

GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF SCIENCE & TECHNOLOGY
RAJYA SABHA
UNSTARRED QUESTION NO. 843
ANSWERED ON 27/07/2023

SCHEME FOR ENCOURAGING YOUNG SCIENTISTS

843. SHRI S. SELVAGANABATHY:

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

- (a) whether Government is conducting any programme to encourage young scientists to engage themselves with scientific activities/undertake research work;
- (b) if so, the main characteristics of young scientist research programme together with the details of funds allotted for this purpose during each of the last three years and the current year and if not, the future plan of Government in this regard;
- (c) the age limit for availing of the benefits from this programme and the details of achievements made under this programme so far; and
- (d) whether Government is offering any special plan or scholarship under this programme, if so, the details thereof and if not, the reasons therefor?

ANSWER

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

(a): Yes Sir. The Government of India has several programmes and initiatives to encourage young scientists towards scientific activities and undertake research work.

(b) to (d): The Department of Science and Technology (DST) under Ministry of Science and Technology (MoST) through its “Innovation in Science Pursuit for Inspired Research (INSPIRE)” scheme is encouraging meritorious youth to study basic and natural sciences at the college and university level and to pursue research careers in both basic and applied science areas including engineering, medicine, agriculture and veterinary sciences. The ultimate aim is to expand the R&D base of the country. INSPIRE has several components that caters to the pipeline of young students and scientists however, the INSPIRE Faculty Fellowship provides opportunities to 100 post- doctoral researchers in the age group of 27-32 years for 5 years in both basic and applied sciences area including engineering, agriculture, veterinary science and medicine every year. Aspirants having Ph.D. with consistent academic track record are considered on competitive basis. So far 249 faculty fellows have been awarded the INSPIRE Faculty Fellowship for pursuing post-doctoral research.

DST also provides opportunities to young scientists and technologists under its Scheme for Young Scientists and Technologists (SYST) to take up Science & Technology (S&T) based projects for affordable and sustainable innovations towards societal challenges with lab-to-land approach. The young

researchers are encouraged to align themselves with academic institutes, Research and Development (R&D) laboratories or S&T driven Voluntary organizations to address local challenges using new and emerging areas as indicated below: Artificial Intelligence, Robotics, IoT for Societal Application in Agriculture, Rural Development, Disaster Management and Health. Apart from these Health & Nutritional Supplements, Value-added Food Products for Humans and Animals, Plant-Based Health Products, Scientific Validation and Upscaling of Traditional Knowledge Systems, Cost-Effective Health and Hygiene Aids, Effective Indigenous Methods of Disease Identification and Monitoring, Natural Resource-Based Livelihood Systems, Agricultural Tools and Agriculture Produce, Income Augmenting Agricultural Practices. Environment Sustainability & Renewable Energy and Additive Manufacturing also focused upon. In the last three years, 61 young researchers have been supported, and various technologies/technology packages for the benefit of society have been developed. The age limit for availing the benefit of the program is 35 years for male candidates and 40 years in the case of female candidates as on the last date of application.

Science and Engineering Research Board (SERB) a statutory body under DST promotes basic research in Science and Engineering and is providing financial assistance to scientists engaged in Research & Development (R&D) in academic institutions, R&D laboratories, and other agencies. SERB is implementing Start-up Research Grant (SRG), National Postdoctoral Fellowship (NPDF), Ramanujan Fellowship, SERB Research Scientist (SRS), Teachers Associateship for Research Excellence (TARE) and International Travel Support (ITS) to encourage young scientists to engage themselves with scientific activities/undertake research work. Details of the above mentioned schemes of SERB are given below in tabular form:

