



e-Newsletter, Issue 4, August 2011

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Announcement

Launching of ASCE-IS Website

The Executive Committee of ASCE-IS is proud to let the members know the launching of ASCE-IS website in www.asce.org server. The web address of this website is as follows,

www.asce.org/international-sections/india-section.html

ASCE-IS would like to extend its gratitude to Ms. Katerina Lachinova and Mrs. Meggan Maughan-Brown at ASCE HO in Reston, Virginia, USA for their work and cooperation to make this happen, which had been a long awaited expectation of ASCE-IS members. Our website is still under development stage as certain administrative decisions are currently being sorted out. Members are very much encouraged to check out this website and make them aware of the past, current, and future activities of our section.

1.0 Technical Talk on Arsenic Crisis

The present committee of ASCE-India Section hosted its second technical event of 2011 on 22nd July at Dr. Triguna Sen Auditorium of Jadavpur University Alumni Association at 6:30 pm. The topic of the talk was “The Arsenic Crisis: Scale, Mitigation, and Beyond...” with two very distinguished speakers sharing their knowledge and experience on the subject.

The event was open to all and ASCE-IS is happy to announce that the talk was attended by professors and students (undergraduate, graduate, and doctoral) from Jadavpur University, and other local universities like Kalyani University, Bengal Engineering and Science University, University of Calcutta, and Presidency University, which are known across India and abroad for their past and ongoing research work on Arsenic Contamination and its Mitigation. Professional and practicing engineers from various government departments both at national and state levels and from private consulting firms were amongst the attendees.

1.1 The Speakers

Prof. Arunabha Majumder, Ph.D., is an Expert Civil and Environmental Engineer having graduated from Jadavpur University in 1968. He worked in different facets of Urban Water Supply, Sanitation

and Solid Water Management with Kolkata Metropolitan Water Supply and Sanitation Authority (KMWSA) till 1988. He had been a Professor and former Director of All India Institute of Hygiene and Public Health, Kolkata. Dr. Majumder is Member of State Government level Task Forces on Arsenic, Fluoride, and Sanitation. He is currently an Emeritus Professor in School of Water Resources Engineering at Jadavpur University and visiting faculty of Environmental Systems Management at Presidency University. Dr. Majumder is also a Member of the Advisory Group, Water Technology Initiation, Department of Science and Technology (DST), Government of India (GOI).

Panel of Speakers, Dr. SenGupta, Dr. Majumder, with Dr. A K Kar, President, ASCE-IS



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Prof. Arup Kumar SenGupta, Ph.D., P.E., F.ASCE, graduated in Chemical Engineering from Jadavpur University in 1973 and worked for a consulting firm in Kolkata till 1980. He went to the USA for pursuing higher studies and received his doctorate in 1984 from University of Houston, Texas. He is the former Head and now P C Rossin Professor of Civil and Environmental Engineering at Lehigh University, Pennsylvania, USA. Over the past 15 years, Dr. SenGupta, in association with universities in different countries around the world, has been proactive in developing and installing sustainable Arsenic Removal Systems in the USA, India, Cambodia, Laos, and Argentina. His work on Arsenic mitigation has fetched him a number of prestigious awards in the USA and other international organizations, like UNESCO.

1.2 Brief about Dr. Arunabha Majumder's talk

“Arsenic Problem Mitigation: West Bengal Experience”

Dr. Majumder started his talk from a global standpoint mentioning the names of the countries where this problem was detected and then indicating the States of India which are affected. A brief overview was then given on the status of Arsenic contamination in different districts of West Bengal from a qualitative perspective referring to the level of contamination and its probable causes.

Dr. Majumder explained the various health impacts of “arsenicosis” due to varying degree of human exposure to arsenic and listed the diseases caused by such exposure. He mentioned that about 16.6 million rural people in 79 blocks and about 12 million urban people are at the risk of arsenic contamination in West Bengal. This constituted about 36% of the entire population of the state as per 2001 census.

