



Panel Discussion

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Major Points Related to Health Risks Concerned with As Exposures

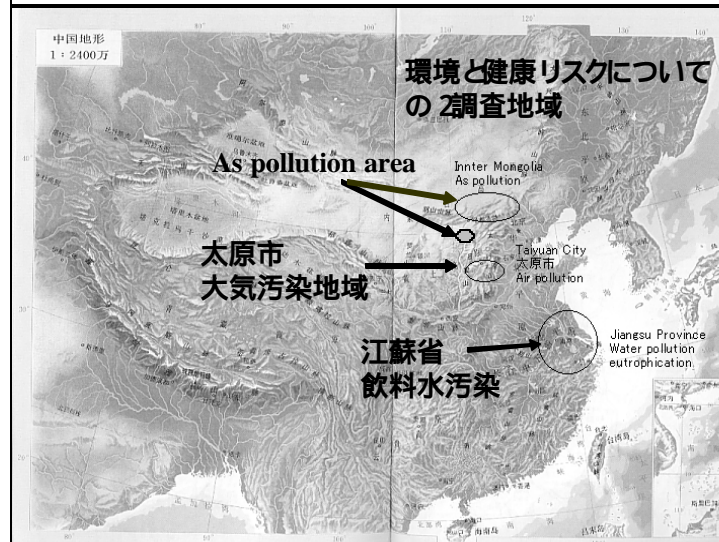
Urgent promotion of As monitoring, mitigation, clinical intervention etc.
Assessment of intake through As pollution of agricultural products (plants and animals) by groundwater use --- intensifying environmental monitoring

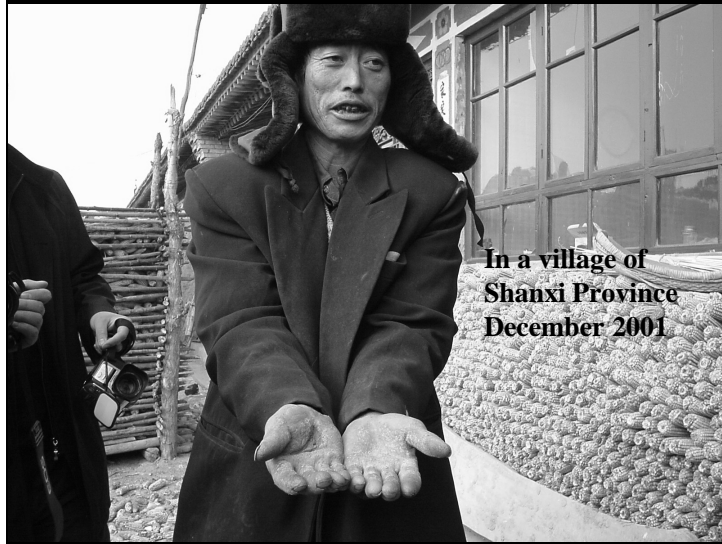
Possible chronic effects of As exposures in relation to various cancers, DM, HT etc. (including possible EDC actions) even after cessation of extreme exposures. Interactive effects of F pollution should also be considered. ---risk assessment researches including epidemiological studies for setting safer standards

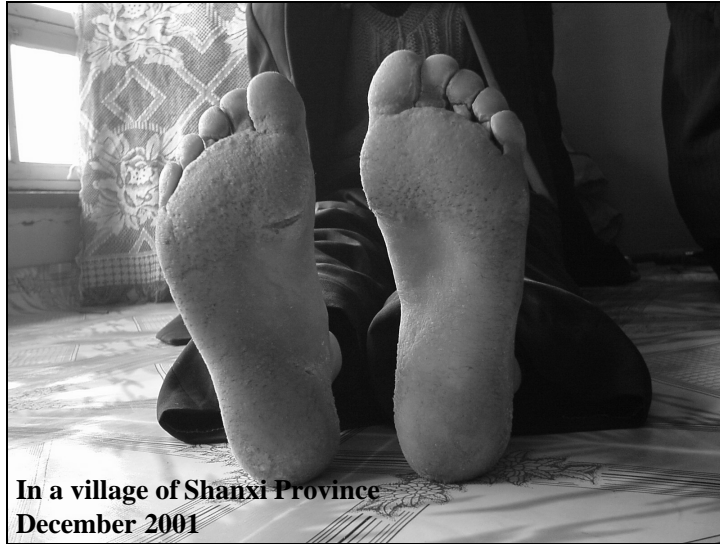
As pollution in terms of not only indoor but also possibly outdoor air pollution in China --- more risk assessment researches as in the case for water pollution are essential

This is the second workshop on this topic for NIES since last year, although this time in collaboration with UNU.

