

### Development to Wind Mills and Utilising their Power

6924 SHRI RAJESH PILOT: Will the Minister of ENERGY AND COAL be pleased to state:

(a) whether Government have supported any projects for development of wind mills and utilising their power;

(b) if so, details in terms of number of persons involved, their education, training, experience; kind of designs and expenses involved; utilisations and popularity of these efforts in actual use; and

(c) agencies and bodies involved in providing technical and financial assistance?

THE MINISTER OF STATE IN THE MINISTRY OF ENERGY (SHRI VIKRAM MAHAJAN (a) to (c). Government have been encouraging efforts directed towards development of various sources of energy particularly the non-traditional ones. In the area of wind energy utilisation, R&D projects have been sponsored. Following the development and field testing as a horizontal axis Wind Mill, efforts are continuing to evolve cost effecting designs suitable for pumping applications in Indian conditions. An R&D Project on the development and field testing of 10 proto-types of a sail-type Wind Mill, that can be fabricated locally in rural areas, and for irrigation use on small farms is underway at the National Aeronautical Laboratory, Bangalore. The National Aeronautical Laboratory has designed a horizontal axis wind mill intended primarily for irrigation in small farms from shallow open wells. The cost of material and parts is about Rs. 7000 which excludes cost of machining and fabrication charges. A project on the development of a 1 KW vertical axis Wind generator is proposed to be undertaken jointly by Bharat Heavy Electricals Ltd. and Indian Institute of Technology, Madras, for providing

electrical power to remotely located villages, small community/domestic use and for telecommunication purposes. A small output multiblade type wind mill is being developed at Indian Institute of Technology, Bombay, which would be appropriate for micro irrigation needs. Another R&D project on the development of a twin turbine wortex-type wind mill suited more for direct electric power generation has been initiated at Indian Institute of Science, Bangalore. An integrated rural project for development of wind mills has been taken up at Ghazipur in U.P. with the cooperation of the Netherlands Government with the object of introducing wind as an alternative means for ground water pumping for agricultural irrigation purpose. 10 big size wind mills have already been installed under this project, as per details given below:—

Place	Date of installation
1. Kusumih Kalan I	January, 1978
2. Ghazipur (R T.I)	February, 1978
3. Kusumih Kalan II	March, 1978
4. Razadi I	Setempler 1978
5. Razadi II	December, 1978
6. Mohammadabad I	April 1979
7. Mohammadabad II	April, 1979
8. Ghazipur Ghat	May, 1979
9. Mughalani Chuck	June, 1979
10. Dablia School	June, 1979

The 11th wind mill under the scheme was also installed during the second half of 1979. The Workshop has also been set up for the manufacture of wind mills. The projects is being continued according to the recommendations of an Indo-Dutch Evaluation Team which evaluated the project in 1979 to make the designs reliable, safe and cost effective, and also for studying the socio-economic aspect in greater detail. Further evaluation

of costs and socio-economic aspects is required. The capital cost of the wind mill per set has been estimated at about Rs. 6800 provided an open well exists. In case open well is not there, an additional expenditure of about Rs. 2000 will also be necessary.

Highly qualified teams of Scientists/Engineers with experience in mechanical engineering, applied mechanics, aeronautical engineering and allied fields are working on the sponsored projects. Multi-disciplinary organisations are involved in the development of wind mill projects.

#### Setting up of Fertiliser Plant in Karnataka

6925. SHRI B. V. DESAI: Will the Minister of PETROLEUM AND CHEMICALS be pleased to state:

(a) whether Karnataka Government has urged the Union Government to consider the demand to set up a fertiliser plant in the State during the Sixth Five Year Plan;

(b) if so, how many fertiliser plants are likely to be set up in India during the above mentioned plan period;

(c) whether Union Government have accepted the State Government's demand; and

(d) if so, the place, where these fertiliser plants are to be set up and the total cost of expenditure involved?

THE MINISTER OF PETROLEUM, CHEMICALS AND FERTILIZERS (SHRI VEERENDRA PATIL): (a) to (d). The Government of Karnataka have made a request for setting up fertilizer plant based on the Bombay High/Bassein gas. The Working Group appointed by the Government to consider the possible locations of future fertilizer plants based on the additional gas expected to be available from the Bombay High/Bassein areas, has come to the conclusion that 6 more gas based fertilizer plants could

be set up, one each in Madhya Pradesh and Rajasthan, and four fertilizer plants to meet the large deficit in the U.P.—Punjab region. The Group has not found establishment of a fertilizer plant in Karnataka to be an optimum use of Bombay High/Bassein gas.

The question in part (d) does not arise.

(b) The Government have already decided to set up 5 gas based fertilizer plants, 2 each at Thal in Maharashtra and Hazira in Gujarat based on Bombay High/Bassein gas, and one plant at Namrup in Assam based on the gas available from the oil fields of O.N.G.C. and Oil India Limited. Besides, M/s. Nagarjuna Fertilizers Limited are setting up a fuel oil based fertilizer plant at Kakinada in Andhra Pradesh. There is also a possibility of a new more fertilizer plants being taken up for implementation during the 6th Five Year Plan.

#### Irrigation Projects in Dadra Nagar Haveli

6926. SHRI UTTAMBHAJ H. PATEL: Will the Minister of IRRIGATION be pleased to state:

(a) how many irrigation projects are going on in Dadra Nagar Haveli in the Union Territory and the details thereof;

(b) how much amount has been spent during the last five years and the acreage of land brought under irrigation scheme (year-wise); and

(c) how much will be spent during 1980, 1981 and 1982?

THE MINISTER OF IRRIGATION (SHRI KEDAR PANDEY): (a) Under the major and medium irrigation sector, only one project, namely Damanganga, is under execution since 1973-74. This project is a joint venture of Gujarat, Goa Daman & Diu and Dadra and Nagar Haveli. Under