Background

Geogenic contamination refers to naturally occurring elevated concentrations of certain elements in groundwater (such as arsenic, fluoride, uranium or selenium) which have a negative health effect on humans consuming this water. Geogenic contamination of groundwater might be a result of geochemical characteristics of the aquifer material – e.g. high concentrations of the contaminant in the rock matrix, dissolving during water-rock interaction, or occur due to environmental conditions such as an arid climate or reducing conditions in the aquifer which facilitate the contaminant to occur in a more mobile state. The most wide-spread geogenic contaminants are arsenic and fluoride, affecting the health of hundreds of millions of people worldwide.

Fluoride is the 13th most abundant element in the earth's crust (625 mg/kg) and exists in trace amounts in almost all ground waters across the world. According to estimations from UNESCO, more than 200 million people worldwide rely on drinking water with fluoride concentrations exceeding the present WHO guideline of 1.5 mg/L. Fluorosis, associated with elevated fluoride concentrations in drinking water has been reported in a range of countries. Fluorosis poses a grave public health problem in many countries over the globe and excess intake causes different types of fluorosis; primarily dental and skeletal fluorosis.

Arsenic is a king of poisons and has plagued human being since the days of antiquity. It has acquired an unparalleled reputation as a poison, with arsenic trioxide, a tasteless and odourless inorganic compound, contributing a convenient agent for homicide. Elevated concentrations of arsenic in ground water in some areas are a result of erosion of local rocks. The cause of contamination varies from geological changes, mining and the burning of coal. Inorganic arsenic is a documented carcinogen. High arsenic concentrations in groundwater have been found to be responsible for health problems summarized under the term arsenicosis, which develop over a period of several years. Symptoms of arsenicosis range from skin disorders (melanosis, keratosis) to cardiovascular diseases, cancer and the impairment of the neurodevelopment of children. Since there is no cure for arsenicosis to date, the provision of safe water for the prevention of this disease is the vital mitigation approach. Drinking water contamination by arsenic and its consequences have been reported from many parts of the globe. The WHO guideline value for arsenic in drinking water has been set to 10 µg/L.

In this context, a 3-day workshop (site visit is planned on January 20) is being organized at NEERI, Nagpur, India with support from UNICEF, WHO and International Water Association (IWA) to deliberate on issues related to geogenic contaminants with particular reference to fluoride and arsenic for the participants from countries affected with geogenic contaminants to discuss and share experience particularly on preventive/mitigation measures undertaken to minimise health effects. Field visit to intervention sites are also planned during the workshop.

Objectives

- Deliberate on recent findings indicating an increased geographical extent of geogenic contaminants
- Discuss possible health impacts of geogenic contaminants and identify stress parameters
- Devise strategy for implementing approaches such as Quantitative Chemical Risk Assessment (QCRA) and health based targets
- Identify technological interventions to minimise geogenic contaminants
- Study feasibility of implementing interventions and possible bottlenecks in various socio-political settings
- Evaluate approaches such as nutrient supplementation for integrated mitigation
- Share experience for integrated mitigation

Content of the Workshop

- Speciation and controls on the mobility in groundwater and soils
- Case studies on QCRA and health based targets
- Monitoring tools for geogenic contaminants and mapping by using GIS-based tools to estimate extent of contamination on a regional and national scale.
- Technological interventions to minimise geogenic contaminants
- Creation of technology bank and success stories for common use and implementation
- Developing business models for technological interventions
- Review importance of community participation in planning and implementing interventions
- Operation and maintenance of technological interventions

Expected Participation

The invitees for the workshop will be from geogenic contaminated region particularly from developing countries. This workshop will assist in cross-learning on mitigation measures to minimise health impacts of geogenic contamination. In addition, experiences on hydrogeological processes responsible of contamination will also be discussed. An abstract (250 words) highlighting type of geogenic contaminants, geographical extent and mapping and mitigation measures etc. should be submitted to the Organising Secretary before November 30, 2011 which can be further developed to a Country paper on acceptance of abstract. Presentation of 10 minutes duration on country paper will be made by the participants. In addition, there will be invited presentations by the experts in the workshop which will help participants to design and implement mitigation measures in the respective region/countries.

Registration and Accommodation

There is no registration fee for attending the workshop. Accommodation, if required, will be arranged on first-cum-first basis. The participants are therefore requested to send their confirmation at the earliest. Participation in the workshop is on invitation basis and those desiring to attend the workshop should write to Organising Secretary.

Dates and Venue

The International Workshop on Mitigating Effects of Geogenic Contaminants will be held at National Environmental Engineering Research Institute (CSIR-NEERI), Nehru Marg, Nagpur – 440 020, INDIA during January 17-20, 2012. The campus is situated on NH-7. Nagpur is well connected by road, rail and air to most of the important cities.

About Organisers

Partners

CSIR-NEERI: The National Environmental Engineering Research Institute is a premier R & D organization in the domain of Environmental Science and Technology in India with its Headquarters at Nagpur. It is one of the National Laboratories within the Council of Scientific and Industrial Research (CSIR), Government of India. NEERI is served by competent and experienced teams in various core disciplines of relevance to environmental science and engineering. Keeping in view the R&D accomplishments of CSIR-NEERI in water and sanitation sectors, World Health Organization in consultation with Government of India has designated Water Technology and Management (WT&M) Division of CSIR-NEERI, Nagpur as WHO Collaborating Centre for Water and Sanitation (WHOCC No. IND-104). This Collaborating Centre assumes great significance as it is one of 13 collaborating centres on water and sanitation in the world.

