

tacted two foreign companies—one British and another French—for this purpose. I would like to know from the hon. Minister whether besides French and British companies, the Government has contacted any other foreign company also and if so, the name of that country and company and what response the Government received from that company?

[*English*]

SHRI M.S. GURUPADASWAMY: Sir, M/s. Sofragaz is a Company which has been asked by the Ministry to have a techno-economic feasibility survey in Bombay. They have given the report and that report has been sent to PIB for consideration. The PIB has raised certain issues.

[*Translation*]

SHRI PYARELAL KHANDELWAL: Which are those countries?

[*English*]

SHRI M.S. GURUPADASWAMY: We are trying to reply to those issues. At this stage, this is the position. Our intention is to see that Bombay and some other Cities may be taken over for comprehensive gas supply not only for domestic purposes but also for commercial purposes.

[*Translation*]

SHRI PHOOL CHAND VERMA: Mr. Speaker, Sir, we are not getting proper reply to our questions from the hon. Minister. We seek you protection.

MR. SPEAKER: Please sit down.

(*Interruptions*)

[*English*] 17-22

Setting up of Windpumps and Windfarm Demonstration Projects in Punjab

*266. SHRI KAMAL CHAUDHRY: Will the Minister of ENERGY be pleased to state:

(a) the details of steps taken for setting up of windpumps and windfarm demonstration projects in Punjab and the targets achieved so far; and

(b) the districts in Punjab where such projects are proposed to be implemented during 1990-91?

THE MINISTER OF ENERGY AND MINISTER OF CIVIL AVIATION (SHRI ARIF MOHAMMAD KHAN): (a) and (b). Seventy-seven water pumping windmills were set up in Punjab under a demonstration programme. There is no proposal to undertake wind energy projects in the State during 1990-91 as the available data shows that the wind potential in the State is low.

SHRI KAMAL CHAUDHRY: Mr. Speaker, Sir, I am afraid the reply given to the Minister by his Department is not really correct.

MR. SPEAKER: Do not go about that. Please hear the Minister. He will reply to it.

(*Interruptions*)

SHRI KAMAL CHAUDHRY: It appears that the reply has been framed either by a terrorist victim or the victim of the Mandal Commission Report. May I know from the hon. Minister how much money has been spent on these 77 water pumps and from which year to which year?

SHRI ARIF MOHAMMAD KHAN: All the 77 water pumping windmills have been implemented during the period from 1980-81 to 1984-85. The total money that has been spent on these projects, on each wind pumping mill, is available. There is an expenditure of Rs. 12000/-. The total comes to Rs. 9 lakhs.

SHRI KAMAL CHAUDHRY: As I said, the reply is not correct. I have operated from all the air fields in Punjab and most of the air fields in the Western sector. I know the wind pattern. The winds are calm before dawn. The pick up during the day and die down by the dusk. And they are calm from dusk to

dawn. The winds are also affected by the pressure pattern, the low pressure which is formed at the Mediterranean Sea and it affects the Northern India in the form of Western disturbances. Secondly, the depression which is developed at the Bay of Bengal moves north westwards and this also affects Punjab. Thirdly, winds due to pressure pattern on Northern India also affects this part of the country. The wind pattern everyday is sufficient to run these wind mills. The Minister has already mentioned that the money spent on each windmill is just about Rs 12000. This is the cheapest source of energy. I will not tax the Minister with another question. But may I suggest to him to kindly continue this project and try these windmills in villages where the power supply is only available just from two hours to eight hours?

SHRI ARIF MOHAMMAD KHAN Sir, I know that the hon. Member is an experienced pilot and I do not dispute his experience and his knowledge. But the information available with me is based on a scientific study which was conducted by an experts group. These seventy-seven water pumping windmills were installed in Punjab during the Sixth Plan, as I said earlier. However, in view of inadequate wind speeds their performance, even today after installation was not found to be satisfactory. That is why, more pumping sets were taken up during the Seventh Plan as the performance was not satisfactory. As a result, the programme was not continued in the Seventh Plan. An annual mean wind speed—this is important—of 12 kilometres per hour is required for setting up wind pump projects for supply of irrigation and drinking water. For wind farm projects, where power is generated for supply to the grid, an annual mean wind speed 18 kilometres per hour is required. According to the Handbook on Wind Energy Data for India which is published in 1983 under a project of the Commission for Additional Sources of energy, which gives wind data collected by observatories of the Meteorological Department, the annual mean wind speeds in Punjab are below ten kilometres per hour. There are no major mountainous areas in the State where higher wind speeds

