need training to ensure QA & QC and strategy for sustainability.

• Build partnership in managing hazardous chemicals in environment.
  – Strategic Partnerships.
  – Analytical capacity building.

• Increase awareness among the general public to control impact of human activities that contribute to POPs releases