GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF SCIENCE AND TECHNOLOGY
LOK SABHA
STARRED QUESTION NO. 162
TO BE ANSWERED ON 12.02.2021

GLOBAL POSITION IN INNOVATIONS AND PUBLICATIONS

***162 SHRI SHRIRANG APPA BARNE:**

SHRI BIDYUT BARAN MAHATO:

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

(a) whether it is a fact that India's global position has improved both in innovations and publications, if so, the details in this regard;

(b) whether the combination of scientific excellence and innovation has been made possible by encouraging investments in scientific activities, infrastructure as well as manpower development and if so, the details thereof;

(c) the details of funds allocated, released and utilised for encouraging innovations, scientific activities, infrastructure, etc. during each of the last three years;

(d) the details of the patents filed during the said period, State/UT-wise; and

(e) the extent to which the start-up India mission has given a boost to convert these patentable innovations ideas into start-ups during the period, State/UT-wise?

ANSWER

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

(a) to (e) : A statement is laid on the Table of the House.

STATEMENT AS REFERRED IN REPLY TO PARTS (a) TO (e) OF LOK SABHA STARRED QUESTION NO. 162 FOR 12.02.2021 REGARDING "GLOBAL POSITION IN INNOVATIONS AND PUBLICATIONS"

(a) Yes Sir. India's global position both in innovations and publications has seen a rising trend over the years. As per Global Innovation Index (GII) 2020, India's GII ranking has improved significantly to 48 in 2020 from 81 in 2015. India makes it to top 50 in GII ranking for the first time in 2020. In terms of scientific publications, India ranked 3rd in 2018 as compared to 6th in 2014, as per the National Science foundation (NSF) USA 2020.

(b) The Ministry of Science and technology is implementing various schemes and programmes to promote Science, Technology and Innovation (STI) ecosystem and to reach out to various cross sections of the society in the country by providing support to Research and Development, Human Capacity Building, Innovation, Technology, Development and Deployment for Socio Economic Development. This has resulted in a creation of a vast network S&T Institutions across the country with a combination of scientific excellence and innovation. Some of the noteworthy schemes and programmes of the Ministry are:

i. **Fund for Improvement of S&T Infrastructure (FIST)**
ii. **Sophisticated Analytical Instrument Facilities (SAIF)**
iii. **Intensification of Research in High Priority Areas (IRHPA)**
iv. **Innovation in Science Pursuit for Inspired Research (INSPIRE)**
v. **Women Scientist Scheme (WOS) and Biotechnology Career Advancement & Reorientation Programme (BioCARE)**
vi. **Technology Business Incubators (TBI)**
vii. **National Initiative for Development and Harnessing Innovations (NIDHI)**
viii. **Technology Mission Initiative**
ix. **State Science and Technology Programme (SSTP)**
x. **Science and Society Programme (SSP)**
xi. **Scheduled Caste Sub Plan (SCSP*)* and Tribal Sub Plan (TSP)**
xii. **Visiting Advanced Joint Research (VAJRA) Faculty Scheme for distinguished overseas scientists and academicians including Non-Resident Indians (NRIs) and Overseas Citizens of India (OCIs),**
xiii. **Overseas Visiting Doctoral Fellowship (OVDF), Prime Minister's research fellowships,**
xiv. **Teacher Associate-ship for Research Excellence (TARE) and Distinguished Investigator Award (DIA),**
xv. **Department of Bio-Technology-The World Academy of Sciences (DBT-TWAS) International fellowships**
xvi. **Mission Programme on Characterization of Genetic Resources**
xvii. **National Supercomputing Mission (NSM)**
xviii. **National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS)**
xix. **Due to implementation of these schemes and programmes:**

xx. **India ranks 3rd in number of PhD degrees awarded (24,474) in Science and Engineering.**
xxi. **India ranks 3rd in terms of number of papers (1,35,788) published in Science and Engineering (2018) as per National Science Foundation (NSF) database.**

xxii. **The Gross expenditure on R&D (GERD) in the country has been consistently increasing over the years 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 Rs. 1,23,847.70 crore in 2018-19.**

xxiii. **India occupies 6th position in terms of GERD (in billion PPP$) far ahead of France, UK, Brazil, Russia, Italy, Canada, Spain, Australia, etc as per UNESCO Statistics**

xxiv. **India ranks 8th in patent filed by resident scientists/innovators from respective country as per WIPO Statistics.**

xxv. **Gender participation in R&D has increased to 16.6% (2018) from 13.9 % (2016).**

xxvi. **Number of researchers per million has increased to 255 in 2017 as compared to 110 in 2000.**

xxvii. **Numerous state-of-the-art research facilities have been created across country in more than 600 academic Institutes and PG College benefitting more than 1 lakh researchers.**

xxviii. **More than 14 lakh school students were engaged under INSPIRE program.**

xxix. **More than 45,000 scholarship /fellowship were given under INSPIRE, CSIR-NET and HRD Schemes of DBT.**

xxx. **More than 2,500 young scientists were supported under National Postdoctoral Fellowships, INSPIRE Faculty Programme and Scheme for Young Scientists and Technologists (SYST).**

xxxi. **More than 50 accomplished overseas scientists have been identified for collaborative research visits under Visiting Advanced Joint Research (VAJRA) programme.**

xxxii. **4 STI Hubs for tribal population and & 7 STI hubs for SC Population have been established for socio-economic development of disadvantaged section of the society.**

xxxiii. **More than 150 Technology Business Incubators (TBI), 50 Bio-incubators, nearly 3800 entrepreneurs were supported under Innovation and Entrepreneurship development programmes of DST & DBT and it has generated more than 60,000 jobs in last five years.**

In addition, the Government has announcement in the budget for FY 2021-22 an allocation of Rs 50,000 crore over 5 years for the National Research Foundation (NRF), autonomous body envisaged to support researchers working across several streams of S&T especially in Universities. Besides this Rs 4000 crore has also been allocated for Deep Ocean Mission over five years.

