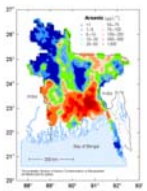
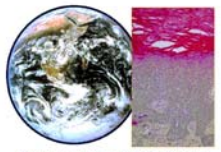




Environmental and health effects of toxic elements, metal ions, and minerals

INTERNATIONAL WORKSHOP

ON

MEDICAL GEOLOGY:

METALS, HEALTH AND THE ENVIRONMENT

November 27-30, 2006

Host:

Stamford University, Bangladesh

Jointly Organized by:

Department of Geology, Dhaka University
Department of Occupational & Environmental Health, NIPSOM
Department of Environmental Science, Stamford University
Royal Institute of Technology, Stockholm, Sweden

Sponsors:

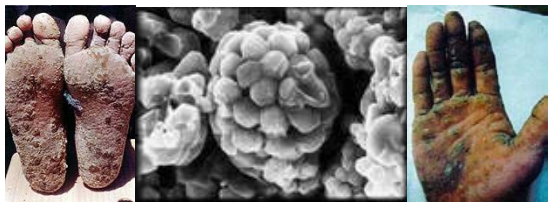
Stamford University, Bangladesh
International Medical Geology Association
U.S. Armed Forces Institute of Pathology
Geological Survey of Sweden
Royal Institute of Technology, Stockholm, Sweden

OVERSEAS WORKSHOP RESOURCE PERSONS:

Dr. José A. Centeno, Armed Forces Institute of Pathology, Washington, DC, USA

Dr Robert B. Finkelman, University of Texas at Dallas, USA

Dr. Olle Selinus, Geological Survey of Sweden
Dr. Prosun Bhattacharya, Royal Institute of Technology, Sweden
Dr. Lex Van Geen, Milman School of Public Health, CU, USA



More about medical geology you can find at the homepage:
http://www.medicalgeology.org

LOCAL ORGANIZING COMMITTEE:

***Convener:* Prof. Dr. Hossain Monsur**,
Department of Geology, DU
***Co Convener:* Prof. Dr. K. Maudood Elahi**,
Department of Environmental Science, SU
Prof. Dr. Sk. Akhtar Ahmad,
Department of Occupational & Environmental Health, NIPSOM
Organizing Secretary: Prof. Kazi Matin Ahmed,
Department of Geology, DU

Members:
Dr. Arif Mohiuddin Sikder,
Department of Environmental Science, SU
Dr. Manzurul Haque Khan,
Department of Occupational & Environmental Health, NIPSOM
Dr. Khaled Hasan & Mr. M. Aziz. Hasan
Department of Geology, DU
Dr. Zakir Hossain
DGHS, Government of Bangladesh
Dr. Salamat Khandakar
WHO
Mr. Rick Johnston
UNICEF-BANGLADESH

SCOPE AND PURPOSE:

The scope of this International Workshop is to share the most recent information on the relationship between impacts of toxic metal ions, trace elements and their impact on the environmental and public health issues. The scientific topics of the Workshop will include environmental toxicology, environmental pathology, geochemistry, geoenvironmental epidemiology, extent, patterns and consequences of exposures to toxic metal ions and dust in the general environment (with the stress on the water quality), biological risk assessment studies, modern trends in metal analysis and updates on the geology, toxicology and pathology of metal ion and dust exposures.

OBJECTIVES:

At the completion of this Workshop, the attendees will be able to:

- Know and gain information on the type of evidence available about geological sources and processes, environmental health, toxicology, and pathological manifestations of exposures of toxic metal species.
- Know and gain information about geochemical processes, natural and anthropogenic sources, speciation, modes of occurrence; to assess the impact of trace elements and toxic metal ion species on human and environmental health.
- Have an elementary understanding of environmental toxicology, epidemiology, medical geology as applied to the study of toxic metal species and trace elements.

ABOUT THE OVERSEAS SPEAKERS:

Dr. José A. Centeno is a Senior Research Scientist and Chief of the Division of Biophysical Toxicology and the Education and Research Branch at the Department of Environmental and Toxicologic Pathology, U.S. Armed Forces Institute of Pathology (AFIP) in Washington. D.C. Dr. Centeno received is BS and MS in chemistry from the University of Puerto Rico at Mayagüez in 1979 and 1981, respectively; and a Ph.D. in Physical Chemistry from Michigan State University in 1987. He has presented over 250 invited seminars and lectures, and published over 80 manuscripts on various topics of environmental toxicology, medical geology, and environmental health issues. He has served on the organizing and scientific committees of several international conferences, including as General Chairman of the *6th International Symposium in Metal Ions in Biology and Medicine* (ISMIBM) (May 7-10, 2000), and co-chairman of the 7th, 8th and 9th ISMIBM (2002, 2004, 2006). He has served on several international environmental and human health committees including the International Agency for Research on Cancer, the U.S. TOSCA-Interagency Testing Committee and the International Working Group on Medical Geology, and is currently serving as a committee member for the National Research Council Committee on Research Priorities for Earth Science and Public Health. He serves on the Editorial Board of four scientific journals, as associate editor of the book on *Essentials in Medical Geology*, as founding member and co-chair of the International Medical Geology Association, and as Director of the International Registry on Medical Geology. Over the last decade, he has focused attention on environmental toxicology, medical geology, and health effects of trace elements, toxic trace metals and metalloids.

