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Old Project Orders  
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TELEPHONE : 29822

TELEGRAM : ISRO

TELETYPE : 043-499 : 043-326

Prof. S. Dhawan  
Chairman,

भारत सरकार  
GOVERNMENT OF INDIA  
भारतीय अन्तरिक्ष अनुसंधान संगठन  
INDIAN SPACE RESEARCH ORGANISATION  
(ISRO)

ISRO HEADQUARTERS  
F BLOCK, CSAS COMPLEX  
DISTRICT OFFICE ROAD  
BANGALORE-560 008, INDIA

SC/Ch/A 16.2/177

August 5, 1975.

MEMORANDUM

1. The European Space Agency (ESA) informed ISRO on April 3, 1975 regarding passenger payload opportunities onboard the Ariane developmental flights planned for 1979 and 1980. Following a discussion on the subject in the ISRO Council in early June, Sri R. Madhavan of PPEG-VSSC was deputed to attend an Information/Briefing Meeting convened by ESA in Fruscati, Italy for the prospective experimenters. In this meeting, Sri Madhavan presented to ESA a brief note outlining ISRO's interest in availing the lateral (100 kg) passenger payload opportunities on third and fourth development flights for:
  - a) An Experimental Synchronous Technology Satellite (for communications payloads), and
  - b) An Elliptic Orbit Technology Satellite (for remote sensing payload verification)
2. The last date for the receipt of the final proposals at ESA is September 30, 1975. In the light of above and the possibilities offered by lateral passenger payload for an ISRO experimental earth-synchronous communications technology satellite, a Working Group, with membership as indicated below, is hereby constituted to advise Chairman, ISRO on the feasibility of the said satellite as a lateral passenger payload and to determine useful and feasible communications payload options. The Working Group will also prepare the final proposals for submission to ESA.
3. Membership of the Working Group

Sri R.M. Vasagam (PPEG-VSSC)	- Convenor
Sri T.A. Alex (ISSP-VSSC)	(Control System)
Sri R. Ashiya (ISSP-VSSC)	(Satellite TTC sub-system)
Sri A. Chandran (PSN-VSSC)	(Apogee Propulsion)
Sri P.S. Goyal (ISSP-VSSC)	(Control system)
Sri V.K. Kaila (ISSP-VSSC)	(Thermal design)
Sri P.F. Kale (ESD-SAC)	(Communications sub-system)
Sri A.V. Patki (ISSP-VSSC)	(Satellite structure)
Sri R. Madhavan (PPEG-VSSC)	- Secretary
Sri K. Narayanan (ESCES-SAC)	(Communications sub-system and earth stations)

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Membership of the Working Group (Contd.)

Sri T.V. Raju (ISSP-VSSC)	(Satellite TTC sub-system)
Sri T. Radhakrishnan (SSD-VSSC)	(Satellite TTC system)
Sri P. Ramachandran (ELD-VSSC)	(Satellite power system)
Sri AK Rath (STR-VSSC)	(Satellite structures)
Sri Ch. Sreehari Rao (SHAR)	(Mission Analysis)
Sri S.Y. Ramakrishnan (ISSP-VSSC)	(Satellite power system)
Dr. K.N. Shankara (MID-SAC)	(Satellite communications antenna system)
Sri Jai P. Singh (Alt.: Sri Y.S. Rajan) HQ	
Sri N. Vedachalam (CGI-VSSC)	(Tribology)

4. The Working Group will begin its work immediately and may hold meetings in Bangalore/Trivandrum/Ahmedabad as necessary. The Working Group must make presentation to Chairman, ISRO on Saturday, August 23rd, at 10 a.m. on the various feasible options for satellite main-frame and communications payloads on the basis of guidelines given below. Following this presentation and the decision on the main-frame and payload configuration to be proposed to ESA, the Working Group shall develop the detailed final proposal for submission to ESA by September 15, 1975 on the basis of the format provided by ESA in attachments to Director General ESA's letters of April 3 and July 21, 1975 on the subject.
5. In making its studies on feasible satellite main-frame and payload options, the Working Group shall bear in mind the following:
  - 5.1 ISRO capability to deliver the satellite to ESA in time for LO3/LO4 launches scheduled for July, 1980 and December, 1980 respectively. ESA's provisional time-schedule for LO3 and LO4 flights calls for delivery of mechanical models in June, 1978 and October, 1978 respectively, electrical models in June 1979 and October, 1979 respectively and final payloads for integration in November, 1979 and April, 1980 respectively.
  - 5.2 availability of a maximum of Rs.7 Crores for the project, exclusive of manpower and administrative support costs but inclusive of facilities augmentation, satellite and payload development and testing, necessary fees to ESA/CNES and augmentation of existing ground support systems, travel, etc. The Working Group must project manpower and administrative support requirements and costs separately. In doing so, the constraints on recruitment of additional manpower and the deployment on current major ISRO projects must be borne in mind.

- 5.3 the ISRO goal of indigenous operational applications satellites is to be noted in proposing the main-frame and payload options so that the satellite main-frame and payload finally selected should improve and add to the technological elements available through Aryabhata, ISSP-II/SEO and RS-1 satellites and SITE and STEP projects.
  - 5.4 preference for communications payloads, especially those which come close to simulating service capabilities projected for INSAT system, e.g., S/C-band telecommunications, data collection from remote platforms, etc.
  - 5.5 possibility should be closely examined of the placement of the ISRO autonomous payload on top of the CNES proposed bus as a central passenger for qualification of a geo-stationary orbit injection sub-system for Ariane spacecraft. In this option the cost and effort in developing an independent apogee propulsion system for enhanced payload capability and a secondary propulsion system for moving our spacecraft in geo-stationary orbit to a desired location would be traded off. However, weight, volume, time and cost constraints permitting, ISRO's preference would be for a totally autonomous payload with a self-contained apogee propulsion system, which should be a logical extension of current ISRO launcher development efforts.
6. The Working Group may consult individuals and groups within ISRO as it deems fit.
  7. The Working Group will submit its final report to Chairman, ISRO by September 15, 1975.