As for the 1st workshop, please find the proceeding available around at the registration counter.







**In a village of Shanxi Province
December 2001**

Special issue for China

- **Arsenicosis through As pollution of indoor air -- special cases in Guiyang area with 2,500 reported patients**
- **As pollution of outdoor air especially in relation to lung cancer risk (our preliminary finding in a recent WHO project)**

Note) Both are related to As pollution due to coal burning for heating and industries

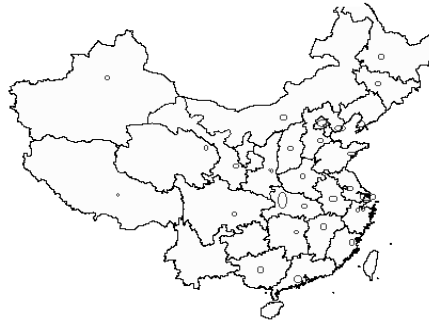
As pollution of outdoor air especially in relation to lung cancer risk

(our preliminary finding in a WHO project on Environment and Health in China)

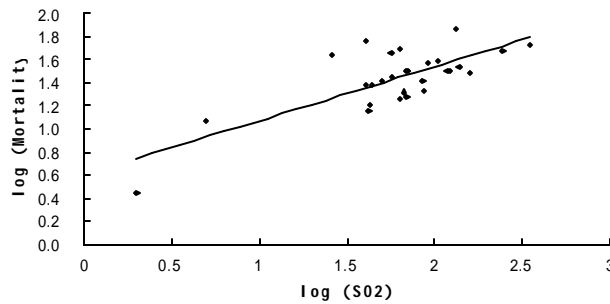
indirect evidence yet but highly suspicious

Distribution of 28 subject cities where both cause-specific mortality and air pollution data are available for 1991-98

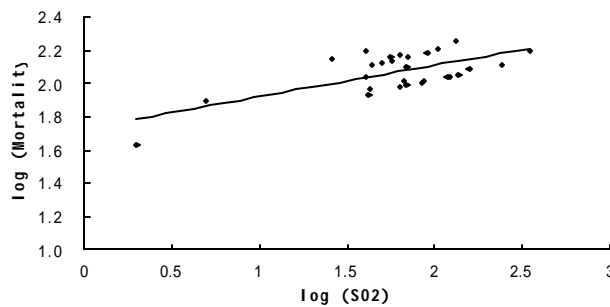
The subject 28 major cities in China



Dose-response between SO₂ and mortality of lung cancer (total age group)



Dose-response between SO₂ and mortality of neoplasm (total age group)



Estimated excess annual deaths due to ambient SO₂ pollution >60 μg/m³ in 28 Cities in China

Estimated excess death number from lung cancer for all ages in all urban areas was estimated to be 44,000 (SE: 2,100)

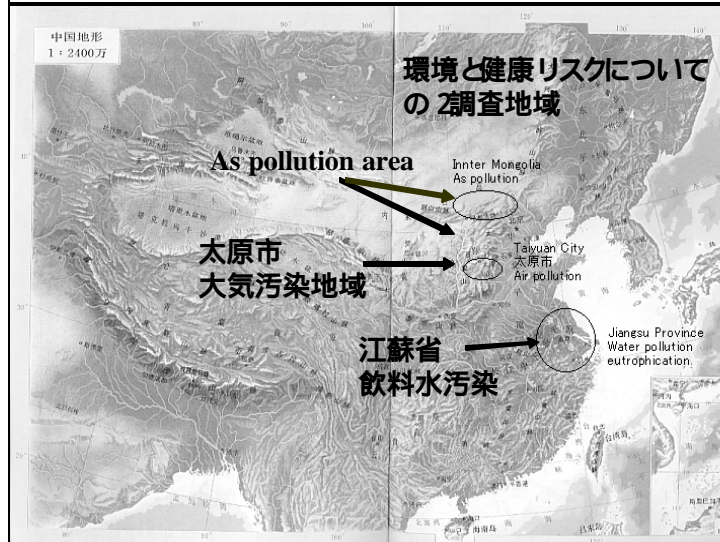
Note)

