

Ministry of Human Resource Development  
Department of Higher Education

**Committee on DTH**

\*\*\*

The DTH Committee, constituted by the MHRD under NME-ICT project, held its 3<sup>rd</sup> meeting at 10:30 am, on 08<sup>th</sup> November, 2011 at ISRO Headquarter, Bangalore. The following members attended the meeting –

1. Dr. K. Radhakrishnan, Secretary, DOS and Chairman ISRO, Bangalore.
2. Prof. S.V. Raghavan, Chairman, DTH Committee, Scientific Secretary, Office of the Principal Scientific Adviser to the Government of India.
3. Mr. N.K. Sinha, Mission Director, NMEICT, Additional Secretary (TEL), MHRD, New Delhi.
4. Mr. Prahlad Rao, Director, Satellite Communication and Navigation Programmes, ISRO, Bangalore.
5. Mr. V.S. Palsule, Director, DECU, Space Application Centre, ISRO, Ahmedabad.
6. Mr. K. Sethuraman, Assistant Director, SATCOM Application, Sat. Communication Programmes Office, ISRO, Bangalore
7. Dr. P. Ramanujam, C-DAC, Bangalore
8. Mr. H. Rayapura, Dy. Director, SATCOM Appl., ISRO, Bangalore
9. Shri Pradeep Kaul, Convener, DTH Committee, Sr. Consultant, NMEICT, MHRD, New Delhi.

The remaining members of the committee, due to their pre occupation, could not attend the meeting.

Prof. Raghavan, Chairman DTH Committee welcomed Dr. K. Radhakrishnan Chairman, ISRO and other members of the Committee to the 3<sup>rd</sup> DTH meeting. Prof Raghavan thanked Mr. Neelakanthan, the then Director, Satellite Communication & Navigation Programme, ISRO, Bangalore, for his valuable contribution provided to the DTH Committee. Prof Raghavan also welcomed Mr. Prahlad Rao, who has taken over from Mr. Neelakanthan and has for the first time attended the DTH Committee meeting.

Dr. Radhakrishnan briefed the members that ISRO will do its best to support the activities of MHRD on a priority basis, this is because the ISRO also attaches importance to educational activities through ICT. He felt that some transponder can be

provided to MHRD in GSAT-8/12, any new satellite being built by the ISRO or some other arrangements shall be made for it.

Since no comments from any of the Members were received, the Chairman confirmed the minutes of the second DTH committee meeting.

Mr. Prahlad Rao informed the Members that INSAT Coordination Committee (ICC) Meeting of ISRO could not be held for some time, due to unavoidable reasons. The meeting is now scheduled to be held on November 29, 2011 and the issues of leasing two transponders for use by MHRD for launching about 40 DTH channels shall be taken up in the ICC meeting. The ICC is also expected to review the requirement of MHRD for designing, fabricating and launch of dedicated satellite(s) for use by MHRD.

Since the underlying assumptions have a significant bearing on the design and cost of the system, the Members felt, it to be necessary to record the assumptions being made by the Committee that may become guiding factors behind the design of MHRD DTH Network. Some of the assumptions are as under:

India at present has 145 million TV Sets installed that represent about 60% TV homes. Since this number is very large, we cannot afford to lose sight of the use of Television and DTH Network for delivery of education content to students to their homes as well as at the educational institutions. Perhaps, DTH on TV sets would be a good solution for dissemination of education content, since it is very cost effective and is independent of terrestrial connections especially in remote areas.

As on date, besides Doordarshan's DTH Network, there are six others private DTH Networks in the country. The numbers of maximum TV Channels in a DTH Network, in India, at present are about 350. The Doordarshan, DTH Network has at present a capacity of about 55 TV channels, it has a plan to add about 250 additional TV channels in next couple of years. It is assumed that the 7 DTH operators in India are not in a position to carry the large number of MHRD DTH Channels on their bouquet.

At present the ISRO is not in a position to provide 2 transponders to MHRD for DTH use from its own satellites. The ISRO is therefore proposing to lease 2 transponders for MHRD for launch of about 40 educational DTH channels.

It is further presumed that considering the importance of the use of satellite technology in education, ISRO will consider initiating action to build a dedicated satellite(s) for MHRD for its DTH program, which may take 3-4 years for fabrication and launch.

It is assumed that the traffic, operational under the two transponders, can either be (i) allowed to continue on these transponders even after the launch of dedicated satellite(s) for MHRD or (ii) shall be transferred to the dedicated satellite, being launched by the ISRO.

It was felt that in case the traffic on the two transponders needs to be transferred to the new satellite at a later date, an expenditure of about Rs.100 per realignment of antenna for shifting the direction towards the new satellite would be required. The expenditure on this may have to be borne by the MHRD.

In case the traffic on 2 transponders is allowed to continue, the students shall then require investing on another set of DTH reception system for watching other educational programmes and the two Dish antennas shall have two different look angles.

The members from ISRO informed the Committee that as per ITU regulations and as per the spectrum allocated by it, ISRO cannot have more than 12 transponders in Ku band, in a satellite, of which 2 transponders shall be reserved as redundant systems and 10 transponders shall be offered to MHRD for operations. Thereby each satellite will have a maximum capacity of about 200 TV channels.

With the ambitious programme of reaching DTH to every student's household in the country and given the assumption that not more than 10 transponders could be co-located on any Indian satellite having national coverage, it appeared imperative to have a system in place where some help could be provided to the households to realign DTH antenna as per the need. Finding that presently employees of cable operators or DTH operators do this job for nearly Rs.100 per alignment, it was felt that this could be one area to focus on for skill development programme. This had the potential of generating additional employment in the country. Such training could also empower a large number of households to have programmes of their choice.

