

**Foreign Satellites**

\*522. SHRIMATI S.G. INDIRA: Will the PRIME MINISTER be pleased to state:

(a) whether satellites of the foreign countries are launched from the Indian earth station on a payment basis;

(b) if so, the details thereof;

(c) whether any agreement has been reached with any foreign country regarding launching of satellites; and

(d) if so, the details thereof?

THE MINISTER OF STATE IN THE DEPARTMENT OF SPACE (SMT. VASUNDHARA RAJE): (a) Yes, Sir.

(b) The following four satellites of foreign countries were launched from Shriharikota launch station:

| Sl. No. | Satellite name    | Launch mission | Launch date |
|---------|-------------------|----------------|-------------|
| 1.      | KITSAT-3 of Korea | PSLV-C2        | 26.5.1999   |
| 2.      | TUBSAT of Germany | PSLV-C2        | 26.5.1999   |
| 3.      | BIRD of Germany   | PSLV-C3        | 22.10.2001  |
| 4.      | PROBA of Belgium  | PSLV-C3        | 22.10.2001  |

(c) No. Sir.

(d) Does not arise.

SHRIMATI S. G. INDIRA: Sir, I would like to know from the hon. Minister regarding the terms and conditions on the basis of which the launches were made and the monetary benefits that accrued to our country.

SHRIMATI VASUNDHARA RAJE: Sir, the launches that we have done so far, were basically on the PSLV launches. They were

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small satellites and went up along with our own satellites. The costs were according to the prevailing international prices, at that time. The price is quite subject to other conditions such as long-term co-operation, scheduled requirements, specific needs of the orbit and so on. And, because we are now getting into the market, we are also looking at marketing strategies; so, we do it, maybe, at a slightly better price. Normally, I would say that the commercial launch of a micro-satellite is little less than 1 million U.S. dollars.

**SHRIMATI S. G. INDIRA:** What are the further plans for facilitating launch of advanced satellites in our country? Is there any proposal for aggressive marketing of launches of satellites for our country's development and also for adding further facilities like these seven countries are doing?

**SHRIMATI VASUNDHARA RAJE:** Sir, in order to work with international customers, we had established the Antrix Corporation in 1992 with a paid up capital of Rs. one crore. This was done by the Department of Space, with the idea of marketing space products and services developed by ISRO. Basically, the idea is to market globally the data from the Indian remote sensing satellites and also to provide for tracking, mission support and in-orbit test report to international satellites, such as the UTELSAT, AFRISTAR, ROCKSAT, etc. the export of satellite hardware, such as propulsion tanks, etc., provision of satellite ground stations, provision of commercial launch services and extending the spare capacity which is available in Indian satellites for commercial use and also undertaking consultancy. We have made contacts with a number of potential customers in various countries like Italy, France, Germany, Belgium, the Republic of Korea, U.K. Singapore and Japan. Basically to provide greater flexibility for commercial launches, our launch vehicles are also designed to carry two additional small satellites, in addition to the main satellites. Further cooperation agreement has been entered into between the Antrix Corporation and Ariane Space for the launch of small satellites, in the event if either of them is not able to provide launch facility to its customers. Finally, we are making major promotional efforts through advertising in important space magazines and also through the website.

**SHRI NARENDRA MOHAN:** Sir, I would like to congratulate, through you, Sir, the Minister for starting commercial exploitation of our launch stations. But, Sir, as far as my knowledge goes, our launch stations, specially the Sriharikota Range, are not equipped with the most modern equipments. Is there any plan to bring our launch stations on par with the latest launch stations in the world? If it is so, when do you intend to complete it? Secondly, I would like to know, in the next five years, how many satellites do you intend to launch through these stations?

**SHRIMATI VASUNDHARA RAJE:** Sir, first of all, I would like to say that as far as our capabilities are concerned, we have excellent capabilities which have been supported by the Government all the way. I would also like to tell everybody that we had very, very good success rate, as far as our launch vehicles are concerned. In the development stages, we had a few problems, but at the operational stage, we had a hundred per cent success rate. We are now in the exclusive space club of six nations, and for that, I think, the Department of Space deserves kudos.

We are in the process now of going into the launch of a heavier satellite which has been agreed to by the Government—the GSLV Mark III, which is capable of launching some 4-tonne-class satellites, at a cost of about Rs. 2500 crores. We are also now in the process of adding a second launch pad, which is under construction at the Sriharikota Range. This will enable increased frequency of launches and provide back-up for the available launch facilities. I would like to say that we will be launching very shortly—at the end of the year, or, in the second half of the year, by August-September—two satellites, and also, by the end of 2006, the Megatropics.

