

**GOVERNMENT OF INDIA
SPACE
LOK SABHA**

UNSTARRED QUESTION NO:3934
ANSWERED ON:18.08.2010
IMPORT OF CRYOGENIC ENGINES
Abdulrahman Shri

Will the Minister of SPACE be pleased to state:

- (a) the total number of cryogenic engines imported from Russia to be utilized in various launch vehicles;
- (b) the number of cryogenic engines which were used till today and the balance available with the Government;
- (c) the cost of the imported cryogenic engines;
- (d) whether the transfer of technology for making cryogenic engines indigenously is a pre-condition for import;
- (e) if not, the alternate solution available with the Government;
- (f) whether the Government is having any proposals to launch satellites commercially for other countries; and
- (g) if so, the agency permitted to implement the scheme?

Answer

MINISTER OF STATE IN THE PRIME MINISTER'S OFFICE, MINISTRY OF PERSONNEL, PUBLIC GRIEVANCES & PENSIONS, MINISTRY OF PARLIAMENTARY AFFAIRS , MINISTRY OF SCIENCE & TECHNOLOGY AND MINISTRY OF EARTH SCIENCES (SHRI PRITHVIRAJ CHAVAN):

(a) & (b) A total of seven cryogenic stages comprising of engines and the associated stage elements were imported from Russia for the Geo-Synchronous Satellite Launch Vehicle (GSLV) programme. Of these, five cryogenic stages have already been utilized, and the remaining two will be utilized in the forthcoming flights of GSLV.

(c) For the development and supply of seven Russian cryogenic engines and stages, ISRO has incurred an expenditure of Rs. 392.00 crores since 1991, against the total value of Rs. 400.00 crores. The balance amount of Rs. 8.00 crores will be paid during 2010-11 timeframe for the launch related activities pertaining to the sixth and seventh Russian cryogenic stages.

(d) No, Sir.

(e) ISRO took up development of indigenous cryogenic engine and the stage in 1994. This indigenous cryogenic engine and stage, was successfully subjected to several levels of ground qualification tests. Further, the flight testing of the indigenous cryogenic engine and stage was carried out in the recent flight of GSLV-D3 on April 15, 2010, which was not successful.

(f) & (g) Yes, Sir. ISRO has plans to continue launching of satellites from other countries on a commercial basis using Polar Satellite Launch Vehicle (PSLV). ANTRIX Corporation Limited (ACL), the commercial arm of the Department of Space (DOS), is the agency responsible for providing the launch services to the international satellite customers on a commercial basis.