Mitigation measures of arsenic pollution were discussed subsequently. Various short term (e.g. deep aquifer wells), medium term (e.g. arsenic removal plants), long term measures (e.g. surface water schemes) and their applicability were mentioned. Details of a number of surface water supply based schemes and their population coverage, which had been implemented to alleviate the suffering of arsenic affected people, were shared.

The last part of Dr. Majumder's presentation was directed towards different established methods of Arsenic removal. He specifically mentioned the

process of oxidation and co-precipitation which was developed by AIH&PH during his tenure there. Salient features of this particular type of treatment using adsorption as second stage treatment and its experience with field installations (with photographs of actual units) were mentioned.

A comparative statement of performance of various removal units was presented. In his concluding remarks, Dr. Majumder specially mentioned community participation as an integral part of arsenic mitigation and management.

1.3 Abstract of Dr. Arup K SenGupta's talk

“Developing Water Technology: From Research Laboratory to Masses in the Field”

Although not known or appropriately recognized even 25 years ago, the natural geochemical arsenic contamination of groundwater has now emerged as a global crisis threatening the quality of drinking water in over 50 countries. Of them, countries in South and Southeast Asia, namely, Bangladesh, Nepal, Cambodia, Thailand, Laos, Myanmar and the eastern part of India are truly the worst affected. Statistics abound in regard to the sufferings and deaths of thousands of human beings caused by drinking of arsenic-contaminated water. Over 200 million people in this region with less than \$2 per day earning are directly threatened by arsenic contamination. No concerted efforts have been undertaken to mitigate the arsenic crisis that has been described as the worst natural calamity by the New York Times. This fact suggests that the water related crisis, being a regional issue, affecting resource-poor people, is slow to be resolved.

During the last 20 years, researchers at Lehigh University in Pennsylvania, USA, have undertaken research and /or development effort both in the

Dr. A Majumder Presenting his Talk



laboratory and also in the field to mitigate arsenic crisis by collaborating with universities and NGOs in different countries, namely, Cambodia, Argentina and India. Specific questions attempted to answer are:

- Can technologies be developed to treat arsenic-contaminated ground-water economically?
- Is the treatment process sustainable in remote villages?
- Can the arsenic removed be safely disposed of in an environmentally safe manner?
- Does the withdrawal of arsenic-contaminated groundwater pose any threat?

Their work has led to the development of the first reusable, polymer-based arsenic-selective adsorbent that has the potential to provide safe water at a significantly low cost. They have validated a easy-to-operate technology to safely contain arsenic-laden sludge in an environmentally sustainable manner. The use of appropriate technology has transformed arsenic crisis into an engine for economic growth in many affected areas. Details were presented in the talk.

1.4 The Program

The proceedings got started at 6:30 pm with the Event Coordinator, Dr. Ayanangshu Dey, welcoming all to the talk. He went over a few preliminaries, e.g. giving a brief background of ASCE-IS activities since its inception in 1988. Dr. Dey requested the ASCE-IS President and the two distinguished speakers to the stage. He then introduced Dr. Anil K Kar, President, ASCE-IS to the audience and requested him to take over and preside over the program.

Dr. A K Kar welcomed the speakers and the audience to this talk and requested Prof. S K Das, Secretary, ASCE-IS to present the two speakers with flower bouquets and gift items as token of appreciation on behalf of ASCE-IS. He then requested Mr. Giasuddin Ahmed Choudhury of ASCE – Bangla-

Dr. A K SenGupta Speaking at the Event



-desh International Section, who flew in from Dhaka, Bangladesh to attend the talk, to come up on the stage as a recognition of his participation to the event which did give it an international touch. Mr. Choudhury presented Dr. Kar and the speakers with gift items, and this gesture on his part was very much appreciated by all present. Dr. Kar briefly talked about ASCE-IS and introduced the speakers for the evening. He requested first Dr. Majumder and then Dr. SenGupta to take the stage in turn.

