

Solar power as source of energy

1208. SHRI RAJDEO SINGH: Will the Minister of AGRICULTURE AND IRRIGATION be pleased to state:

(a) whether four business houses have joined the ranks with Universities and Indian Institute of Technology in going in for basic research and development of solar power as a source of energy;

(b) if so, whether one of the basic requirements of any solar appliance is a collection system which can efficiently collect and transit solar energy;

(c) if so, whether this aspect has been given very high priority in the institution; and

(d) whether in view of its potential for application for agricultural pumping, development of solar pumps has also been given high priority?

THE DEPUTY MINISTER IN THE MINISTRY OF AGRICULTURE AND IRRIGATION (SHRI PRABHUDAS PATEL): (a) As far as we are aware the following four industrial houses are involved in Solar Energy Research:

- (1) *Tatas*: *Tatas* have sponsored and founded the *Tata Energy Research Institute* and this Institute has been sponsoring research in the field of solar energy.
- (2) *Metal Box India Ltd.*, Bombay.
- (3) *Jyoti Limited*, Baroda.
- (4) *Binny and Company*, Madras.

These institutions are reported to be carrying out research in the field of solar energy. In addition, *Bharat Heavy Electricals Ltd.* and *Central Electronic Ltd.*, *Public Sector Industries* are also involved in R&D in this area.

(b) It is true that the basic requirement of any solar appliance is an efficient and economic solar collection system.

(c) In view of the fact that the collectors are basic to all solar appliances and equipment, their development has been given very high priority. There is sufficient know how available in the country for development of low temperature flat plate collectors. Attention is being focussed on development of cheaper designs for various applications. R&D work has also been initiated for development of medium temperature flat plate collectors and high temperature concentrators, type collectors. It has been decided that *Bharat Heavy Electricals Ltd.* and *National Physical Laboratory* will coordinate research in this field. *BHEL & NPL Laboratories* are proposing to establish a National collector developmental facility to cater to the collector needs of the total solar energy programme.

(d) It is true that the research and development on solar pumps has been given very high priority in view of its possible application to agricultural pumping. Efforts would be concentrated on developing pumps upto 5 hp. initially. Several Institutions are working on development of solar pumps using different technologies and *BHEL* has been nominated as coordinator of research for these applications. The *Birla Institute of Science and Technology in Pilani* have developed Laboratory models of non-moving parts type pump and tested them successfully. *BHEL* are now collaborating with them to develop production oriented design of the pump and fabricate prototypes models for field trials. These are expected to be completed by the end of this year.

In view of the importance of use of solar energy, the Indian Council of Agricultural Research has sanctioned a prize Award Scheme with a first prize of Rs. 25,000 and 2nd Prize of Rs. 15,000 for design of solar pumps. Nineteen applications have been received and the last date for submission of final and complete papers on the development is 30th September, 1978. A Judging Committee consisting of ex-

perts in the field would be constituted to test and evaluate the performance of these pumps for the award of prizes.

Training of farmer in rice cultivation

1209. SHRI ARJUN SETHI: Will the Minister of AGRICULTURE AND IRRIGATION be pleased to state:

(a) whether Union Government have launched a scheme to train farmers in rice cultivation on the pattern followed in Punjab; and

(b) If so, the number of farmers so far who have undergone training during the current year, State-wise?

THE STATE MINISTER IN THE MINISTRY OF AGRICULTURE AND IRRIGATION (SHRI ANNASAHEB P. SHINDE): (a) Yes, Sir.

(b) The State-wise figures for farmers who have undergone training during current year are as below:—

Assam	46
Bihar	296
Orissa	42
U.P.	56
Total	440 farmers

Appointment of high level committee to examine the irrigation rates structure

1210. SHRI VASANT SATHE: Will the Minister of AGRICULTURE AND IRRIGATION be pleased to state whether the Government are agreeable to consider a proposal for appointment of a high level committee to examine the irrigation rates structure and suggest appropriate revision on a rational basis for important crops in the various State?

THE DEPUTY MINISTER IN THE MINISTRY OF AGRICULTURE AND IRRIGATION (SHRI KEDAR NATH SINGH): Irrigation is a State subject and water rates are, therefore, determined by the State Legislatures.

Irrigation projects are yielding low returns to the Exchequer mainly because the water rates being charged are not adequate to meet the combined working expenses and interest charges. The question of rationalising the water rates has already been considered a number of times at various Conferences of the State Ministers of Irrigation and Power, National Development Councils etc. The Nijalingappa Committee (1964) and the Irrigation Commission (1972) also examined and dealt with this question at length.

The Central Government have all along emphasised upon the State Governments the desirability of increasing the water charges and collecting betterment levy, where ever permissible, to enhance their resources. A critical study on water rates and betterment levy was recently carried out in the Department of Irrigation and sent to the State Governments for guidance. The First Conference of State Irrigation Ministers held in July, 1975 also recommended the enhancement of water rates in a phased manner and the setting up of Standing Inter-Departmental Water Rates Review Boards by State Governments for reviewing the rates structure on a continuing basis.

The States of Bihar, Haryana, Kerala, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal have already notified upward revision of water rates since 1974.

Appointment of another Committee, at Central level, is not considered necessary, at this stage.