Ministry of Human Resource Development
Department of Higher Education

Committee on DTH

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The DTH Committee, constituted by the MHRD under NME-ICT project, held its 4th meeting at 3:30 pm, on 09th January, 2012 at the Office of Principal Scientific Adviser to the Government of India, Vigyan Bhawan Annexe, New Delhi.

The following members attended the meeting –

1. Prof. S.V. Raghavan, Chairman, DTH Committee, Scientific Secretary, Office of the Principal Scientific Adviser to the Government of India.

2. Mr. N.K. Sinha, Mission Director, NMEICT, Additional Secretary (TEL), MHRD, New Delhi. Member.

3. Dr. P. Ramanujam, C-DAC, Bangalore. Member.

4. Shri Ravikant, In-Charge Director, EMPC, IGNOU, Maidan Garhi, New Delhi. Member.

5. Mr. J. M Kharche, Director (Engg.), Directorate General, Doordarshan, Copernicus Marg, New Delhi. Member.

6. Mr. N. V Ramanna, Director (Engg.), Directorate General, Doordarshan, Copernicus Marg, New Delhi. Member.

7. Mr. A. K Jha, Dy., Director (Engg.), Directorate General, Doordarshan, Copernicus Marg, New Delhi. Member.

8. Mr. Nageshwar Nath, Maintenance Engineer, CEC, Aruna Asaf Ali Mg., New Delhi. Member.

9. Shri Vinod Mango, Engg. In-Charge, EMPC, IGNOU, Maidan Garhi, New Delhi. Member Invitee.

10 Shri Pradeep Kaul, Convener, DTH Committee, Sr. Consultant, NMEICT, MHRD, New Delhi.

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

1. Prof. Raghavan, Chairman DTH Committee welcomed the members of the Committee to the 4th DTH meeting, especially the Co-opted DTH Members, who joined the meeting for the first time.

2. The comments received from a member Mr. Ravi Sexena were circulated, read and the minutes of the third DTH committee were conformed.

3. Prof Raghavan briefed the Committee that Director, Satellite Communication, & Navigation Programme, DoS, ISRO Bangalore has communicated vide his letter that based on MHRD request, two Ku-band transponders (36X2 MHz spectrum) in INSAT/GSAT-8 are allotted to MHRD for NME-ICT programme. Prof Raghavan and the members thanked the DoS for allotting the two transponders to MHRD.

4. Prof Raghavan felt that the MHRD DTH Programme will help to overcome the issue of GER in Higher education and provide access and equity in education to people below poverty line, those digitally divided and those who are situated in geographically disadvantaged area. He felt once we improve our education; health, agriculture and other issues of the society will automatically be taken care. It is important to devise methods how to blend the current education system with the semester system. Filling the content 24X7 on 50 channels is a challenging task and we should overcome it as soon as possible. Further, in two year time we have to launce 1000 channels, since Prof. Radhakrishnan, Chairman, ISRO has promised to build dedicated satellite(s) for MHRD. Prof Raghavan felt that since he is heading National Knowledge Network and National Optical Fiber Network (NOFN) projects, we can create artificially 500 channels or more, wherein the connectivity is not be going to be an issue and as long as an end user benefits and receives the content through static or Dynamic networks. In about 18-24 months of time the country will be assured NKN connectivity within 50 Kms and NOFN connectivity within 5 Km of anywhere. However, at present we should take up the challenge to generate quality content that too in large quantities.

5. Mr. N.K. Sinha, briefed the Members that we have already contacted the Ministry of Communication and Information Technology for seeking WPC and SACFA License/clearances etc however, the clearances can only be sought once we received NOC from M/o I&B. A follow up with I&B ministry is in progress and we are hopeful to receive the NOC, soon. The HRM has desired that the MHRD 50 DTH channel mat be inaugurated and dedicated to the nation before 31 March 2012, so we all have very little time left and should take up the challenge and make it happen.

6. The experts from Doordarshan briefed the committee that the Prasar Bharti is also in the process in upgrading its DTH capacity from 59 channels to 75 channels and the system is going to cost around 21 crores. This does not include the RF, HPA, MAM and other equipments. A rough estimate was arrived at Rs.30 crores that MHRD may require for setting up a complete Earth Station of its own. The Doordarshan is also likely to increase the DTH capacity to 200 channels and is getting the DTH-setup tendered on

SITC basis (supply, installation, testing and commissioning). The Chairman requested the experts from Doordarshan to kindly work on the design parameters for setting up the complete earth Station chain for MHRD for uplinking 50 DTH channels, also.

7. The experts from Doordarshan were also requested to provide Link Engineering Details and Network use carrier plan to MHRD for use with GSAT-8. Similarly Mr. Nageshwar Nath with Doordarshan experts was requested to compile Teaching End equipment package that will be needed to generate baseband and educational content to be pumped through Fiber to Teleport facility.