Dr. Robert B. Finkelman, is an Emeritus senior research scientist with the U.S. Geological Survey (USGS) in Reston, VA, and a Professor at the University of Texas at Dallas. Dr. Finkelman is widely known for his work on coal chemistry and as a leader of the emerging field of Medical Geology. He has degrees in geology (The City College of New York, 1965), geochemistry (The George Washington University, 1970), and chemistry (The University of Maryland, 1980). Dr. Finkelman has a diverse professional background having worked at the USGS for 32 years, 7 years for Exxon, and has experience as a consultant and as a college instructor. Most of Dr. Finkelman's professional career has been devoted to understanding the properties of coal and how these properties affect coal's technological performance, economic byproduct potential and environmental and health impacts. For the past 10 years he has devoted his efforts to developing the field of Medical Geology. Dr. Finkelman is the author of 500 publications and has been invited to speak in more than 30 countries. Dr. Finkelman was Chairman of the Geological Society of America's Coal Geology Division, 1990; Chair of the International Association for Cosmochemistry and Geochemistry, Working Group on Geochemistry and Disease, 1998 to present; founding member and co-chair of the International Medical Geology Association. Dr. Finkelman is currently the President of the Society for Organic Petrology and was a recipient of a 2004 U. S. State Department Embassy Science Fellowship in South Africa.

Dr. Olle Selinus is a Ph.D. geologist working with the Geological Survey of Sweden (SGU). During the 1960s and 1970s he worked in mineral exploration with a mining company and at the GSS. Since the beginning of the 1980s. Dr. Selinus research work has been focused on environmental geochemistry and geostatistical methods, including research on medical geology. He has served as the organizer of several international conferences in this field and has published over 40 manuscripts. Dr. Selinus is currently the Head of the Geochemical Division at SGU in charge of research and development. He serves as Editor-in-Chief for the book on "Essentials of Medical Geology", as officer of COGEOENVIRONMENT and as chairman of its international Initiative on Medical Geology, co-chairman of the International Medical Geology Association, and co-chairman of the IGCP project #454 Medical Geology.

Dr. Prosun Bhattacharya received his B. Sc. (Honours) degree in Geology in 1982, M.Sc. degree in Applied Geology in 1985 from the University of Delhi, India. He received his PhD degree in Petrology and Sedimentary Geochemistry from the University of Delhi, India in 1990 in the broad field of petrology and sedimentary geochemistry. He has worked as faculty member of the Department of Geology, University of Delhi as a Research Associate for a short while in 1991 before moving to Sweden. He joined Royal Institute of Technology (KTH) in 1993 as a Research Scientist and worked on the genesis of high fluoride groundwaters in India. Since 2002, he is working as an Associate Professor of Groundwater Chemistry. He has established the KTH-International Groundwater Arsenic Research Group (GARG) in 1999.

Dr. Lex Van Geen, Doherty Senior Research Scientist, Lamont Doherty Earth Observatory of Columbia recieves his BS degree from University of Washington, Seattle, WA on oceanography and chemistry in 1969, Ph.D. in oceanography from Massachusetts Institute of Technology in 1989. His r**esearch Interests includes g**eochemical cycling of trace elements in natural and perturbed environments, particularly redox-sensitive processes affecting metals and metalloids. Applications to mine tailings, coastal sediment, estuaries, and groundwater, as well reconstructions of past climate change in nearshore environments. Interest in the bridging of disciplines, including the health and social sciences, to address multi-faceted environmental problems.

WHO SHOULD ATTEND?

The Workshop is intended for medical professionals, occupational and environmental scientists, geologists, geochemists, ecologists, chemists, biologists, toxicologists, epidemiologists, environmental pathologists, bio-statisticians and any other health, environmental and geo-sciences professional with interest on Medical Geology issues, particular interest on the effect of toxic metal ion species on environmental and human health. An important aim of the Workshop is to provide the opportunity for forming contacts and network between professionals working in different areas of environmental and human health.