After the talks, the floor was open for an interactive discussion for the audience to ask questions to the speakers. This was moderated by Dr. Kar, as well. During this, Dr. S K Acharyya, former Director General, Geological Survey of India, Government of India, spoke about geological aspects of Arsenic contamination of groundwater. Some really good and relevant questions were raised to the speakers which did make the event an interactive one, also for those who were present. Before closing the session, Dr. Kar mentioned that ASCE-IS planned to go beyond holding this talk by preparing a “position paper” on the subject for submission to relevant authority of Government of West Bengal. This is currently under preparation.

Lastly, Dr. Dey, Event Coordinator, conveyed his gratitude for the audience to have come over and making the event a successful one. He thanked

Membership Advancement

If you are currently an Affiliate or Associate Member of ASCE

ASCE-IS encourages you to upgrade your membership and become a full Member

Please contact us at asce.is.email@gmail.com or member@asce.org for guidance

ASCE-IS invites applications from donors for space in e-Newsletter of ASCE-IS.

Please contact Dr. A K Kar, ASCE-IS President at asce.is.email@gmail.com for details.

To get involved with ASCE, please send an email to member@asce.org

the ExCom members, his friends, and some other people for their help and support before and during the course of the event.

Refreshment and soft drink were served to all the guests.

1.5 Soft Copies of Presentations

The complete PDF copies of two presentations have been posted in the ASCE-IS web-site (under "ASCE-IS Activities") so that any interested member can access this.

The web link also contains the contact email ids of the speakers in case some members would like to get in touch with the speakers directly. ASCE-IS is thankful to the speakers for letting us post their presentations in our website.

1.6 Interactive Q&A Session

The proceedings were followed by an interactive Question and Answer session that was moderated by Dr. A K Kar.

Prof. S K Das was the first to start with his note that Arsenic should always be considered as a crisis and not an opportunity, as invaluable human lives are lost. He raised his concern towards modern high rise building societies which mostly depend on groundwater for all their water need. He asked why societies could not depend on municipal supply.

Prof. Dr. Majumder replied that the main concern is to provide arsenic free water for all. For this, KMC has started undertaking a few measures which are on the verge of implementation such as, (1) while providing environmental clearance, KMC would pledge to provide drinking water to the housing society, (2) recycle of wastewater as far as possible, and (3) use surface water only as far as practicable.

Prof. B N Gupta (NITTTR) asked about the cheaper solution for Arsenic mitigation as proposed recently by IIT, Kharagpur. He also asked about the number of times Dr. SenGupta's patented resin (HAIX) can be regenerated. Prof. Dr. Sengupta answered by indicating that the proposed technology was yet to be field tested on a sustainable basis. He

added that his resin could achieve less than 10 ppm Arsenic concentration as per the WHO guidelines. He also replied that his resin lasts for more than 5-8 years and can be regenerated at least 10 times.

Further question was asked about the unit cost of production of the resin here in India by Prof. Dr. Amit Datta, Jadavpur University. While replying to this, Dr. Sengupta mentioned that as the crisis was of global importance, indigenous production of the units would be much more cost effective rather than importing it from USA.

Mr. G A Choudhury, ASCE - Bangladesh International Section, voiced his concern about arsenic impregnation in vegetables due to the use of groundwater as a source of water used in agriculture and asked about it in detail as the cultivation in Bangladesh is mostly dependent on ground water.

Prof. Dr. Majumder replied in Bengali (as a form of showing respect for the National Language of Bangladesh) to Mr. Choudhury with his statistics that it was observed that patol (snake gourd), jhinga (ridged gourd), and other green leafy vegetables were observed to retain most of Arsenic in them. Further, there are evidences that cooking with Arsenic contaminated water enhanced the crisis to the next level.

The last but most pertinent question was raised by Mr. Sumit Ray (Geological Survey of India) about disposal method of the resin units and whe-

A view of the gathering



Section Dues

ASCE-IS is requesting its members to send in their Section Dues for the year 2012

The amount is Rs. 450 and the last date of collection of dues is December 31, 2011

It is mandatory for all members to pay their Section Dues

Student and Life Members of ASCE are exempted from paying Section Dues

Please send in your dues on time to get your ASCE-IS Gifts

-ther we were creating more problems than solutions by encasing the Arsenic waste sludge in concrete.

