

**GOVERNMENT OF INDIA
MINISTRY OF EDUCATION
DEPARTMENT OF HIGHER EDUCATION**

**RAJYA SABHA
UNSTARRED QUESTION NO. 2274
ANSWERED ON-09/08/2023**

Expenditure on Research and Development

2274 Shri A. A. Rahim:

Will the Minister of *Education* be pleased to state:

- (a) how much Government spends on Research and Development and what is the percentage of GDP to it; and
- (b) how much is spent on Research and Development by G20 countries, percentage in GDP, provide comparative analysis?

ANSWER

MINISTER OF STATE IN THE MINISTRY OF EDUCATION

(DR. SUBHAS SARKAR)

(a): Government has taken numerous efforts to enhance the Research & Development (R&D) expenditure and create adequate opportunities for the researchers and also taken various steps to increase opportunities for research students pursuing Ph.D. and Post-Doctoral research. The number of scientific publications has been increased from 24,110 in 1999 to 2,78,496 in year 2022. As per the National Science Foundation (NSF)'s Science & Engineering Indicators 2022 report of the United States, India's position globally in scientific publications, has improved from 7th position in 2010 to 3rd position in 2020. India also occupies 3rd rank in terms of the number of PhDs awarded in Science and Engineering (S&E) as per S&E Indicators, 2022, NSF. The total number of publications has also increased from 661,912 from (2012-2016) to 1,012,624 in (2017-2021). Scholarly output has been increased from 60,555 papers in 2010 to 1,49,213 papers in 2020. India has also increased its international research collaboration, especially in themes related to SDG 07 (Affordable and clean energy) from 16 % (2018) to 26 % (2022) of the publications, which had international co-authorship.

Further, National Education Policy (NEP), 2020 also envisaged establishment of National Research Foundation (NRF) to seed, grow and promote Research and Development (R&D) and foster a culture of research and innovation throughout India's universities, colleges, research institutions, and R&D laboratories. Accordingly, the Union Cabinet has approved the introduction of the National Research Foundation (NRF) Bill, 2023 in the Parliament to establish NRF, an apex body to provide high-level strategic

direction of scientific research in the country at a total estimated cost of Rs. 50,000 crore during five years (2023-28).

As per the latest available R&D statistics, the national spending on Research and Development (R&D) measured in terms of Gross Expenditure on Research and Development (GERD) has increased over the years and more than doubled from Rs. 60,196.75 crore in 2010-11 to Rs.127,380.96 crore in 2020-21, which is 0.64% of its GDP.

(b): Spending on research and development (GERD) during 2020* by G20 countries is as under:

G20 Countries	R&D expenditure (billion current PPP \$)	R&D exp. as % of GDP
Argentina	4.7	0.46
Australia	24.0	1.8
Brazil	41.1	1.3
Canada	32.6	1.8
China	583.8	2.4
France	74.6	2.3
Germany	144.4	3.1
India	57.9	0.64
Indonesia**	-	0.28
Italy	37.7	1.5
Japan	174.1	3.3
Korea	112.9	4.8
Mexico	7.2	0.3
Russian Federation	48.0	1.1
Saudi Arabia**	-	0.52
South Africa	5.1	0.6
Turkiye	25.0	1.09
United Kingdom	56.0	1.7
USA	720.9	3.5
European Union	441.3	2.19

*Reference Year 2020- All countries except: 2019- Australia, Argentina, South Africa, UK; 2014- Brazil

**For Indonesia and Saudi Arabia, R&D expenditure (billion current PPP \$) not available.

Source: Main Science and Technology Indicators (MSTI), OCED, September 2022, UNESCO website, India-R&D Statistics, 2022-23 and Elsevier Report on 4th G20 education working group meeting.
