water pollution.

He said waste water from sugar industries was one that had complex characteristics and was considered a challenge for environmental engineers in terms of treatment as well as utilisation. He said before treatment and recycling, determination of physico-chemical parameter was an important mechanism. He said umpteen techniques were introduced and modified for the purpose, but depended upon the water quality parameters. He said the main aim of the training was to determine the physico-chemical characteristics of sugar industry waste water by the standard method and minimise the fresh water consumption in sugar industry by water pinch methodology.

The Director of NSI Prof. Narendra Mohan, Director, emphasised upon minimising use of fresh water during processing in sugar and alcohol industry not only to save the natural resources but also to reduce waste water generation and address environmental issues. He said this is important as out of the total water available on the planet, 97 per cent was salty or undrinkable, 2 per cent was locked in glaciers and only 1 per cent was available for human needs. He said 6,000 children died every day due to diseases associated

cent of the water after treatment through electro-coagulation technique can be converted to good quality water for other uses instead of drawing any water from outside. he said similarly, the effluent from the distilleries can be used as fuel in the boilers or can be converted into potash rich fertiliser, thus, converting waste into resource.

Dr. GSC Rao, Managing Director, Global Cane Sugar, New Delhi provided his expert guidance to the trainees on managing environmental issues through adoption of appropriate technology. He said the waste can be converted to wealth and the discharges from sugar factories and distilleries can add value through use as fuel in boiler and running gas engines for generating power, bio-manure, dry ice and many more. Later Dr SeemaParoha presented an overview of recent trends in pollution control to limit waste water generation up to 200 liters/tonne of cane in sugar factories and to achieve Zero Liquid Discharge in distilleries.

Apart from this Mahesh Kulkarni of Praj, Pune gave details of an innovative teachnique that was known as agitated thin film dryer for converting effluent from distilleries to powder for further conversion into fertiliser. MM

and fresh water requirement. In the last lecture of the day, K Prakash of FCB-KCP Chennai, gave details of 'Incineration Boiler' in which the effluent of distilleries after concentration to 60 per cent solids can be used as fuel along with other supporting fuel like bagasse, rice husk and coal. He said development of incineration boiler had revolutionised the process of effluent treatment to achieve Zero Liquid Discharge. He said it had not only solved the problem of pollution but the distilleries were now in a position to work round the year exporting power also thus earning revenue.

He said generally, water was used in the sugar factory for spraying water on the crushed cane i.e. imbibition for the purpose of extraction of remaining juice after first extraction. He said water was also being used for cooling bearings, juice heaters, condensers and for good house keeping etc. He said wastewater produced from the factory included the wastewater from mill house, clarification house, lime house, sulphur house and floo; washings. He said the quantity of wastewater discharged from all the units of mill including boiling house discharge, spray pond overflowed was around 800 - 1400 m3/ day.

and were discharged intermittently, which was having very high BOD.

He said the characteristics and volume of sugar mill wastewater varied considerably from factory to factory, even with the same crushing and production capacity. He said these variations werc due to various causes, principles among which were house keeping, conditions of plant and machineries, mode of their operation and water use.

He said the final mixed wastewater from all these units had shown wide variation in the chemical characteristics and possessed high organic pollution substances principally the sugar and carbohydrates.

He said the BOD of the mixed wastewater varied from factory to factory and ranged between 805 to 1660 mg/l. He said when these values were compared with the values suggested by Indian Standards Institution (ISI) for the safe disposal of the waste, it was observed that most of sugar factories in India were not obeying the norms laid down by ISI which suggested that the wastewater containing BOD 30 mg/1 can be discharged into inland surface water bodies and 100 mg/1 for on land irrigational purpose.

Educomp Solutions holds conclave

PIONEER NEWS SERVICE ■ KANPUR

Educomp Solutions Ltd. organised its school conclave here at Hotel Landmark on Thursday. Talking to mediapersons, Divisional Manager Saurabh Mishra said the aim of the conclave was to update schools with the latest teaching modules and technologies. It was an annual initiative to discuss key challanges faced by today's education syste. The conclave involved educationists, principals and school management from various city schools.

Over 50 principals of leading schools of the city attended the conclave to jointly discuss the problems and possible solutions. He said this year the theme was Science and Mathematics.

This works towards building a sound knowledge base in areas of science and mathematics by integrating them into the curriculam through a cohesive learning approach. SmartSTEM was a unique teaching tool that focuses on mathematics, physics, chemistry and biology.

He said over 4000 schools across India were expected to participate in this year's conclave to be held in 85 cities/towns covering all the four regions of the country as well as the North East. Representatives from schools will be taken through extensive models and presentations to inform, educate and update the education fraternity on the benefits of SmartSTEM and how this teacher-led programme enables in-depth learning for students via 3D animation and interactive modules, have added.

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