(c) The details of funds allocated and utilized under Ministry of Science and Technology for encouraging innovations, scientific activities, infrastructure, etc. during 2017-18 to 2020-21 is at Annexure I.

(d) The details of patents filed by the Indian applicants during 2017-18 to 2019-20, State/UT-wise is at Annexure II.

(e) The Startup India Mission, since its launch in 2016, has provided boost to innovators/startups in converting their ideas into patentable innovations. A total of 3683 patent applications were filed by the Indian startups during 2016-17 to 2019-20. The State/UT-wise details is at Annexure III.

******

Annexure I

Funds allocated and utilized under Ministry of Science and Technology

(Rs. in Crore)

Department	2017-18		2018-19		2019-20		2020-21
	Allocated	Utilized	Allocated	Utilized	Allocated	Utilized	Allocated
DST	4726.71	4595.73	5114.79	4912.54	5480.93	5453.03	5012.10
DSIR/ CSIR	4629.70	4618.83	4572.84	4548.78	4883.24	4872.51	4251.86
DBT	2260.11	2331.42	2411.53	2379.10	2381.10	2358.77	2300.00
Total	11616.52	11545.98	12099.16	11840.42	12745.27	12684.31	11563.96

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

Note:1. DST- Department of Science and Technology
2. DSIR/CSIR- Department of scientific & Industrial Research / Council of Scientific Research.
3. DBT- Department of Bio-Technology
4. Allocated funds – Revised Estimates (RE); Utilized funds – Actual Expenditure.

Annexure II

Patents filed by the Indian applicants, State/UT-wise during 2017-18 to 2019-20

(Number)

State/Union Territory	2017-18	2018-19	2019-20
Andaman & Nicobar	3	2	4
Andhra Pradesh	276	323	484
Arunachal Pradesh	5	5	9
Assam	71	109	102
Bihar	63	49	50
Chandigarh	33	76	171
Chhattisgarh	50	42	77
Dadra and Nagar Haveli	0	2	1
Daman & Diu	4	2	5
Delhi	1434	1322	1440
Goa	22	44	37
Gujarat	712	868	885
Haryana	449	520	672
Himachal Pradesh	110	193	141
Jammu & Kashmir	34	40	45
Jharkhand	168	161	185
Karnataka	2022	2185	2230
Kerala	312	277	361
Madhya Pradesh	191	195	285
Maharashtra	3820	4257	4741
Manipur	1	7	12
Meghalaya	4	6	16
Mizoram	0	25	11
Nagaland	3	5	3
Orissa	166	164	301
Pondicherry	24	55	59
Punjab	247	661	1435
Rajasthan	190	305	273
Sikkim	4	4	7
Tamil Nadu	2742	2391	3546
Telangana	999	1045	1239
Tripura	4	9	20
Uttar Pradesh	721	972	1176
Uttaranchal	128	155	209
West Bengal	538	529	612
TOTAL	**15550**	**17005**	**20844**

Source: Indian Patent Office, Controller General of Patents, Designs and Trade Marks. Department of Promotion of Industry and Internal Trade (DPIIT), GoI.

Annexure III

Patent applications filed by the Indian Startups, State/UT-wise during 2016-17 to 2019-20

(Number)

Applicant_ State	FY_2016-17	FY_2017-18	FY_2018-19	FY_2019-20
Andaman & Nicobar	0	0	0	0
Andhra Pradesh	5	10	13	15
Assam	1	3	2	2
Bihar	1	0	0	5
Chandigarh	0	0	21	89
Chattisgarh	0	2	3	6
Daman & Diu	0	0	1	2
Delhi	23	83	70	107
Goa	1	0	8	2
Gujarat	4	37	29	53
Haryana	3	27	23	54
Himachal Pradesh	0	0	0	3
Jammu & Kashmir	0	0	4	4
Jharkhand	1	1	2	1
Karnataka	44	217	248	317
Kerala	3	12	19	26
Madhya Pradesh	1	5	7	13
Maharashtra	33	138	217	774
Orissa	3	3	6	13
Pondicherry	0	1	4	2
Punjab	6	2	7	22
Rajasthan	6	6	9	11
Tamil Nadu	38	68	86	138
Telangana	22	46	83	95
Uttar Pradesh	6	26	67	52
Uttarakhand	1	1	0	4
West Bengal	5	16	19	14
Total	**207**	**704**	**948**	**1824**

Source: Indian Patent Office, Controller General of Patents, Designs and Trade Marks.
Department of Promotion of Industry and Internal Trade (DPIIT), GoI.