<p>Start-up Research Grant (SRG)</p>	<p>The Start-up Research Grant (SRG) scheme aims to assist researchers to initiate their research career in a new institution. It is a two-year grant meant to enable researchers working in frontier areas of science and engineering to establish themselves and move on to the mainstream core research grant (CRG). Criteria for selection would be based on the track record of the applicant and the proposed research plan and the age limit is 42 years. Under SRG 1426 young researchers have been supported in last 3 years including current year.</p>
<p>National Postdoctoral Fellowship (NPDF)</p>	<p>The SERB-National Post-Doctoral Fellowship (N-PDF) is aimed to identify motivated young researchers and provide them support for doing research in frontier areas of science and engineering. The fellows will work under a mentor, and it is anticipated that this training will provide them a platform to develop as an independent researcher. The age limit for NPDF is 35 years. Under NPDF 706 post-doctoral have been supported in last 3 years including current year.</p>
<p>Ramanujan Fellowship</p>	<p>Ramanujan Fellowship is meant for brilliant Indian scientists and engineers from outside India to take up scientific research positions in India, those Indian scientists/engineers who want to return to India from abroad. The Ramanujan Fellows could work in any of the scientific institutions and universities in the country and they would be eligible for receiving regular research grants through the extramural funding schemes of various S&T agencies of the Government of India. The age limit is 40 years. Under this program 143 scientists have been supported in last 3 years including current year.</p>
<p>SERB Research Scientist (SRS)</p>	<p>The objective of this scheme is to identify and provide a platform for sustainment of the research career of INSPIRE Faculty and Ramanujan Fellows for an additional period of two years after completion of the regular tenure of five years in the respective schemes. The age limit for SRS is 40 years. Under SRS 37 young researchers have been supported in last 3 years including current year.</p>

<p>Teachers Associateship for Research Excellence (TARE)</p>	<p>This scheme aims to facilitate mobility of faculty members working in a regular capacity in State Universities/Colleges and in private Academic Institutions to carryout research work in an established public funded central institution such as IITs, IISc, IISERS, National Institutions (NITs, CSIR, ICAR, ICMR labs and other central institutions) and Central Universities, located preferably nearer to the institution where the faculty member is working. Research work will be carried out in such a manner to ensure that PI continue to work in the host institute as well as his / her parent institute on mutually agreed terms between the PI and Mentor. The age limit is 45 years. Under TARE 383 researchers have been supported in last 3 years including current year.</p>
<p>International Travel Support (ITS)</p>	<p>International Travel Support (ITS) Scheme provides financial assistance to Indian researchers for presenting a research paper in an international scientific event (conference, seminar, workshop etc.) held abroad. Under ITS 984 young researchers have been supported in last 3 years including current year.</p>

Similarly, Department of Biotechnology (DBT) under MoST is also supporting young scientists working in areas of Biotechnology. The initiatives to encourage young scientists in DBT are as follows:

i) DBT-Research Associateship Program (DBT-RA): DBT Research Associateship programme provides fellowship for post-doctoral research in frontier areas of Biotechnology and life sciences at premier institutions in India. There is a provision for 100 fellowships per year. Currently, a total of 103 Research Associates are working under DBT-RA programme for post-doctoral training. Total 106 Research Associates are working under DBT-RA programme for post-doctoral training in 2021-2022 session. A total of 1030 fellows supported under DBT-RA Program in last 5 years. The DBT-RA fellows have published 437 research articles in peer reviewed journals. Age Limit: The upper age limit is 40 years for male candidates and 45 years in the case of female candidates as on the last date of application.

ii) Ramalingaswami Re-entry Fellowship Program: Ramalingaswami Re-entry Fellowship aims to attract high quality Indian brains working abroad to pursue their research interests in life sciences, biotechnology and other related areas in India. DBT is providing 75 fellowships per year and the upper age limit for application is 45 years as on closing date of the application. A total of 254 fellows supported in last 5 years and 244 fellows are working under Ramalingaswami Re-entry Fellowship Program. A total of 380 Fellows have secured the jobs under this program since inception in 2007.

iii) Har Gobind Khorana- Innovative Young Biotechnologist Fellowship Program: This fellowship was instituted by the Department in 2005. This is a career-oriented fellowship to identify and nurture outstanding young scientists/faculty (regular) with innovative ideas who are desirous of pursuing research in the frontier areas of Biotechnology. Up to 15 fellowships are given per year. A total of 45 fellows supported under HGK-IYBF Program in last 5 years. IYBF fellows have published 126 research articles in peer reviewed journals. Age limit: Age limit: Not more than 35 years of age on the last date of submission of application. Age relaxation of 5 years is applicable for SC/ST/OBC, Women and Physically Handicapped category.