may be expected on account of local factors. I have here with me the break-up district-wise of the wind data in Punjab. In Amritsar the speed is 7.9 kilometre per hour, in Bhatinda, it is 4 kilometre per hour, in Chandigarh it is 6.0, in Ferozepur it is 2.9, in Ludhiana it is 4.0, in Patiala it is 8.1 and in Pathankot it is 6.6 kilometre per hour. If we are not setting up these pumps in more number because of the inadequate availability of wind, it does not mean that we are not setting up other projects under the Department of Non-Conventional Energy Sources in Punjab. In fact, there are various other projects like the Biogas Development Programme in Punjab which is being done very successfully. Then there is Improved Chulhas Programme. Again the average possibility is more than the national average. Then there are Community Institution Biogas Plants and especially the Rice Straw Project which is coming up only in Punjab.

[Translation]

SHRI KARIA MUNDA Mr Speaker, Sir, I would like to know from the honourable Minister through you that keeping in view the shortage of electricity and diesel whether there is any proposal to implement wind mill project in other states also besides Punjab.

SHRI ARIF MOHAMMAD KHAN Mr Speaker, Sir, we are trying our best to make the maximum energy available. If we cannot make it available through conventional resources, we will do it through non-conventional resources including wind mills but the main problem is dearth of resources. The programmes which I have already mentioned are not for Punjab alone. This question was asked in the context of Punjab and I gave the related figures. This programme is being implemented throughout the country and we will try to expand it further.

[English]

SHRID AMAT Mr Speaker, Sir, may I know from the hon. Minister that apart from Punjab, whether New Delhi's Non-Conven-

tional Energy Source has sponsored some such project in Orissa under which at least one village in a parliamentary constituency will be adopted for exploiting energy from solar energy, wind energy, tidal energy or bio-gas?

SHRI ARIF MOHAMMAD KHAN Yes Sir I think, the hon Member is referring to the urjagram programme. The Department is implementing a village-based decentralized rural energy programme, called urjagrams. An urjagram comprises a mix of non-conventional energy devices and systems to meet bulk of the energy requirements of a village. Planning of urjagram projects take into account availability of the local energy resources and energy requirements in the village. A project to carry out energy surveys in 50 villages was sanctioned.

I would like to conclude that 27 urjagrams have been completed in the country and 221 are under implementation. I do not have the figures about the individual States. If the hon Member is interested, I will supply that information.

[Translation] 2 1

SHRI ARVIND NETAM Mr Speaker, Sir, the hon'able Minister has said that wind mills did not prove a success in Punjab and also gave the reason that wind speed is lower than the required speed. The required speed of wind is the basic need for the wind mills. In the circumstances, I would like to know as to why these had been installed without considering the speed of wind.

SHRI ARIF MOHAMMAD KHAN Mr Speaker Sir, I have told in the main reply that wind mills were basically set up under a demonstration programme in all the states. Thereafter, we got the figures about which I mentioned earlier. Then a scientific study was made and some information was made available to us. On the basis of that information, we are preparing future programmes. Where the velocity of wind is low, there are other resources of non-conventional energy

and the programmes there (Interruptions)

[English] 2 2

SHRI JESS FERNANDEZ Sir, I understand that in view of the energy crunch windmills are a very useful source of non-conventional energy as compared to conventional sources of energy, like oil. It is understood that there was a survey made about this many years back. At a certain height, windmills can operate at 1500 RPM for 16 hours almost throughout the year in our country particularly in South India.

I would request the hon Minister through you to investigate the possibilities of utilizing the wind power energy as this is the only answer for additional sources of energy.

SHRI ARIF MOHAMMAD KHAN I totally agree with the hon Member. The energy which is generated from the non-conventional sources is very important. More so, it is so because it is non-polluting. The suggestion given by the hon Member will be taken into consideration.

[Translation]

2 4
SHRI SHOPAT SINGH MAKKASAR I would like to draw the attention of the Hon'ble Minister through you to the fact that the border areas of Rajasthan where the wind blows fast are desert areas and are facing acute shortage of electricity. Will the Hon'ble Minister like to pay personal attention to the problem of these areas so that these areas may get cheaper electricity on priority basis.

SHRI ARIF MOHAMMAD KHAN Definitely, we will pay our attention to it.

23-24
**Increase in Capacity of Bhopal Bikania
LPG Bottling Plant**

*267 **SHRI SURAJBHANU SOLANKI**
Will the Minister of PETROLEUM AND
CHEMICALS be pleased to state

(a) whether there is any proposal to