

Production of Heavy Water

855. SHRI SADASHIV
BAGAITKAR:

SHRI ASHWANI KUMAR:

Will the PRIME MINISTER be pleased to state:

(a) what has been annual output of heavy water in the country as against the production capacity in 1979, 1980 and 1981 and what was the annual quantity and value of the heavy water imported to meet the requirements during these three years;

(b) what is the extent of the anticipated rise in the requirement of heavy water and what is the progress of the production on units under construction stating the period for which the completion of these units have been delayed and the reasons therefor; and

(c) what measures have been taken by Govt. to accelerate the progress of the heavy water plants under

construction and to utilise the full production capacity of the existing plants with a view to reducing the import of heavy water?

THE MINISTER OF STATE IN THE DEPARTMENTS OF SCIENCE AND TECHNOLOGY, ELECTRONICS AND ENVIRONMENT AND OCEAN DEVELOPMENT (SHRI CHANDRA PRATAP NARAIN SINGH): (a) The design capacity of the operating plants is as follows:

1. Heavy Water .. 71.2 tonnes
Plant, Tuticoria
2. Heavy Water .. 67.2 tonnes
Plant, Baroda
3. Heavy Water .. 14.10 tonnes
Plant, Nangal

The actual production of these 3 plants for the year 1979, 1980 and 1981 comes to 19.77 tonnes, 27.18 tonnes and 50.57 tonnes respectively.

The quantities and value of heavy water imports is as follows:—

Year	Quantity	Value
1979	13.630 M. Tonnes	Rs. 273.93 lakhs
1980	41.000 M. Tonnes	Rs. 817.36 lakhs
1981	40.000 M. Tonnes	Rs. 925.79 lakhs.

(b) The cumulative demand for heavy water to meet the requirement of the nuclear power programme of the country is of the order of 426 tonnes in March, 1983, which is expected to rise to 1550 tonnes by March, 1988. The Heavy Water Plant at Nangal, Baroda and Tuticorin are operational and the Heavy Water Projects at Kota and Talcher are expected to be commissioned before the end of December, 1982. Delay in completion of the Heavy Water Projects, Kota and Talcher ranged from 3 to 4 years and this is attributable to the developmental efforts involved in the technology, delay in

supply of equipment by indigenous and foreign suppliers, poor response to civil engineering contract action due to remoteness, modification to the engineering in order to meet the operational safety requirements, disturbed labour conditions and force majeure conditions, etc.

(c) The procedure for procurement of equipment and plant for construction of projects are being streamlined to ensure maximum accountability and expeditious implementation of the projects. Simultaneously, the various technical problems encountered in the operating plants are being taken

into account in the design of new plants under construction. Action is also being taken to rectify the various constraints in production capabilities of the plants already built.

Use of Industrial Electronics in Railways

656. SHRIMATI USHA MALHOTRA: Will the PRIME MINISTER be pleased to state:

(a) what steps Government are contemplating for the use of industrial electronics in the field of transport especially Railways; and

(b) what is the value of industrial electronics sold to Railway during the year 1981-82 and proposed to be sold in 1982-83?

THE DEPUTY MINISTER IN THE DEPARTMENT OF ELECTRONICS (SHRI M. S. SANJEEVI RAO): (a) The Department of Electronics is actively associated with the Ministry of Railways in promoting the use of electronics applications in general and industrial electronics in particular in the Railways. The major steps taken during the years is the placing of orders valued at about Rs. 6 crores by the Railways on 3 indigenous manufacturing organisations for 20 numbers of electronic controllers using thyristers for the electric locomotive WAM4, which is manufactured at Chittaranjan Locomotive Works. The above switch over to electronics control marks a major step in the introduction of industrial electronics—particularly power electronics equipment in the Indian Railways.

The Department of Electronics was actively associated with the Ministry of Railways in the above exercise.

As a further follow-up, the Department of Electronics in association with the Ministry of Railways has initiated steps to convert the Electrical Multiple Units (EMUs) used in suburban transport to electronic control (Chopper Control).

The Department of Electronics in association with the Railways has initiated a manpower training program—Power Electronics in Railways for specialised training to Railway Officers. The first such course was recently completed.

Steps have been taken to introduce microprocessor applications in Railways through specialised projects and training programs. A number of development projects have been taken up through funding from Electronics Commission and otherwise for specific applications in Railways. Among these, the Axle Counters, the Thyristor Controller for Diesel Electric Locos, Automatic Warning System, Rectifier Systems etc. have already gone into regular production. Continuous Automatic Train Protection System, Automatic Train Control both for Metro Railway Calcutta, Hot Box Detection System. Single-phase to three-phase converters, In-motion electronic weighing systems etc. are some of the projects which are on field trials.

On a number of new application areas, the Electronics Commission, in association with the Ministry of Railways have initiated developmental activity. They are microprocessor based route relay interlocking system, microprocessor based track checking system etc.

(b) The value of industrial electronics sold to Railways in 1981-82 was about Rs. 14 crores and the estimate for 1982-83 is about Rs. 25 crores.

Colour T. V.

657. SHRI SYED SHAHABUDDIN: Will the PRIME MINISTER be pleased to state:

(a) the names of Indian firms licensed to manufacture or assemble colour TV sets, with the names of their foreign collaborators, the licensed capacity, the percentage of