  
(S. Dhawan)  
Chairman, ISRO

Distribution:

Members of the Working Group  
Members of the ISRO Council (Prof. P. D. Bhavsar)  
Project Director, ISSP  
Project Officer, SIC  
Project Manager, SLV-3  
Project Manager, Vikas/Head, PSN

*Seen*  
*BR*

Shri Y. S. Rajan

Ariane  
or apple



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GOVERNMENT OF INDIA  
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T E L E X : 043-499 ; 043-326

ISRO HEADQUARTERS  
F BLOCK, CBAB COMPLEX  
DISTRICT OFFICE ROAD  
BANGALORE-560 009, INDIA

SC/CH/A. 16.2/70

19 March 1976

OFFICE ORDER

A Steering Group is hereby constituted with immediate effect to deal with the technical and advance project planning matters related to the two communications oriented Ariane Passenger Payload Experiment (APPLE) proposals of ISRO on an interim basis.

2. This Group shall be known as the APPLE Steering Group and will be concerned with the detailed configuration/reconfiguration studies of the two ISRO passenger payload proposals, identification and projection of the relevant technology and facility development activities, manpower and budget projections concerning APPLE and for necessary interface with the European Space Agency (ESA) on matters as may be specified by Chairman, ISRO, from time to time.
3. Until such time when a full project organisation is established, this Group shall also be responsible for the supervision and coordination of the advance technology and facility development activities related to this work at the various Centres/Units which are sanctioned and allocated by the ISRO Satellite Programme Council/Chairman, ISRO.
4. This Group shall have its base of activity at the Vikram Sarabhai Space Centre (VSSC) but will maintain close touch with ISRO HQ/Chairman, ISRO. The policy guidelines concerning APPLE and allocation of specific technology/facility development and APPLE sub-system and integration shall emanate from Chairman, ISRO. VSSC, SAC, ISSP and SHAR each shall immediately constitute their own small groups to support the participation of their representatives in the Steering Group and its functioning. The Steering Group will keep Director, VSSC and Director, SAC fully informed. For all frequency coordination related matters, the Steering Group shall keep Dr. B. S. Rao, ISRO Headquarters fully in the picture and receive his consultations. The persons at the Headquarters responsible for participation in and liaison with the Steering Group shall be Prof. Jai P. Singh and Shri Y.S. Rajan. Prof. Jai P. Singh will act as the focal point of information at the Headquarters regarding the progress of the Group's work.
5. For initial planning purposes, the Group shall assume the following broad allocations of responsibilities with respect to the APPLE sub-systems activities:

ISSP: Spacecraft main-frame (exclusive of apogee propulsion and reaction control system) and spacecraft integration.

VSSC: Spacecraft apogee propulsion system, reaction control system and parabolic dish antenna structure. Strong involvement in overall control and power system design, fabrication and testing.

SAC: Spacecraft S- and/or C-band communications sub-system. C/S-band communications ground segment and utilisation.

SHAR: Spacecraft orbit raising, TTC support and station-keeping.

6. The composition of the APPLE Steering Group shall be as below:

Shri R. M. Vasagam, VSSC - Head

Shri N. Vedachalam, VSSC

Shri P. P. Kale, SAC

Shri K. Narayanan, SAC

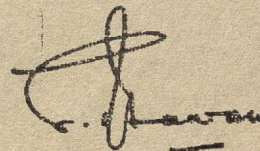
Shri R. Ashiya, ISSP

Shri A. V. Patki, ISSP

Shri Ch. Sreehari Rao, SLC-SHAR

Shri Y. S. Rajan, HQ

Prof. Jai P. Singh, HQ



(S. Dhawan)  
Chairman, ISRO

Distribution

Members of APPLE Steering Group  
Members of ISRO Satellite Programme Council  
Members of ISRO Council  
Chairman, Communications Area, SAC  
Project Director, ISSP  
Project Officer, SLC, SHAR  
Convenor, SPAG, ISRO Hq

INDIAN SPACE RESEARCH ORGANISATION

HEADQUARTERS

MEMORANDUM

/CONFIDENTIAL/

For : Chairman, ISRO

File / Ref :

From : YS Rajan

Date : August 2, 1980

Subject : Copies of Earlier Officers on important ISRO Projects and two Draft Officers on IRS and PSLV.

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Chairman desired to see some earlier office orders in connection with SLV-3, SEO etc and also desired to send 2 draft Office Orders in connection with IRS and PSLV.

The Office Orders concerning the constitution of SLV Board is in Flag 'A'. Most of the financial powers delegated are on the standard pattern and could be given to the PSLV and IRS Project after formal approval.

Draft orderson APPLE Working Group are in Flags 'B' and 'C'. These would not be very relevant in the context of PSLV and IRS Projects at this stage since the studies have been conducted and Chairman's intent was to energise and execute the <sup>project.</sup> ~~team~~. It is in this context Chairman may like to see the Office Order on SEO-2 Project. F10  
It has been formulated on the same lines as for Rohini Project and APPLE Project and SEO Project when they were formally constituted. Only he para No. 25 has been an addition since a formal project approval was not obtained at that time when Chairman issued the order.

Drafts for IRS and PSLV Orders are in separate folders.

*Rajan*  
YS Rajan

2/8/80