8. The experts felt that for running two streams will have to keep one link as stand by. It was felt that procurement of Modulators, HPAs and Up-converters may take 3 to 4 months, because such items are costlier and made to order. The issue of how many channels can be accommodated in each transponder came up; it was felt the issue depends on Quality of Service (QS), transmission parameters and compression process used. With standard TV resolution (SD) mode, DVB-S2, MPEG-4, one can accommodate around 24 channels per transponder, while through MPEG-2, 12Mbps bit rate, 10-16 Channels/ transponders and HD quality can accommodate about 4 Channels per transponder.

9. The experts felt that for countrywide coverage the DTH satellite elevated at 75 to 100 degree east, offer the best signal strength all over the country and on 60 centimeter dish. However, since the satellite allotted to MHRD (GSET-8) has an elevation of 55 degree east, there may be loss of signal strength in North East part of the country. To overcome this we may have to provide larger dish sizes.

10. An assessment to find out whether the Earth Station of IGNOU can be upgraded to serve the uplink facility for MHRD 50 DTH channels was made. It was felt that as the Earth Station is C-band and is more than 11 years old; we need to change a number of equipment including Modulators, Up-converters and HPA to DVB-S2 system. IGNOU is further continuing the feed for the transmission to 5 channels on C-Band, in view of this utilising IGNOU Earth Station is not feasible. The feasibility of using up-linking facility from Doordarshan was also explored. It was felt that Doordarshan does not have spare capacity and the Doordarshan itself is in the processing of upgrading its Earth Station setup. Doordarshan is at present following the policy of e-Tendering and auctioning the spectrum for DTH the current rate quoted are about Rs. 3.5 crores per Channel per year.

11. It was felt that we may keep the spectrum reserved for one HD channel. However, recommendation was that since we will be having NMS and since HD takes a lot of bandwidth, we may presently continue transmission with all SD channels and in future switch 1 or 2 channels from SD to HD channel as and when required.

12. It was felt that since we have been allocated the satellite transponder by ISRO, efforts should now be made to utilized the services of Government/PSU's/private DTH service providers to utilized their teleport facilities for a period of 12 to 15 months or till the time we setup our own Earth Station facilities. Besides Teleport facilities, we should also include live delivery of content and video Servers, Play out etc., facilities in the services for hiring. Efforts be also made to deliver the DTH content through IPTv and on Mobile also. Some names of Teleport facility providers in this were suggested such as: BSNL, ESSL Shyam, VTI, IRICOM, TCIL, TATA, India Sign etc. It was felt we may engage the services of M/s. TCIL, BECIL, ECIL or others as Consultants to tender and find out an appropriate Teleport service provider for MHRD DTH services.

13. The committee discussed that the MHRD should immediately identify the 'Real Estate' where the DTH of 50 and 1000 channels is likely to be setup, it was felt that about five acres of land may be required for this purpose to house DTH and the NME-ICT Mission Secretariat office. The site should have clear sky on south and west side and having no elevation above 40 degrees. The building to house human and HPA, uplink antenna should have a distance of 15 meter or more.

14. It was felt that we should ensure that list of programmes; short synopsis etc., going to be televised in 50 channels should be made available in advance, to the public, at large. For this we may create DTH Electronic Programme Guide (EPG) and use a websites to disseminate such information. Automatically SMS and e-mails massages may be sent to registered students on this. Certain, channels may be kept reserved to serve the near video on demand (NVOD) services, wherein demand from students is collected on regular basis and the content delivered accordingly.

15. The members felt that we should also engage manufacturers/suppliers of set top boxes to provide cost effective DTH reception system and some STB's may carry some HDD for recording the content. The L-band receiver system may be inbuilt into the Aakash Tablet being developed by MHRD otherwise the L-band can also be attached to Aakash in the form of USB Dongle; however the current USB has data rate upto 3 Mbps only. The committee recommends that the MHRD may approach the R&D Unit of

Doordarshan and request them to design low cost set top box and a Wi-Fi unit with relatively higher power and for use by community of students. The members wanted to know, whether the MHRD is going to provide any subsidy to students for acquiring DTH STB for receiving the educational programmes?

16. It was also felt that we may explore the possibility of using some of the allocated satellite spectrum for content delivery through VSAT /DVB-RCS having 624 kbps forward path and 384 kbps as return path, through this system students will be able to watch recorded/live educational programmes and at the same time establish live video conferencing with the teacher, using the same equipments. For this experts from DECU/ISRO may be invited to share their design and experiences particularly in designing the Network, selecting LNBC and dish antenna for better signal stability versus cost ratio.

17. The members felt that the MHRD educational DTH system may be appropriately named by the Hon'ble HRM, however in the first instance **"Aakash Ganga"** name was suggested by the committee.

The meeting ended with vote of thanks to the Chair.

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