**SHRI M. V. RAJASHEKHARAN:** Sir, the entire nation is very proud of our scientific and technological community. It is that community which has contributed a great deal, by getting recognition to India's utmost advances in technology. Sir, we are also privileged to have here in this House, Dr. Raja Ramanna who has been responsible for initiating a large number of technological developments in our country. Sir, this is an area which is not only

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adding to our prestige, but also our capability to match any scientific community in the world. Therefore, Sir, I would like to know, through you, from our hon. Prime Minister, whether the Government of India has allocated sufficient funds to develop the most advanced and appropriate satellite launching vehicle. This is my first supplementary.

My second supplementary is this. We need a most advanced engine to carry the satellite. Recently, we read in the newspapers that efforts are being made to develop indigenous cryogenic engine. If that is so, what is the status of that, and what is the time frame within which we will have our own indigenously built cryogenic engine for launching the satellite?

SHRIMATI VASUNDHARA RAJE: Sir, as far as the first part of the hon. Member's supplementary is concerned, we are going ahead with, as I said, the new GSLV mark 3 which is at a cost of Rs. 2,500 crores, approximately. We are also going to put up the second launch pad, which is under construction. I would like to say that as far as the support is concerned, it has been given unstintingly by the Government.

As far as the second part of his supplementary is concerned, one can answer it, but it would require another notice because this question deals entirely with just the foreign satellites. However, as far as the cryogenic engine is concerned, we are in the process of developing the indigenous cryogenic stage for the GSLV. This was achieved on 30th March, 2002, when the indigenous cryogenic engine was test fired for its flight duration in ISRO's Liquid Propulsion System Centre Facility at Mahendragiri, and the performance of the engine was as per prediction.

SHRI PREM CHAND GUPTA: Sir, satellite launching is a great scientific achievement for which our scientists deserve our compliments. So far, satellite launching has been a monopolistic business restricted to a certain country only. The French have been exploiting the maximum market through their launch vehicle Ariane. Since we are in this field, in the last three years, we have been able to launch only four satellites, whereas during the same period, there

have been hundreds of launches by other countries. What are the reasons for that? Why have we not been able to exploit this commercial market, if our launching facilities are on par with the world standards?

**SHRIMATI VASUNDHARA RAJE:** Sir, as far as launching of satellites is concerned, as I said, we have already made contacts with a number of customers. We have potential in Italy, France, Germany, Belgium, the Republic of Korea, U.K., Singapore, Japan and other countries also. As I said, in 1999-2000, we had launched two PSLVs along with the Korean, the German and the Belgian satellites.

As far as we are concerned, we are a new entrant to this field and over a period of time, from 1957 to 2000, our own launch vehicles are 15 and we have launched 33 satellites. I would like to say that because our work is so good, we are considered one amongst five of the six major countries, namely, U.S.A., France, Russia, China and Japan. We need to launch basically as per our needs, and that is what we are doing. We are in the process of being able to do two to three per year, at the moment. First, we will fulfil our needs. If there is any capability left-over then, we will go towards the commercial side.

**DR. M. N. DAS:** Satellite is a spacecraft propelled by a rocket into the outer space to orbits around the earth. We are proud of ourselves, of our scientists and of the launching pad and those who manage that. So many countries are coming forward for launching their satellites into the space, from our soil. The question put by the hon. Member was to know whether any agreement has been signed with other countries. The answer given was, 'no.' How can such a scientific and sensitive issue be dealt with, without signing any agreement with the country that would like to launch its satellite from here?

Secondly, what actually are we gaining? How much money does India earn by allowing our launching pad to be used by other countries? We feel proud when bigger countries, powerful countries, are also interested to launch their satellites from our pad. What is our

gain? They will be using our facilities at Sriharikota for conducting some experiments. It should be developed. How will you develop it, unless you get money from outside?

One more point. A satellite is not merely to collect information on weather or to pass information. It has many other purposes. When we sign agreement, or permit a country like Germany or Russia or France to launch their satellites from our pad, are we very sure that they are not misused, they are not used as spy satellites? We must be very sure of this. The Government must be very cautious about this. I want to know how much money we have earned and why were agreements not signed?

