

GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF SCIENCE AND TECHNOLOGY
RAJYA SABHA
UNSTARRED QUESTION NO. 1893
ANSWERED ON 22.12.2022

PARTICIPATION OF PEOPLE IN R&D

1893. # SHRI VIJAY PAL SINGH TOMAR:

SHRI HARNATH SINGH YADAV:

Will the Minister of *SCIENCE AND TECHNOLOGY* be pleased to state:

- (a) whether Government has proposed new measures and schemes to promote participation of people in Research and Development (R&D);
- (b) if so, the details thereof;
- (c) whether it is a fact that the R&D sector in the country is about to witness more growth in the coming years;
- (d) if so, the details including Gross Expenditure on R&D (GERD) for the last three years; and
- (e) the details of R&D investments, international research collaborations and technology development during the said period?

ANSWER

MINISTER OF STATE (INDEPENDENT CHARGE) FOR THE
MINISTRY OF SCIENCE AND TECHNOLOGY & EARTH SCIENCES
(DR. JITENDRA SINGH)

(a)&(b): Yes Sir. The government has launched a number of new measures and schemes for promoting participation of people in research and development. The schemes launched to attract young researchers that include National Post-Doctoral Fellowships, Overseas Doctoral Fellowships; Overseas Post-Doctoral Fellowships and INSPIRE fellowships through Department of Science and Technology (DST); Department of Bio-Technology-The World Academy of Sciences (DBT-TWAS) International fellowships; and CSIR-UGC Junior Research Fellowships. Several schemes/programmes have been implemented for Institutional capacity building and promotion of basic and applied science research like Fund for Improvement of Science and Technology Infrastructure (FIST); Promotion of University Research and Scientific Excellence (PURSE); mission mode programs like Nano Mission, National Mission on Interdisciplinary Cyber Physical System (ICPS), Clean Energy & Water Technology initiatives; promotion of innovation and start-ups grant for young scientists, Visiting Advanced Joint Research (VAJRA), SERB-Startup Research Grant; SERB-Core Research Grant (CRG), SERB-SUPRA (Scientific and Useful Profound Research Advancement), and Mathematical Research Impact Centric Support (MATRICS). A new scheme, State University Research Excellence (SERB-SURE) has been introduced with the target to support active researchers belonging to state universities and colleges across the country to undertake research and development.

(c)&(d) Yes Sir. The R&D sector in the country is about to witness more growth in the coming years which is visible through India's research performance in science and technology such as large amount of scientific knowledge in terms of research publications, development of technologies and innovations contributing to overall development. As per NSF Science & Engineering Indicators 2022 report, India's position globally in scientific publications, has improved from 7th position in 2010 to 3rd position in 2020. As per the Global Innovation Index (GII) 2022 brought out by World Intellectual Property Organisation (WIPO), India's GII ranking has also improved significantly from 81st in 2014 to 40th position in 2022. As per the latest available R&D statistics, the Gross Expenditure on Research and Development (GERD) during the years 2015-16 to 2017-18 was Rs. 95452.44 crore, Rs. 103099.26 crore and Rs. 113825.03 crore respectively. It is estimated to be of the order of Rs. 123847.71 crore for the year 2018-19. In absolute terms India's GERD has been continuously increasing over the years and has been increased by three times in last 10 years.

(e) The details of R&D investments, international research collaborations and technology development under Ministry of Science and Technology is as under:

- Details of R&D investment in terms of funds utilized under Ministry of Science and Technology during last three years may be seen as per below table:

(Rs. crore)

Departments	Funds Utilized (Actual Exp)		
	2019-20	2020-21	2021-22
Department of Science and Technology	5407.03	4913.33	5146.31
Department of Scientific & Industrial Research / Council of Scientific & Industrial Research	4871.63	4244.88	5141.06
Department of Bio-Technology	2358.77	2259.72	2851.14
Total	12637.43	11417.93	13138.51

Source: Demands for Grants of Central Government, Expenditure Budget, GoI (various Years)

- International research collaborations

Ministry of Science and Technology is implementing International Science & Technology cooperation at three levels, viz i) bilateral cooperation with developed and developing countries, ii) regional cooperation such as with ASEAN, BIMSTEC etc. and iii) multilateral cooperation through EU, TWAS, IBSA, BRICS, UNESCO, SCO, QUAD etc. Presently India has bilateral S&T cooperation agreements with more than 83 countries in force with active cooperation with 44 countries. During the recent years the cooperation has strengthened significantly with Australia, Canada, EU, France, Germany, Israel, Japan, Russia, UK and USA. Cooperation with ASEAN has also been strengthened through ASEAN-India S & T cooperation. The soft prowess of S&T has been leveraged to engage with African countries and select neighboring countries. India has also international collaborations with potential countries in the area of clean energy, water, Carbon Capture Utilization and Storage/Sequestration (CCUS), Smart Grid, Industrial Technologies, Health Sciences, etc.

- Technology Development

The Ministry of Science and Technology has been promoting technology development in the area of energy efficiency, water technology, nano-technology, cyber-physical, biotechnology, industrial technologies, etc.