It was felt, looking into the MHRD requirements of about 40-50 Transponders for its DTH programme and the fact that at present, non availability of Satellite spectrum in Ku Band by the ISRO, the ISRO in that case may have to launch as many as 4-5 Satellites to meet the MHRD requirement. This is likely to create a problem for the students, to acquire multiple DTH reception system for viewing content from all such Satellites.

It was proposed that in that case, Director DECU/ISRO may kindly take up a project on design and development of a single DTH set top box that can switch channel (upto 5 in number) from different satellite receptions. We may also involve industry for large scale production of such devices, at a later stage. However a time frame on this should not exceed beyond 12 months. The funds required for this project could be made available from NMEICT/MHRD using the project sanctioning approach.

There was a discussion as to what type of educational content should be delivered on MHRD DTH system. It was referred that as per the Mission Document, it is expected to focus more on curriculum based of education and less on enrichment based education.

It was felt that we require about 3000 hours [365 days x 8 hours] of educational programmes per year per DTH channel. If we assume 3 repetitions per day [8 hours] it will therefore be very difficult to launch 1000 DTH channel based on pre-recorded educational content alone. It was therefore felt that it would be appropriate to deliver

larger part of educational content through LIVE broadcasting and we shall also use the pre-recorded content followed by live interactive sessions from student on teleconferencing (video) and calls generated through phone/mobile.

Mr. N. K. Sinha, Additional Secretary, MHRD informed the members that the Ministry intends to distribute about 220 millions of 'Aakash', the low cost access devices (LCAD) to students. He added that for wider reach it is better to use LCAD for reception of DTH content. It is further possible to provide to students an additional attachment to LCAD for DTH reception, provided the additional attachment, is cost effective. However we have to search for the suppliers of such a device, ISRO may kindly provide some information to MHRD on this. He also informed that M/s Hughes, the satellite manufacturing company, had approached the MHRD for providing 45 Ku band transponders on a single satellite.

Questions were asked as to how many subjects are being taught in UG and PG Levels in Indian Universities and it amounts to how many courses? It was also felt that we should calculate what would be the repeat cycle of the each course on the DTH network.

During the 3<sup>rd</sup> DTH meeting the Members from ISRO, HQ Bangalore indicated that it might take about 12-18 months for ground segment to be setup. It was felt that we should quickly decide on the location to host and uplink the DTH network. One should also find out partner agency for supply and commissioning of the DTH uplink equipment. Possibilities of inviting private participation in the whole project may also be explored.

Mr. Sethuraman of ISRO was asked to kindly prepare a 'Study Paper'; how to get 1000 channel spectrum for MHRD, at a single location in space. Is any spectrum, whose footprint is in Indian sub continent, available from any other agencies in the world and how to acquire such spectrum from such agencies, can such spectrum from other agencies be further clubbed together and utilized in a single satellite by India for MHRD DTH network?

Prof. Raghavan made an impressive presentation to discuss various approaches in meeting the goals of DTH project. He felt that we should explore the possibilities of adopting multiple technological solutions to provide DTH Channels. He felt, perhaps DTH project could be transformed to 'Direct to Anywhere'. A mention of National Optical Fiber Network (NOFN) project proposed by the Department of Telecommunications was also discussed where in WiMax, and IP network could be a part of the DTH delivery platform. It was felt in that case, through WiMax, students, when in transit and using LCAD could also receive the educational content, effectively.

Director DECU/ISRO Ahmedabad was requested to kindly send the list of, ground segment equipments cum earth station and standard teaching end equipment to MHRD as early as possible.

A presentation prepared by Members from ISRO, HQ Bangalore on DTH was made by Mr. Sethuraman. A tentative time line was defined that it might take about 3-6 months of

time by the ISRO for 2 satellite transponders to be acquired and allotted, 12-18 months for ground segment to be setup and 3-4 years for a dedicated satellite to be produced and launched to meet the requirements of MHRD. It was felt that we should identify the user base for the DTH channel. We should quickly decide on the location to host and uplink the DTH network. One should also find out partner agency for supply and commissioning of the DTH uplink equipment. Possibilities of inviting private participation in the whole project may also be explored. If required, the MHRD shall provide necessary budgetary support to ISRO for acquiring Satellite Transponders and building new Satellite(s) for MHRD.

The challenges ahead were also discussed such as: a plan to provide live and recorded programmes, commissioning of multiple teaching end studios and its connectivity to central system, central infrastructure to host 1000 channel of contents, plans to connect multiple studios to head-end system, planning and establishment for generating live contents, training the manpower, lead time needed for establishment of the channels such as civil infrastructure building, power, connectivity, terrestrial and satellite and project management, mechanism to update technology at regular interval, cost estimation, operational cost and capital investment. It was felt that a 'Project Report' on this may be prepared by Mr. Sethuraman in about 3 weeks time and mailed to the members.

For content generation, it was felt that all IITs, NITs, Central Universities, NITTTR, IIMs, IISc, Agriculture Universities and other Institutions may be involved by the MHRD and about 108 DTH networks out of these institutions may be setup in the first instance and involving them for 8 hours of live content generation a day, for supply to 40-50 DTH channels. For this the MHRD will provide the necessary equipments, infrastructure for establishment and funds to run it.

The meeting ended with vote of thanks to the Chair.

Pradeep Kaul  
Convener, DTH Committee &  
Senior Consultant (Tech.) NME-ICT