IWA: The International Water Association is a global network of 10,000 water professionals, spanning the continuum between research and practice and covering all facets of the water cycle. Through IWA members collaborate to promote the development and implementation of innovative and effective approaches to water management. The strength of IWA lies in the professional and geographic diversity of its membership - a global mosaic of member communities - including academic researchers and research centres, utilities, consultants, regulators, industrial water users and water equipment manufacturers.

WHO: WHO is the directing and coordinating authority for health within the United Nations system. It is responsible for providing leadership on global health matters, shaping the health research agenda, setting norms and standards, articulating evidence-based policy options, providing technical support to countries and monitoring and assessing health trends. WHO

works on aspects of water, sanitation and hygiene where the health burden is high, where interventions could make a major difference and where the present state of knowledge is poor.

UNICEF: UNICEF is fully committed to working with the Government of India to ensure that each child born in this vast and complex country gets the best start in life, thrives and develops to his or her full potential. The organisation uses quality research and data to understand issues, implements new and innovative interventions that address the situation of children. UNICEF uses its community-level knowledge to develop innovative interventions to ensure that women and children are able to access basic services such as clean water, health visitors and educational facilities, and that these services are of high quality.

IWWA: The Indian Water Works Association is a voluntary body of professionals concerned and connected with water supply for municipal, industrial, agricultural uses and treatment and disposal of wastewater. IWWA focuses basically on the entire "Water Cycle" encompassing the environmental, social, institutional and financing issues. IWWA was founded in 1968 with headquarters at Mumbai. IWWA has 27 Centres spread across the country and is very active in conducting different activities in the areas of Water Supply and Wastewater Treatment and Disposal. IWWA has a membership of more than 6500 plus professionals spread all over the country and abroad.

Registration Fee

Indian Participants : Rs. 3,000/-

Travel and Accommodation

The accommodation for International and national delegates will be arranged in hotels and NEERI guesthouse on first cum first basis. Tariffs for the accommodation can be obtained from the Organizing Secretary.

Participation in Exhibition

It is proposed to hold an exhibition during the workshop.

Our exhibitors will include utilities, technology and product manufacturers, consultants, knowledge and research institutes, non-government organisations and the media at the conference exhibition. Confirmation of participation should be intimated to the Organizing Secretary of the workshop electronically or by post with details of products to be exhibited before December 31, 2010. Exhibition details will be intimated along with the acceptance for participation. The stall will be provided on complimentary basis with a nominal workshop participation fee of Rs 3000 per person participating as an exhibitor.

Patrons

Dr. S R. Wate, Director , CSIR-NEERI, Nagpur

Prof. K.J. Nath, Chairman, Core Committee, Arsenic Task Force, New Delhi

Organizing Committee

Dr. Pawan Labhasetwar, CSIR-NEERI, Nagpur
Mr. G.S. Damor, PHED, Bhopal
Mr. T.G. Koshriya, PHED, Raipur
Mr. D. Rajasekhar, MDWS, New Delhi
Dr. Peter Harvey, UNICEF
Dr. Sam Godfrey, UNICEF
Dr. Aidan Cronin, UNICEF, New Delhi
Mrs. Payden, WHO, New Delhi
Dr. Feleke Zewge, Ministry of Water & Energy, Ethiopia
Dr Darren Saywell, IWA, The Hague, Netherlands
Dr. T. Chakma, RMRCT, Jabalpur
Mr Sanjay Bajpai, DST, New Delhi
Dr Rajesh Gupta, IWWA, Nagpur
Er. Subhash P. Andey, CSIR-NEERI, Nagpur

Correspondence

Er. Subhash P. Andey
Organising Secretary
Sr. Principal Scientist
Water Technology and Management Division
National Environmental Engineering
Research Institute (CSIR-NEERI)
Nagpur – 440020, INDIA
TeleFax : 91-712-2249756
Email: sp_andey@neeri.res.in

Dr. Pawan Labhasetwar
Organising Secretary
Principal Scientist & Head
Water Technology and Management Division
National Environmental Engineering
Research Institute (CSIR-NEERI)
Nagpur – 440020, INDIA
TeleFax : 91-712-2249756
Email: pk_labhasetwar@neeri.res.in

Registration Form

International Workshop On
Mitigating Effects of Geogenic Contaminants

January 17-20, 2012
NEERI, Nagpur, INDIA

Full Name:

Designation:

Institution/Organization:

Address for correspondence:

Telephone No. (O)

(R)

Mobile :

Fax:

Email:

Date:

Place:

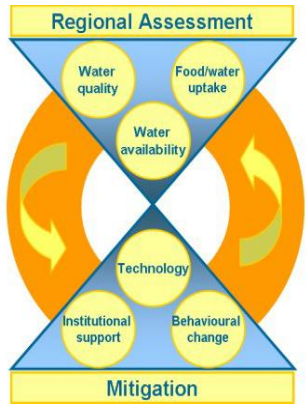
(Signature of the Delegate)

International Workshop On

Mitigating Effects of Geogenic Contaminants

January 17-20, 2012

NEERI, Nagpur, INDIA



Organized by

National Environmental Engineering Research Institute (NEERI)
(Under CSIR, New Delhi)
Nagpur – 440020, Maharashtra, INDIA

ISO 9001:2008

WHO Collaborating Centre for Water and Sanitation

With Support of

unicef

International Water Association

Indian Water Works Association