Fresh water by de-salination technology

*295 SHRI S.M. LALJAN BASHA: Will the Minister of EARTH SCIENCES be pleased to state:

(a) the details of the extensively depicted invention of the National Institute of Ocean Technology, Chennai, on de-salination of sea water through Barge based plants;

(b) in what way the technology is different from the widely patented techniques of de-salinating sea water;

(c) whether it is a fact that NIOT can produce fresh water by de-salination of water at a cost of four paise per litre;

(e) if so, the details thereof:

(d) whether such costs include the capital cost of the Barge machinery and other fixed costs; and

(f) if so, the details thereof?

THE MINISTER OF EARTH SCIENCES (SHRI KAPIL SIBAL): The National Institute of Ocean Technology (NIOT) an autonomous body of the Ministry has indigenously designed developed and demonstrated the desalination technology for conversion of sea water into potable water based on Low Temperature Thermal Desalination System (LTTD). The LTTD is a process under which the warm surface sea water is flash evaporated at low pressure and the vapour is condensed with cold deep sea water. After conducting several experiments in the Laboratory (500 Liter per day capacity and 5000 Liter per day capacity); a LTTD plant with a capacity of 1 lakh liter/day production of fresh water was developed. Considering the requirement of fresh water for both island territories and coastal mainland of India, two types of desalination Plants have been developed *viz.*, Land Based Plant and Barge Based plant.

The land based plant of 1 lakh liter per day capacity plant was installed in Karavaratti in May 2005. The Kavaratti plant, handed over to Lakshadweep Administration in April 2006 for operation and maintenance, has been effectively working since then and catering significantly to the needs of the population of Kavaratti. This LTTD plant has produced about 6 crore liter of water so far.

A 10-lakh liter per day capacity plant indigenously designed and developed was commissioned on a barge in April 2007, about 40 kms. off Chennai. The barge based demonstration plant was successfully had been run continuously for over a period of several weeks.

(b) The LTTD technology developed by NIOT is quite different from the widely patented Reverse Osmosis technology in many ways. In the Reverse osmosis process, salts from sea water is removed using a membrane, whereas in the LTTD salts are removed by flash evaporating warm seawater under low pressure and condensed with cold seawater. There are many advantages of LTTD over reverse osmosis. The LTTD technology does not require any chemical pre and post-treatment of seawater, pollution free, hence more suitable for island territories. The

LTTD has less operational and maintenance problems compared to other desalination processes.

(c) and (d) Yes, Sir. NIOT has demonstrated production of fresh water from seawater using the barge mounted desalination plant at an estimated cost per liter of about 6 paise per litre. The production cost can come down to four paise per litre in the long run, for higher capacity plant of 100 lakh litre per day, even though the first plant may cost more.

(e) and (f) Yes, Sir., The estimated cost of production of demonstration plant is inclusive of capital and other fixed costs.

Constitution of National Commission for protection of child rights

*296. SHRI C. RAMACHANDRAIAH: Will the Minister of WOMEN AND CHILD DEVELOPMENT be pleased to state:

(a) whether Government have, in pursuant of the Act of Parliament, constituted the National Commission for Protection of Child Rights;

(b) if so, the functions and powers of the Commission;

(c) who is heading the Commission and whether all the members of the Commission have been appointed;

(d) if so, the details thereof; and

(e) if not, the reasons therefor?

THE MINISTER OF STATE OF THE MINISTRY OF WOMEN AND CHILD DEVELOPMENT (SHRIMATI RENUKA CHOWDHURY): (a) Yes, Sir.

(b) Functions and powers of the National Commission for Protection of Child Rights have been laid down under Section 13 and 14 respectively of the Commissions for Protection of Child Rights Act, 2005. Relevant provisions are given in the Statement (*See* below).

(c) Shrimati Shantha Sinha is the Chairperson of the National Commission for Protection of Child Rights. Two members, namely, Shrimati Sandhya Bajaj and Ms. Dipa Dixit have been appointed in the Commission so far.

(d) and (e) Appointment of the remaining four members is under process.

Statement

Functions and powers of the Commissions for Protection of Child Rights Act, 2005

Section 13 (1): The Commission shall perform all or any of the following functions, namely:

(a) examine and review the safeguards provided by or under any law for the time being in force for the protection of child rights and recommend measures for their effective implementation;