iv) M K Bhan–Young Researcher Fellowship Programme (MKB-YRFP) was initiated in 2020-21 to encourage young bright researchers to continue their research in the country after PhD. The scheme is to offer an independent research grant of Rs 20.00 lakh/year and a fellowship amount of Rs 75000.00/ month to young Post-Doctoral Fellows for 3 years, so as to enable them to emerge as future leaders and take up cutting edge research focused on issues of national relevance. This fellowship is being awarded for research work to be carried out at DBT-Autonomous Institutes only. Currently Department is providing 50 fellowships per year. Age limit: The upper age limit is 35 years as on closing date of the application. Currently, a total of 55 fellows are working under MK Bhan Fellowship Program.

The Council of Scientific and Industrial Research (CSIR) under MoST, through its National S&T Human Resource Development Programme has been providing Research Associateships (RA), Senior

Research Associates (SRA) and CSIR-NPDF to young scientists. They all are engaged in science and technology development and contributing significantly in Indian S&T. CSIR has supported 138 RAs, 182 SRAs in last three years.

The main objective of the CSIR's Capacity Building and Human Resource Development programme is to nurture budding scientific talent (Young Scientists) and to nourish the objective of the pursuit of scientific research. The CSIR fellowship schemes identify promising young researchers with innovative ideas and provide them with training and research opportunities in niche areas of basic science, engineering, medicine and agriculture. The scheme aims at facilitating their transition from mentored to independent research careers.

The Government of India is also encouraging young scientists in projects of International Co-operation programme. Joint research projects funded with various foreign countries provide opportunity for young researchers to work in these collaborative projects as Junior / Senior Research Fellow; Research Associate, Project Assistant, Project Associate etc. As part of collaborative research these research students get unique opportunities to live and work in an international context, to gain practical experience and to acquire professional skills. Department of Science & Technology has also supported mobility fellowships and visitation programs for young Indian scientists and researchers like HOPE Meeting; Lindau Nobel Laureates meetings; Asian Science Camp; Fellowship and Internship programs with Australia, France, Germany, Switzerland, S. Korea and USA. Such collaborative exchanges are envisaged as a source of mutual cultural and professional enrichment for both the young researchers and their host institutions thereby building contacts between the next generations of researchers.

Funds sanctioned for supporting young scientists during last three years and the current year are given in table below (Rs in Cr):

Scheme/Programme	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
Inspire Faculty Fellowship	113.92	87.85	47.61	-
Scheme for Young Scientist and Technologists	23.37	0.92	1.21	-
DBT RA Program	14.35	7.27	7.81	-
HGK-IYBF Program	3.13	2.56	1.6	-
Ramalingaswami Fellowship Program	45.8	48.00	44.23	-
MK Bhan Fellowship Program		8.64	4.9	-
CSIR Fellowship/Associateships*	375.33	456.17	487.78	-
Young Scientist Scheme (YSS)**	2.83	1.1	0.61	0.004
Early Career Research Award (ECRA)	42.64	20.43	5.08	0.14
Start-up Research Grant (SRG)	88.64	102.32	109.42	12.4
National Postdoctoral Fellowship (NPDF)	55.74	44.96	37.92	14.86
Ramanujan Fellowship	18.21	14.69	17.47	14.44
SERB Research Scientist (SRS)	4.22	1.81	5.48	1.37
Teachers Associateship for Research Excellence (TARE)	10.83	13.33	10.74	2.38
International Travel Support (ITS)	0.77	0.13	10.27	2.69
Total	799.78	810.18	792.13	48.284

*Budget sanctioned for doctoral and postdoctoral fellowship awarded.

** YSS was earlier implemented by SERB and has now revamped into ECRA and SRG