**SHRIMATI VASUNDHARA RAJE:** Sir, as far as MoUs are concerned, in the past few years, we have signed MoUs with the Italian Space Agency, the European Space Agency, the International Charter on Space on Major Disasters, the Chinese National Space Administration, Thailand Cooperation and Exploration on Use of Outer Space, Brazilian Agency and Indonesia.

As far as we are concerned, I have mentioned already what we have earned from the four satellites that we have managed to send basically, based on the price that was prevailing in the market, at the time of launch. It also has other built-ins, particularly things like marketing strategy. Normally, it is just a little under one million US dollar, which is what we have earned, from those four satellites. As far as our MoUs with these countries and the safety and security part of it are concerned, I would like to be very clear about the fact that we actually put in confidentiality clause and other such clauses, which take care of our own security, needs. There would be no way that we would be compromising on any of these, in these MoUs that we would be signing with another country.

**SHRI R. SHUNMUGASUNDARAM:** Sir, apart from the commercial programme, I would like to know whether there is any specific programme on research and study for students in collaboration with any reputed university or institution, particularly, in the background that no reputed university or institution is having any undergraduate studies in astronomy and physics.

SHRIMATI VASUNDHARA RAJE: This question relates actually to launching foreign satellites, but it is an interesting question, and I would be happy to provide the information to the hon. Member afterwards.

SHRI SANTOSH BAGRODIA: Thank you, Mr. Chairman, Sir. The hon. Minister has been mentioning earnings of about one million US dollars. I would like to know specifically whether this one million US dollar earned is for all the satellites you have launched, or, for each one. I would also like to know the cost of each launch. Is it really a commercial proposition or we are subsidising the foreign countries when we launch their satellites? Have you got a study made, on the comparison of the cost, in other countries *vis-a-vis* our cost? Are we really saving anything or are we just making further losses in such a development which has been done after heavy cost to the country?

SHRIMATI VASUNDHARA RAJE: Sir, the hon. Member is a very eminent businessman. I have already mentioned that we do not do any of our commercial transactions except at the prevailing international prices. I would like to clarify here that in all businesses there are other long-term considerations which go into the pricing factor. As I mentioned before, there would be things like schedule requirements. Then there would be things like specific things for orbit and a lot of other things, including the marketing strategy. Because we are just breaking into the market and we are interested in being able to capture a large part of it. As far as we are concerned, I said that normally, first satellite, a commercial launch of micro satellite is just under one million. Those are the kind of prices that we have been able to garner ourselves. Basically, in order to utilise available spare payload capacity, available opportunity was utilised to carry these small satellites. Actually, what we were doing is that we were looking at our own programme and a part of programme where we have spare capacity, we allowed other small satellites to ride

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piggyback with us. The PSLV launch itself cost about Rs.60 crores. The cost incurred towards the launch of this satellite on the PSLV is a fractional amount of the cost charged per satellite from the customer.

#### **Ware Houses**

**\*523 SHRI K. RAMA MOHANA RAO:** Will the Minister of CONSUMER AFFAIRS, FOOD AND PUBLIC DISTRIBUTION be pleased to state:

(a) the number of Ware Houses being operated by the Central Ware Housing Corporation in the country as on the 31st March, 2002 with total storage capacity thereof;

(b) the number of Ware Houses in Andhra Pradesh;

(c) the new storage capacity added last year in the country and in Andhra Pradesh; and

(d) what are Government's plans in respect of the proposal mentioned in part (c) for the current year?

THE MINISTER OF CONSUMER AFFAIRS, FOOD AND PUBLIC DISTRIBUTION (SHRI SHANTA KUMAR): (a) to (d) A statement is laid on the Table of the House.

#### **Statement**

(a) As on 31.3.2002, 475 warehouses were being managed/operated by the Central Warehousing Corporation(CWC) in the country. The total storage capacity of these warehouses was 89.00 lakh MTs.

(b) The number of warehouses being managed/operated by CWC in Andhra Pradesh as on 31.3.2002 was 49.

(c) The overall addition to the storage capacity of CWC during the year 2001-02 was 3.24 lakh MTs out of which 0.25 lakh MT capacity was added in Andhra Pradesh.

(d) During the year 2002-03, CWC has plans to construct additional storage capacity of 3.25 lakh MTs in the country out of which 0.27 lakh MT capacity is proposed to be constructed in Andhra Pradesh.