GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF SCIENCE AND TECHNOLOGY
LOK SABHA
UNSTARRED QUESTION NO. 738
TO BE ANSWERED ON 05/02/2021

SPENDING ON RESEARCH AND DEVELOPMENT

738. SHRI M. BADRUDDIN AJMAL:

Will the Minister of SCIENCE AND TECHNOLOGY विज्ञान और प्रौद्योगिकी मंत्री be pleased to state:

(a) whether the funds allocated and spent on scientific Research and Development (R&D) in the Country is less as compared to other developing countries;

(b) if so, the details thereof alongwith comparative data of such spending during last three years;

(c) whether Government proposes to increase the funds for investment in R&D;

(d) if so, the details thereof;

(e) whether it is a fact that the number of Scientists per millon people in the Country is less compared to other Asian Countries;

(f) if so, the details thereof along with steps being taken to encourage scientific research activities; and

(g) the number of patent for new innovation granted to Indian Scientists during each of the last three years?

ANSWER

MINISTER OF HEALTH AND FAMILY WELFARE; MINISTER OF SCIENCE AND TECHNOLOGY; AND MINISTER OF EARTH SCIENCES
(DR. HARSH VARDHAN)
स्वास्थ्य और परिवार कल्याण मंत्री, विज्ञान और प्रौद्योगिकी मंत्री और पृथ्वी विज्ञान मंत्री
(डॉ .हर्ष वर्धन)

(a) & (b) As per latest available statistics, India's spending on Research and Development (R&D) is consistently increasing and has nearly tripled from Rs. 39,437.77 crore in 2007-08 to Rs. 1,13,825.03 crore in 2017-18. It is estimated to be 123847.71 crore during 2018-19. India is ranked among the top 10 countries of the world in R&D investment in terms of US$ Purchasing Power Parity (PPP). A comparative table pertaining to R&D expenditure by select countries during last three years is at **Annexure I.**

(c) & (d) Government has consistently increased allocation of funds for R&D investment in Science and Technology (S&T) in the country. The progressive expenditure for six Major Scientific Agencies for the last three years is as under:

(in Rs. Crore)

Department	2019-20	2020-21#	2021-22*
Department of Science & Technology (DST)	5453.03	5012.10	6071.59
Department of Scientific & Industrial Research/ Council of Scientific Research (DSIR/CSIR)	4872.51	4251.86	5224.27
Department of Bio-Technology (DBT)	2358.77	2300.00	3502.37
Department of Space (DOS)	13033.29	9500.00	13949.09
Department of Atomic Energy (R&D Sector)	6483.57	6098.61	7183.44
Ministry of Earth Sciences (MoES)	1725.60	1304.38	1901.69
Total	33926.77	28466.95	37832.45

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

Note: # - Revised Estimates; *- Budget Estimate

(e) & (f): As per the latest available S&T Statistics, the number of research scientists per million people in India is lower than countries such as Korea, Japan, Singapore, Malaysia and China but higher than Indonesia, Philippines, Sri Lanka etc. in Asia. Details of Asian countries in terms of number of research scientists per million people is at **Annexure II**.

The Government has taken various steps to encourage scientific research activities in the country such as successive increase in plan allocations for scientific departments, setting up of new institutions for science, education and research, creation of Centres of Excellence and facilities in emerging and frontline areas of S&T in academic and national institutions, operation of schemes such as Fund for Improvement of Science and Technology Infrastructure (FIST); Sophisticated Analytical Instrument Facilities (SAIF), Visiting Advanced Joint Research (VAJRA) Faculty Scheme for distinguished overseas scientists and academicians including Non-Resident Indians (NRIs) and Overseas Citizens of India (OCIs), Overseas Visiting Doctoral Fellowship (OVDF), Prime Minister's research fellowships, Teacher Associate-ship for Research Excellence (TARE) and Distinguished Investigator Award (DIA), Department of Bio-Technology-The World Academy of Sciences (DBT-TWAS) International fellowships and providing substantial grant to potential scientists through extramural research funding etc.

(g) The number of patents granted to Indian scientists for new innovations at Indian Patent Office (IPO) during the period from 2016-2017 to 2018-2019 is as under:

	2016-2017	2017-2018	2018-2019
Patents granted	1315	1937	2511

Source: Annual Report(s) of the Controller General of Patents, Design and Trade Marks

ANNEXURE I

R&D Expenditure by top 15 countries (in billion Current PPP$)

Sl No.	Country	2018	2017	2016
1	USA	581.6	549	516.6
2	China	554.3	499.1	453.1
3	Japan	176.8	170.9	164.8
4	Germany	137.9	132	119.9
5	Republic of Korea	99.6	91	80.5
6	**India**	**68.2**	**63.9**	**59**
7	France	66.8	65.3	62.5
8	UK	52.1	50.4	47.4
9	Brazil	NA	41.1	40
10	Russian Federation	40.1	41.9	38.7
11	Italy	35.2	34.2	32.5
12	Canada	27.9	28.5	28.1
13	Spain	23.1	21.9	20.2
14	Australia	NA	22.9	NA
15	Israel	17.5	16.3	14.4

Source: UNESCO, UIS Stat accessed on 02 Feb 2021

ANNEXURE II

Scientists/Researchers per Million People in Asian countries

Sl No.	Country	Researcher per Million Population	Reference Year
1	Bahrain	369	2014
2	Cambodia	30	2015
3	China	1307	2018
4	**India**	**253**	**2018**
5	Indonesia	216	2018
6	Iran	1475	2017
7	Iraq	111	2018
8	Japan	5331	2018
9	Jordan	596	2017
10	Kuwait	514	2018
11	Malaysia	2397	2016
12	Oman	281	2018
13	Pakistan	336	2017
14	Philippines	106	2015
15	Qatar	577	2018
16	Rep. of Korea	7980	2018
17	Singapore	6803	2017
18	Sri Lanka	106	2015
19	Thailand	1350	2017
20	UAE	2379	2018
21	Uzbekistan	476	2018
22	Viet Nam	708	2017

Source: UNESCO, UIS Stat accessed on 02 Feb 2021.

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