

## **WBCS (Exe) Officer Invited in 98<sup>th</sup> Indian Science Congress**

Shri Ajay Bhattacharyya, a WBCS (Exe) officer of 1988 batch submitted a paper titled: “Extent and Genesis of Fluoride in Ground Water in parts of Birbhum District, West Bengal” in the 98<sup>th</sup> Indian Science Congress held in early January this year. His paper was accepted by the expert committee of the Earth System Sciences Section and Shri Bhattacharyya was invited to present it orally on 5<sup>th</sup> January in the post-lunch session of the Congress. Renowned scientists



like Prof. M.S. Swaminathan and Prof. Harsh K. Gupta were among the speakers in the session.

Indian Science Congress Association having its registered office at Dr. Bireswari Guha Street, Kolkata organize every year Indian Science Congress since 1913. This year 2011, the 98<sup>th</sup> Indian Science Congress was held in the S.R.M. University of Kattankulathur, Chennai, Tamilnadu from 3<sup>rd</sup> January to 7<sup>th</sup> January under the Presidentship of Prof. K.C. Pandey. The theme for this year Science Congress was “ **Quality Education And Excellence In Science Research In Indian Universities** ”.

Hon’ble Prime Minister of India, Dr. Manmohan Singh inaugurated the Congress on 3<sup>rd</sup> January. In his inaugural address, Hon’ble Prime Minister described this decade as the **Decade of Innovation** and asked the Scientists to think big, think out of the box and think ahead of the times. He also appealed to strengthen the link between Universities, Research Laboratories and Industry. He wished the Ministry of Science and Technology designate 2012-13 as the **Year of Science in India** as it would be the Centenary year of the Indian Science Congress.

The programmes of the Science Congress were set into Plenary Session, Special Session and Sectional Programmes of different groups of subjects. Apart from the top-level scientists from different Institutes of the Country, Six Nobel Laureates including Dr. Amartya Sen were among the speakers.

Abstract of Shri Bhattacharyya’s paper has been published by the 98<sup>th</sup> Indian Science Congress in the Earth System Sciences Section at serial no 50, page 44-45 of Proc.98<sup>th</sup> Indian Science Congress, Part II : (Abstracts). The Abstract is given below.

## **EXTENT AND GENESIS OF FLUORIDE IN GROUND WATER IN PARTS OF BIRBHUM DISTRICT, WEST BENGAL**

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Abstract:

Fluorine is one of the most abundant elements of the Earth but its compound, Fluoride, when consumed in excess (maximum permissible limit 1.5 mg/litre) by human being for a long time can cause serious and irreversible physical damage. High fluoride concentrations are most often associated with ground waters as reported from many parts of India and become endemic. Fluorosis caused by intake of excess fluoride (>1.5 mg/litre) has been prevalent in India over six decades and over 62 million people in rural areas consumed water with fluoride content above permissible limit as per survey conducted by Ministry of Rural Development, Govt of India. Birbhum is the one such fluoride affected districts of West Bengal and is geologically unique in character as high fluoride concentration in ground water is found in four diverse rock types like Basalt, granite, coal seam and alluvium. Parts of Birbhum District of West Bengal, particularly Nalhati-I and Rampurhat-I Block are highly affected from this menace as high fluoride concentration up to 17 mg/l in drinking water is reported from this part of Birbhum District where large number of people is suffering from dental Fluorosis as well as Osteofluorosis.

Water sample analysis from all the available sources reflects concentration of high fluoride in some pockets of the Blocks having negative correlation of fluoride with calcium and magnesium and positive correlation with pH, sodium and potassium. The area is covered by Rajmahal Trap Basalt with intertrappean beds. Basalt is highly vesicular in nature which is covered by secondary materials. Basalts are also characterized by strongly developed columnar joints and fractures. Chemical analysis, mineralogical studies as well as XRD studies of both Basalt and intertrappean rocks as well as secondary vug filling materials indicate absence of strong fluoride bearing minerals. Some hot and cold deep rooted springs in and around the area are present which contain high fluoride. Detailed study of Land-sat Images of the area indicate presence of three sets of strong lineament which represents weak zones. Mapping of the fluoride containing water sources indicate its presence more or less along the lineaments. On the basis of the geology of the area, chemical analysis of the water and rock samples, mineralogical studies of available rock types, XRD studies and proximity of excess fluoride bearing areas with the weak zones considered geothermal source as the definite contributor of high concentration of fluoride in ground water in this part of Birbhum District.