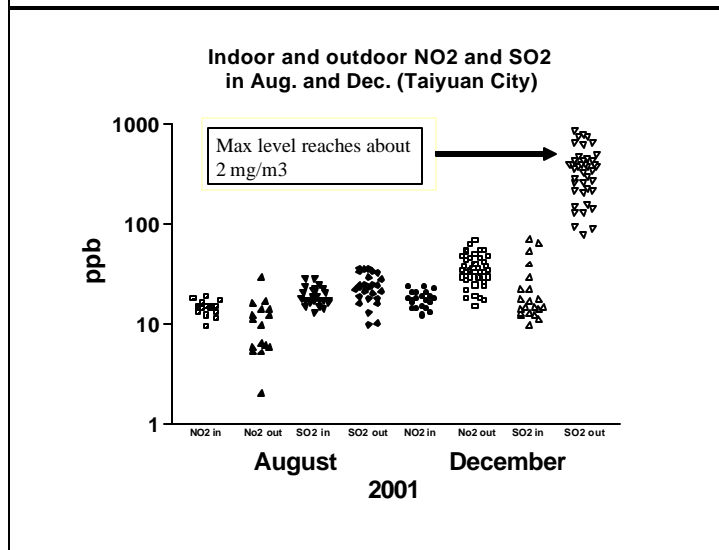
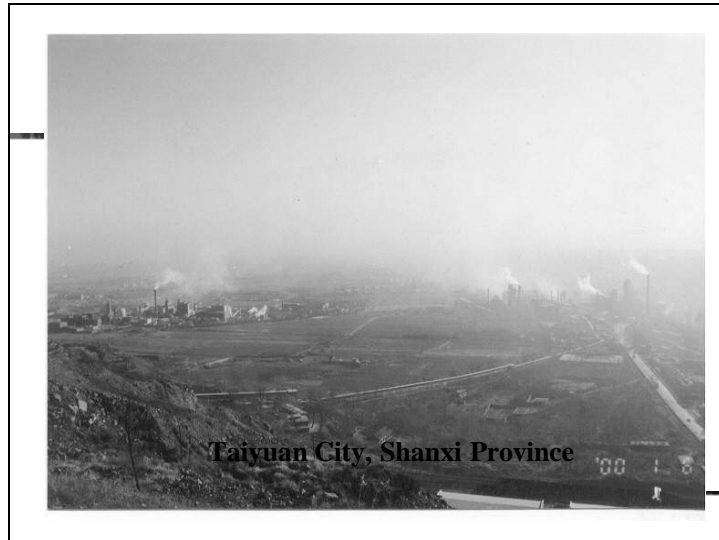
TSP (total suspended particulates) levels did not show significant correlation with lung cancer mortality, indicating an importance of PM_{2.5} or PM₁₀ in relation to the observed association with lung cancer

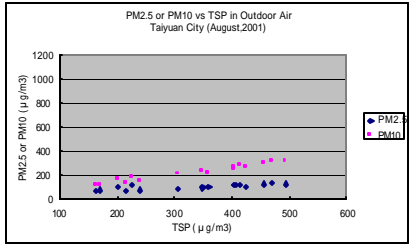
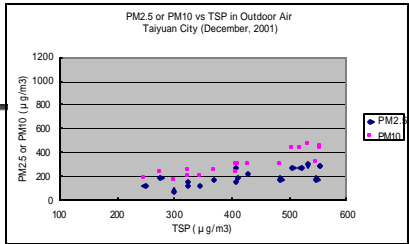
Hypothesis

Coal burning may produce not only SO₂ aerosol and inhalable dusts containing AS as carcinogen proportionally.

Thus, it is expected PM_{2.5} or PM₁₀ may correlate more stably with SO₂ level irrelevantly with TSP, which may vary largely according to soil dusts prevailing especially in NW part of China







Research Recommendation

Extensive As monitoring is needed for urban air especially in winter season when SO₂ levels are very high due to coal combustion especially for heating

Conclusively

Transboundary and more integrated approaches to global environmental risks (climate change to local pollution issues) as a whole become urgent

Vulnerability in terms of health risks and ecosystem risks at the community and national level must be evaluated together with their adapting capacity

In every sense, we should shift more to global environmental risk assessment and management