

(c) the aims and objectives of its lunching?

**MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PUBLIC GRIEVANCES AND PENSIONS (SRIMATI MARGARET ALVA):** (a) The activities related to the second generation Indian Remote Sensing Satellite (IRS-IC) are progressing as per schedule. The Structural, Thermal and Engineering Model (STEM), which is fabricated to validate the design, is presently undergoing assembly and testing. Spacecraft design has undergone various technical reviews and has been found to be adequate to meet the mission objectives.

(b) Yes, Sir.

(c) launching of IRS\_IC is consistent with one of the major aims of the Indian Space Programme is to develop and deploy operational state-of-the-art remote sensing satellites with the objective of providing data from these satellites on a continuous and assured basis for use in several areas of applications if relevance to national development. Taking into account the technology development scenario in the world and the user requirements during the 90's IRS-IC spacecraft will have better spatial and enhanced spectral; resections, more frequent revisits, stereo viewing and on-board data recording capabilities. Besides ensuring the continuity of the remote sensing data services to the user community in the country, it is expected that the enhanced capabilities of IRS-IC will help in developing newer application areas.

#### **Disaster Warning System**

2268. **SHRI C.P. MAUDALA GIRIYAPPA:** Will the PRIME MINISTER be pleased to state:

(a) the number of disaster warning systems set up in the cyclone-prone areas of

Andhra Pradesh and Tamil Nadu;

(b) whether there is a proposal to set up weather disaster warning systems in the coastal areas of other States also; and

(c) if so, the details thereof?

**THE MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PUBLIC GRIEVANCES AND PENSIONS (SHRIMATI MARGARET ALVA):** (a) 47 in Andhra Pradesh, 48 in Tamil Nadu and 2 in the Union Territory of Pondicherry, Making a total of 97.

(b) Yes, Sir.

(c) (i) By Mid-1991, 50 more sets will be installed as follows:

West Bengal:	15
Orissa:	15
Andhra Pradesh	10
Gujarat:	10

(ii) During the 8th Plan period (1992-97), 100 more sets are proposed to be installed as follows:

West Bengal:	25
Orissa:	25
Andhra Pradesh	30
Gujarat:	20

#### **Development of ASLV and PSLV**

2269. **SHRI C.P. MUDALA GIRIYAPPA:** Will the PRIME MINISTER be pleased to state:

(a) whether the work on the develop-

ment of Augmented Satellite Launch Vehicle (ASLV) and the Polar Satellite Launch Vehicle (PSLV) is in progress;

(b) if so, the details thereof; and

(c) the time by which these are likely to be launched?

THE MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PUBLIC GRIEVANCES AND PENSIONS (SHRIMATI MARGRET ALVA): (a) Yes, Sir.

(b) and (c). *Augmented Satellite Launch Vehicle (ASLV)*: The Augmented Satellite Launch Vehicle (ASLV) is a five stage vehicle capable of placing 150 kg class Stretched Rohini Satellite Series (SROSS) payloads in low earth orbit. Preparations for the third ASLV developmental flight (ASLV-D3) are in advanced stage. The launch campaign will resume in December 1991 for the launch in the first half of 1992. ASLV-D3 is Primarily to evaluate the performance of the vehicle including the closed loop guidance system using the SROSS-C Bus with a Gamma Ray Burst Detector and Retarding Potential Analyses Payloads for conducting ionospheric experiments.

*Polar Satellite Launch Vehicle (PSLV)*: Significant progress has been achieved in the development of Polar Satellites Lunch Vehicle (PSLV) which is a four stage vehicle capable of launching 1000 kg class satellites into 900 km polar orbit. Most of the PSLV modules such as the first stage solid motor (the third largest in the world), liquid second stage, solid third stage and liquid fourth stage, the heat shield, electronic systems have been realised and successfully ground tested. Further qualification tests of the PSLV Systems are in progress. The various facilities for integration, check-out and launch are ready. The first developmental flight of PSLV is scheduled for launch during second half of 1992.

### Publication of Books on Space Research

2270. SHRI C P MUDALA GIRIYAPPA: Will the PRIME MINISTER be pleased to state:

(a) Whether the Department of Space has published books for school and college students and others to apprise them of the achievements in Space Research;

(b) whether the Department of Space has requested NCERT and National Book Trust to publish books about the various developments in Space Research; and

(c) if so, the details thereof?

THE MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PUBLIC GRIVANCES AND PENSIONS (SHRIMATI MARGARET ALVA): (a) and (b). Yes, Sir.

(c) The Department of Space has been bringing out a number of technical and general publications to apprise of the achievements of the Indian Space programme. The technical publications are widely circulated to research and academic institutions all over the country. The general publications on the Indian Space Programme including booklets, posters, leaflets and do-it-yourself kits, are circulated among the general public on request and also during the exhibitions organised by the Department of Space in Various parts of the country. The Department also brings out quarterly publications. "space Indian" which has a wide circulations among Universities, Academic institutions, R&D institutions and others. Department of Space also has a mobile exhibition on Space which is taken to many places in the country.

Department of Space in close cooperation with the University Grants Commission and Ministry of Human Resources Develop-