

**GOVERNMENT OF INDIA
SCIENCE AND TECHNOLOGY
LOK SABHA**

UNSTARRED QUESTION NO:2131
ANSWERED ON:11.08.2006
NANO TECHNOLOGY FOR PURE DRINKING WATER
Lagadapati Shri Rajagopal

Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

- (a) whether Scientists from the Indian Institute of Chemical Technology, Hyderabad, developed a filter with the help of Nano-technology which helps in providing pure drinking water and also helps in purifying polluted water from industries;
- (b) if so, the details thereof;
- (c) whether only 3 paise is needed to purify one litre of water and 5 paise for purifying industrial water;
- (d) if so, the details thereof;
- (e) Whether the Government is considering to commercially exploit this technology for purifying water; and
- (f) If so, the details thereof?

Answer

MINISTER OF SCIENCE AND TECHNOLOGY AND MINISTER OF EARTH SCIENCES (KAPIL SIBAL)

(a)&(b) Yes Sir. The Scientists of Indian Institute of Chemical Technology (IICT), Hyderabad developed nano-filtration (NF) technique for purifying water. A plant of 4000 l/day capacity based on this technique was commissioned in West Bengal in January 2006, for recovery of a water-based chemical from an industrial effluent. It uses an indigenously manufactured commercial membrane. NF technique is found to be useful for purifying raw water containing total dissolved solids (TDS) in the range 700-1200 ppm. It allows sufficient permeation of essential salts while keeping TDS below 500 ppm in accordance with BIS drinking water standards and can be operated at low pressure; Studies carried out on pilot plant with 1 m² membrane area, 700 ppm feed TDS and an operating pressure of 100 psi

(7.0Kg/cm²), showed that NF gave a flow of 40 l/h of purified water free of virus/bacteria with 50% reduction in TDS.

(c)&(d) It is estimated that NF operation and maintenance cost is Paise 3.3 per liter for a plant capacity of 1000 l/h and Paise 1.5 per litre for a plant capacity of 5000 l/h. The estimates exclude capital investment, which would approximately be Rs. 1.5 Lakh for a plant of capacity 200 l/h, Rs. 3.75 Lakh for 1000 l/h and Rs. 8.0 Lakh for 5000 l/h.

(e)&(F) The technology will be commercially exploited under the XI five year plan by transferring the NF technique to the industrial firms.