

stage; work is continuing to bring it to the stage of commercial applicability.

Casaurina wood for power generation

1192. SHRI M. BASAVARAJU: Will the PRIME MINISTER be pleased to state:

(a) whether as per study conducted by A. M. Murugappa Chettiar Research Centre in Madras, large power plants can be fuelled with Casaurina Wood;

(b) if so, whether Government propose to make use of the Casaurina wood for power generation;

(c) if answer to part (b) above in the affirmative what are the details in this regard; and

(d) if not, what are the reasons therefor?

THE MINISTER OF STATE IN THE DEPARTMENTS OF SCIENCE AND TECHNOLOGY, ELECTRONICS AND ENVIRONMENT AND OCEAN DEVELOPMENT (SHRI CHANDRA PRATAP NARAIN SINGH): (a) to (d) A study carried out by the Murugappa Chettiar Research Centre, Madras as well as by other investigators have pointed to the feasibility of using Casuarina wood for power production. While the advantages of using wood for power and energy production are known, the basic problem is to have adequate and ensured availability of wood, which is on the whole in short supply. At the two Biomass Research Centres under the Commission for Additional Sources of Energy, extensive R&D and field trial programmes are underway for determining the optimum growth of quick yielding varieties of wood. Based on these results, pilot projects for energy plantations have also been taken up by the Commission where *inter alia* the feasibility of power production units coupled

with intensive cultivation of such plantations will be investigated in field conditions.

Research on solar refrigeration

1193. SHRI M. BASAVARAJU: Will the PRIME MINISTER be pleased to state:

(a) whether research on solar refrigeration which was being conducted at IIT. Delhi has since been completed;

(b) if so, what are the details thereof; and

(c) if not, by when the research work is likely to be completed?

THE MINISTER OF STATE IN THE DEPARTMENTS OF SCIENCE AND TECHNOLOGY, ELECTRONICS AND ENVIRONMENT AND OCEAN DEVELOPMENT (SHRI CHANDRA PATAP NARAIN SINGH): (a) and (b) IIT Delhi has developed an aqua-amonia vapour absorption refrigeration system. It consists of a heat source which should give hot water at a temperature of 90 to 95 degree centigrade; a generator to separate amonia from aqua-amonia solution, a dephlegmator to separate the remaining water vapour from amonia vapour, a condenser, an evaporator, an absorber, a pre-cooler and a pre-heater. This system can work through any source of energy, including solar, which can supply hot water at the required temperature of 90 to 95 degree centigrade. The system can attain a temperature of minus 5 degree centigrade in the Evaporator. On the basis of the system developed it is possible to design a re-frigeration system of any desired capacity. Demonstration Cold Storages based on this system—one working on geothermal energy and the other on solar energy—are being set up.

(c) Does not arise.