GOVERNMENT OF INDIA
MINISTRY OF COMMUNICATIONS
DEPARTMENT OF TELECOMMUNICATIONS

LOK SABHA
UNSTARRED QUESTION NO.2338
TO BE ANSWERED ON 30TH NOVEMBER, 2016

R&D IN TELECOM

2338. SHRI RAM MOHAN NAIDU KINJARAPU:

Will the Minister of COMMUNICATIONS be pleased to state:

(a) the steps taken by the Government to promote Research and Development (R&D) in the area of telecom and relevant technology;

(b) whether the Government encourages research and innovation in the area of telecom and relevant technologies through educational institutions and other research institutes;

(c) if so, the details thereof; and

(d) the funds allocated and the achievement made in this regard so far?

ANSWER

THE MINISTER OF STATE (IC) OF THE MINISTRY OF COMMUNICATIONS & MINISTER OF STATE IN THE MINISTRY OF RAILWAYS
(SHRI MANOJ SINHA)

(a) to (c) Yes, Madam. The Government encourages research and innovation in the area of telecom and relevant technologies through educational institutions and other research institutes. The steps taken by the Government to promote Research and Development (R&D) in the area of telecom and relevant technology are as under:

i. Centre for Development of Telematics (C-DOT): C-DOT is a premier telecom technology research and development centre of Government of India under Department of Telecom which undertakes research and development programs in the cutting-edge technologies with an objective to make the country self-reliant in telecom technologies.

ii. Telecom Centres of Excellence (TCOE): Telecom Centres of Excellence, set up in Public Private Partnership (PPP) mode, are an example of the Government, the Academia and the Industry working together for the sustained growth and progress of the country in the Telecom sector. TCOEs are created for promoting development of new technologies, to generate IPRs, incubate innovations and promote entrepreneurship to position India as a global leader in telecom innovation and making India a hub of telecom equipment manufacturing. TOCEs are functional at following IITs: Delhi, Chennai, Kanpur, Kharagpur, Mumbai and Roorkee and one each at Indian Institute of Science, Bangalore and IIM, Ahmedabad.

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iii. Telecommunications Standards Development Society, India (TSDSI)- TSDSI is not for profit legal entity in Public-Private Partnership (PPP) mode with participation from all stake holders including Government, service providers, equipment vendors, equipment manufacturers, academic institutes and research labs. TSDSI is an SDO (Standards Developing Organization) that aims at developing and promoting India-specific requirements, standardizing solutions for meeting these requirements and contributing these to international standards, contributing to global standardization in the field of telecommunications, maintaining the technical standards and other deliverables of the organization, safe-guarding the related IPR, etc.

iv. Science and Engineering Research Board (SERB): Department of Science and Technology via its statutory body SERB, supports R & D in the area of telecom and relevant technology.

v. Centre for Development of Advanced Computing (C-DAC): C-DAC is the premier R&D organization of the Ministry of Electronics and Information Technology (MeitY) for carrying out R&D in IT, Electronics and associated areas. C-DAC has emerged as a premier R&D organization in IT&E (Information Technologies and Electronics) in the country working on strengthening national technological capabilities in the context of global developments in the field and responding to change in the market need in selected foundation areas.

(d) The achievement made by some premier institutions in the area of telecom and relevant technologies and details of the fund allocation to them are as under:

i. C-DOT: In the FY 2015-16, the Government provided Rs. 300.00 crores as Gross Budgetary Support (GBS) for C-DOT R&D Program. Following are some of the cutting edge technology where C-DOT has contributed:

C-DOT has total 59 nos. of transfer technology agreements signed with 18 nos. of manufacturing units for its various technologies to realize government's vision of digital India and Make in India program. Further, International Telecommunication Union (ITU) conferred 'Recognition of Excellence Award" to C-DOT GyanSetu, software platform for rural application with advance features like gesture /speech recognition, Near Field Communication (NFC), etc. GyanSetu technology has been transferred to the manufacturers.

ii. TCOE: Fund released by the Government to TCOE's project is Rs. 5.62 Crore since its inception. During the period of project, TCOEs have approved 14 IPRs, 20 patents. Under I-MADE program, 6 institute's mobile apps have been created by students. Till date TCOEs have produced 54 technologies out of which 4 have been commercialized.

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iii. The details of R&D projects supported by MeitY in the area of telecom and relevant technologies to Academic institutions/ R&D Institutions/ Societies are as under:

S.No.	Project Name	Outlay	Achievement
1.	Next Generation (4G Advanced) Wireless Technology Research by Centre of Excellence in Wireless Technology (CEWiT), Chennai	Rs. 1112.00 lakhs (MeitY contribution- Rs. 612.00 lakhs & Contribution of other sources- 500.00 lakhs)	a) The 4G advanced simulation tools have been developed. b) Broadband Wireless Simulator (BWSIM) licensed to Altiostar, Tejas Network and Academic Institutions
2.	Software Defined Radio (SDR) by CDAC Thiruvananthpuram	Rs. 492.00 lakhs	a) Developed prototype of SDR b) Know-how has been transferred to Bharat Electronics Ltd. (BEL), Bangalore
3.	TETRA (Terrestrial Trunked Radio) Wi-Max base station by CDAC Thiruvananthpuram	Rs. 619.00 lakhs	a) TETRA System developed. Technology transferred to E2E & Tata Power Bangalore. b) Total 9 orders executed one by TATA Power and 8 by CDAC.

iv. SERB: During last three financial years (2013-14, 2014-15 and 2015-16), 25 projects costing Rs.8.98 crore have been funded in various research areas including wireless communication, wireless networks, wireless sensors, design and development of antenna and other devices for communication etc. Some of the achievements of the funded projects are:

a) Design and development of High Electron Mobility Transistor (HEMT) for Radio frequency (RF) and microwave circuits
b) Development of cross layer protocol to improve quality of user experience, Development of signal processing algorithm for mobile terminals in heterogeneous cellular networks.
c) Design of high frequency power amplifier and to investigate on chip power combining techniques for higher output power
d) Design, fabrication and measurement of multi permittivity dielectric resonator antenna for wide band application etc.

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