INAUGURAL SESSION

Day 1: 27th November 2006

1000-10:30: Meeting and Greetings

10:30-10:40: Welcome Address: *Prof. Dr. K. Maudood Elahi*

10.40-10:50: Medical Geology: An emerging discipline in environmental and human health - *Dr. Jose A. Centeno, USAFIP*

10:50-11:00: Arsenic Contamination Scenario of Bangladesh: *Dr. K M Ahmed*

11:00-11:10: Special Guest
11.10-11:20: Chief Guest

11.20-11.25: Session Chair: *Prof. Dr. M. Hossain Monsur*
11:20-11.30: Vote of Thanks: *Prof. Sk. Akhter Ahmed*

11:30-12:00 Tea Break

SCIENTIFIC PROGRAM

Day 1: 27th November 2006

12.00-12.30: Registration

12.30-13.30: Lunch

A. Environmental Health: Sources of Exposure and Health Effects of Trace Elements, Toxic Metal Ions, Metalloids,

13.30-14:15: Objectives and Short Description of the *Workshop*
Dr. Jose A. Centeno, AFIP, USA

14:15- 14:45: Medical Geology: An Emerging Field
Dr. Olle Selinus, Geological Survey of Sweden

14:45-15:30: The Diversity of Trace Elements and Toxic Metal Ions in Environmental Health and Human Diseases
Dr. Jose A. Centeno, AFIP, USA

15:30-16:15: Natural and Anthropogenic Sources, Transport and Fate of Toxic Metal Ions in the Environment
Dr. Robert B. Finkelman, University of Texas at Dallas

16:15-16:45: *Presentations from Columbia University*

16:45-17:00 Tea Break

Day 2: 28th November 2006

B. Environmental Toxicology, Geochemical Studies and Health Effects.

09:00-10:00: An Overview of Health Impacts of Coal and Coal Use
Dr. Robert B. Finkelman, University of Texas at Dallas

10:00-11:00: Arsenic Poisoning: Natural History, Toxicology and Health Effects
Dr. Jose A. Centeno, AFIP, USA

11:00-11:30 Tea Break

11:30-12:30: The health impacts of trace elements released by residential coal combustion – A case study of arseniasis and fluorosis
Dr. Robert B. Finkelman, University of Texas at Dallas

12:30-13:30: Lunch Break

13:30-14:15: Arsenic contamination in groundwaters of Bangladesh and options of safe drinking water from targeted aquifers.
Dr. P Bhattacharya, KTH_international Groundwater Arsenic Research Group, KTH

14:15-15.15: Presentations from NIPSOM

15:15-16.15: Presentations from Stamford University

16:15-17.00 Discussion and Summary
Dr. Jose A. Centeno, AFIP, USA

17:00-17:30: Tea Break

Day 3: 29th November 2006

C. Analytical Toxicology: Trace Element Speciation and Quantification Methods

09:00-10:00: Clinical and Toxicological Effects of Mercury Exposure: Medical Geology Case Studies
Dr. Jose A. Centeno, AFIP, USA

10:00-11:45: Analytical methods for the study of trace elements and toxic metal ions in geological and environmental samples.
Dr. Robert B. Finkelman, University of Texas at Dallas

11:45-12:30: Trace Element Speciation in Environmental Medicine :An Overview of Analytical methods for the study of metal ions in biological and tissue samples.
Dr. Jose A. Centeno, AFIP, USA

12:30-13:30: Lunch Break

D. Special Topics on Medical Geology and Human Health Research

13:30-14:30: The health impacts of mineral dust
Dr. Robert B. Finkelman, University of Texas at Dallas

14:30-15:15 Chemical Pathology and Health Effects of Natural Dust: The Role of Trace Elements
Dr. Jose A. Centeno, AFIP, USA

15.15-16.00: The Development and Use of Geo-chemical Database on Medical Geology
Dr. Olle Selinus, Geological Survey of Sweden

16:00-16.30 Health Benefits from Geological Materials
Dr. Robert B. Finkelman, University of Texas at Dallas

16:30-17.00: Tea Break

17.00-18.:30: Panel Discussion: All Speakers –

Topic: Regional Issues on Medical Geology and Human Health

Moderators: Prof. Dr. K Maudood Elahi, SU
Prof. Sk. Akhter Ahmed, NIPSOM
Prof. Kazi Matin Ahmed, DU

18:30-19:00: Concluding Ceremony & Distribution of Certificates of Attendance

19.30: Workshop Dinner

Day 4: 30th November 2006

Field Trip:

i) Arsenic Occurrences and Distribution in the Meghna Flood Plain
ii) Arsenic Affected villages in SE Bangladesh
iii) Excursion to Archeological Site of Bangladesh (Mainamati)

Tour Guides:
Dr. M. H. Khan, NIPSOM,
Dr. A. M. Sikder, Stamford University
Mr. M.A. Hasan, Dhaka University

07.30: Depart from Dhaka

11.00-13.00: Visit to Arsenic affected villages

13.00: Depart for Mainamati (Lunch on board)

14.00-15.30: Visits to Mainamati Archeological Sites and Museum

16.15: Tea break at Mainamati

16.45: Depart for Dhaka

REGISTRATION FORM

Please complete and return to:

Prof. Kazi Matin Ahmed
Organizing Secretary

International Workshop on Medical Geology:
Metals, Health and The Environment

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+880 2 815 0907 (home); Mobile: +880 171 184 6840

Surname

First Name

Title/Position

Organization

Mailing Address

Postal Code **Country**

Telephone **Fax**

E-mail

I intend to:

1. Attend the Workshop

2. Participate in Field Trip: