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## ABSTRACTS

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IL-11

## The Phenomenon of Climate Change – Facts and Myths

Tapan K Chakravarty

Climate Change is not a new phenomenon. There have been several cycles of Climate Changes in the history of this planet's existence. What has changed over the time is Man's understanding of the phenomenon by systematic observation, recording and understanding of the probable causes. Most significant of such causes is attributed to increase of Carbon di oxide (CO<sub>2</sub>) gas emitted from burning of fuel. Increase of CO<sub>2</sub> in the atmosphere has intensified the "Green House effect" which has contributed to Global Warming. This has taken place during last 150 years in scientifically recorded history. Unfortunately, there has been a lot of misapprehension, misconception and sometimes wrong conclusions on climate change effects. Today the bogey of climate change is cited as reasons for many of the natural disasters happening all around the globe. Many authors on environmental science and quite a few climate experts have predicted the survival of life on this planet at stake within next few decades. These conclusions are based more on myths than facts, which will be presented in subsequent paper. The fact however is irrefutable, CO<sub>2</sub> level is increasing in the atmosphere and that the earth's climate is changing. How this is going to affect the survival of the planet's species, only time can tell.

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## SPECIAL LECTURE

SL-2

### Impact of Environmental pollution on Human health: Epidemiological and biochemical studies.

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Epidemiological and biochemical studies were undertaken simultaneously at three major industrial sites in Assam viz. oil drilling site (Borholla), open cast coal mine site (Ledo) and paper and pulp mill site (Jagiroad) to assess the health status of the people and other environmental parameters. Occupational and environmental exposures to persistent environmental contaminants, particularly heavy metal emissions are increasingly associated with health risks. Exposure occurs mainly through respiratory and gastrointestinal systems and thus get ingested and absorbed in the body resulting in serious health problems. About 3500 individuals were covered through survey and consequent filling up of health questionnaires in the three study sites. Air, water and vegetable samples were collected during survey from these three sites and control area. Among all the three sites, Ledo was found to be most polluted with the highest amount of suspended particulate matter, NO<sub>2</sub> and SO<sub>2</sub> levels. The analysis of vegetables/food samples commonly grown and consumed by the local people from these sites showed the presence of toxic contaminants and very low level of nutritional components. The mineral analysis of water samples from the polluted sites have shown high amounts of manganese, lead, arsenic, cadmium and lead. During survey, interactions with each individual were done through health questionnaire and all the disease symptoms were recorded and finally blood

samples were collected through health camps and studied for blood glucose, kidney, liver profiles and hemoglobin content. For lung function, spirometry was done and tested for forced expiratory volume in one second (FEV<sub>1</sub>), forced vital capacity (FVC) and FEV<sub>1</sub>/FVC. Among the diseased population in Ledo, 29% people were suffering from respiratory disorders whereas in Jagiroad, 25% people were suffering from gastrointestinal problems. Most of the people in Borholla were found to be anemic and significant abnormalities in liver function was observed. High level of mercury was found in the blood and food samples collected from Jagiroad. Experiments were also conducted to evaluate the coal dust "exposure-response" relationship amongst the people residing very near to the open-cast coalmine area at Ledo and to trace out the genetic susceptibility to Chronic Obstructive Pulmonary Diseases (COPD) with respect to GSTM1 and GSTT1 genes in the population. The impact of potentially injurious environmental and other factors on human health and other related epidemiological studies will be presented and discussed.

*This research work is a part of NETWORK project supported by Council of Scientific and Industrial Research, Govt of India.*

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## Symposium 6:

### Air Bourne diseases

#### INVITED LECTURES

##### IL-12

##### Air-borne infection control in health care setting

Shilajit Sarkar

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##### IL-13

##### Building Design and Engineering Approaches to Air-Borne Infection Control

Nupur Banerjee, Special Engineer (Senior Architect), Health and Family Welfare Department, Government of West Bengal, Swasthya Bhavan.

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Air-borne infection disease is endemic in India, and diagnosis is frequently delayed. Unsuspected TB cases contribute to TB transmission because they are not being treated and may go unsuspected for days or weeks, and may visit multiple health care facilities or be admitted indoors to wards. Technical and operational guidelines are designed to provide up-to-date information about methods of reducing the risk of air-borne infection in health-care facilities.

Role of Architects and engineers in Health Infra-structure Design have been realized and Professionals responsible for the design, building refurbishment and organization (physical layout) of Health-care facilities need to consider patient flow patterns so that nosocomial transmission is minimized. Engineering interventions and out-break preparedness, in the context of a comprehensive infection control plan for TB, Influenza, SAARS, and select Air-borne bioterrorism agents are now highly recommended.