Prof. Dr. Sengupta replied that special toxic disposal zones should be allocated for disposal as improperly/inadequately trapped and concentrated Arsenic may leach out from these units and make the situation worse.

1.7 Feedback from Attendees

The event was attended by about 100 people. Feedback forms were circulated amongst the attendees prior to the program. The forms were collected at the end of the program to get their response.

Based on the forms turned in, the event got very positive feedback from its participants. Most people concurred that the topic, selected for the event, was relevant supported by very good presentations by the speakers. Most of them agreed that they would recommend such events to their colleagues in future and they would be agreeable to pay a reasonable amount for this, too.

Some of the participants commented that they came to know about the talk rather late and ASCE-IS took a note of this. Some attendees wished to have copies of the presentations by the speakers. This is being arranged by ASCE-IS. More interaction between ASCE-IS and university students was necessary, as mentioned by some. Some suggestions on future topics were made by some of the attendees as under,

Rainwater harvesting, climate resilience of cities, adverse effects of global warming, fluoride contamination in groundwater, other water pollution and civil engineering issues affecting our cities today,

etc.

ASCE-IS officers would like to convey their gratitude to the attendees for their response.

2.0 ASCE Region 10 ATC

The 5th Assembly Training Conference of ASCE will be held at New Delhi on 18th and 19th September 2011. ASCE Director for International Relations and Strategic Planning, Mrs. Meggan Maughan-Brown, will be attending the conference to represent ASCE HO. This training conference is being organized by ASCE with the help of ASCE-IS to impart necessary training to the leadership, who are currently operating their ASCE Sections in respective countries.

Delegates from a number of ASCE Region 10 countries have been invited along with members of the current National and Regional level Interim Executive Committee of ASCE India Section (as under).

ASCE Bangladesh International Section –

Mr. Mohammad Abdullah and

Mr. Mohammad Didarul Alam.

ASCE Thailand Section –

Mr. Piya Saitharatanapongse and

Mr. Stephen A Vianelli.

ASCE India Section “Region 1” -

Mr. Balaram Mukherjee¹ and

Mr. Srirup Mitra.

ASCE India Section “Region 2” -

Prof. Dr. Urmil Dave and

Mr. Ravindra Ringshia.

ASCE India Section “Region 3” -

Mr. Satish Kumar Vij¹ and

Mr. Arif Ali Siddiqui.

ASCE India Section “Region 4” -

Prof. G L Sivakumar Babu¹ and

Mr. K P Pradeep.

ASCE India Section Interim Executive Committee¹ -

Dr. Anil K Kar¹,

Dr. Ayanangshu Dey¹, and

Mr. Biman Gati Gupta¹.

Note: “¹” indicates current member of *ASCE-IS National level Interim Executive Committee*

3.0 ASCE-IS Governing Body Meeting

The following day, i.e. on 20th September 2011, the present Interim Executive Committee of ASCE India Section will hold their first meeting. The meeting will be chaired by Dr. Anil K Kar, President,

ASCE-IS and moderated by Mrs. Meggan Maughan-Brown.

As the members know, a Round Table Conference (RTC) was organized by ASCE at New Delhi on 3rd June 2011 during the ASCE Presidential Visit. This was attended by interested members of ASCE-IS who discussed various aspects of operation of the section, formation of four separate regions of ASCE-IS, and other related aspects. The next three months were spent identifying members of the Interim Executive Committee both at National and Regional levels, who would form and operate the respective regional entities of ASCE-IS. The National and Regional level Interim Executive Committees have now been identified and all of these officers have been invited to attend the ATC and the Governing Body Meeting.

The issues likely to be discussed are operation of 4 regional branches, finalization of constitution and bylaws, sharing of responsibilities amongst officers, financial aspects, etc. The decisions taken in this meeting will pave the way for more effective operation of the newly formed regions.



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By post to “President, ASCE-IS, BC 96 Salt Lake City, Sector I, Kolkata 700 064”