

GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF SCIENCE AND TECHNOLOGY
LOK SABHA
UNSTARRED QUESTION No. 2725
TO BE ANSWERED ON 06/03/2020

CONTRIBUTION OF WOMEN SCIENTISTS

2725. SHRIMATI RITA BAHUGUNA JOSHI:

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

- (a) whether the Government has taken steps for improving the linkage between educational institutes and industry to promote research and development that meets the demands of the market;
- (b) if so, the details thereof;
- (c) the steps taken by the Government for promoting the contribution of women scientists in the field of Science and Technology;
- (d) the achievements of the Government with respect to the 'Scheme for Young Scientists and Technologists' in addressing the problems of the society; and
- (e) the achievements of the Government with respect to the scheme 'INSPIRE'?

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) Yes Sir.

(b) The Department of Science and Technology (DST) is encouraging educational institutions to partner with industries through number of programmes. Under Technology Mission, R&D projects having partner with industries are preferred. Another programme of DST 'NewGen Innovation and Entrepreneurship Development Centre (NewGen IEDC)' promotes educational institutions to develop entrepreneurial culture in S&T academic institutions and to foster techno-entrepreneurship for generation of wealth and employment. Technology Business Incubators (TBIs) of DST in various academic/technical/R&D institutions also promote technology based entrepreneurship. In addition, the PRISM (Promoting Innovations in Individuals, Start-ups and MSMEs) program of Department of Scientific and Industrial Research (DSIR) supports individual innovators.

The Department of Biotechnology (DBT) is strengthening linkages between academic institutions and industries through programmes managed by Biotechnology Industry Research Assistance Council (BIRAC). Promoting Academic Research Conversion to Enterprise (PACE) programme of BIRAC encourages academia to develop technology/product of societal/national importance and its subsequent validation by an industrial partner. Further, All India Council for Technical Education (AICTE) has an internship programme for M.Tech students with Micro Small and Medium Enterprises (MSMEs). The objective of this programme is to nurture an innovation ecosystem that benefits the technologically deficient MSMEs as well as educational institutions.

In order to meet market demand of skilled human resource in the area of Artificial Intelligence (AI), DST has established Artificial Intelligence facility in six (6) women universities supported under CURIE (Consolidation of University Research for Innovation and Excellence in Women Universities) during 2019-20 which provides training to around 10,000 girl students.

(c) The Department of Science and Technology (DST) started "Knowledge Involvement in Research Advancement through Nurturing (KIRAN)" Scheme to encourage women scientists through various programmes in the field of science and technology. 'Women Scientist Scheme (WOS)' under KIRAN is a flagship programme of DST that provides career opportunities, including fellowships to unemployed women scientists and technologists, especially those who had a break in career, for pursuing research in frontier areas of science and engineering. There are three major components of Women Scientist Scheme namely, i) Women Scientists Scheme-A (WOS-A) for conducting research in basic & applied sciences, ii) Women Scientists Scheme-B (WOS-B) for projects that entail science & technology (S&T)

interventions for societal benefit and iii) Women Scientists Scheme-C (WOS-C) that enables them to become Intellectual Property Rights (IPR) professional.

In addition to WOS, under ‘Consolidation of University Research through Innovation and Excellence in Women Universities (CURIE) Programme’ the only women Universities are being supported for development of research infrastructure and creation of state-of-the-art research laboratories to enhance women’s participation in S&T domain. Mobility Scheme under KIRAN addresses relocation issues of working Women Scientists and provide support in project mode for up to 5 years. During 2017-18, Indo-US Fellowship for Women in STEMM (Science, Technology, Engineering, Mathematics & Medicine) has been started to encourage Indian women scientists and technologists to undertake international collaborative research in premier institutions in USA for maximum duration of 6 months.

This year, DST has started Phase-I of a new scheme “Vigyan Jyoti” in 50 districts of the country for girl students of Class 9 to 12 in order to encourage girls to pursue education and career in science and technology particularly in the areas where women are underrepresented. Further, women scientists and technologists are also encouraged to avail capacity building programmes related with R&D, entrepreneurship, managerial skills and leadership under ‘National Programme for Training of Women Scientists & Technologists working in Government Sector’.

Department of Biotechnology (DBT) is also implementing ‘Biotechnology Career Advancement and Re-orientation Programme (BioCARE)’ to encourage women scientists in Biotechnology research. Council for Scientific and Industrial Research (CSIR) provides 5 years’ age relaxation to women candidates in upper age limit for award of Fellowships/Associateships to pursue doctoral and postdoctoral research in order to encourage women candidates to opt science and technology as career.

(d) Scheme for Young Scientists and Technologists (SYST) of DST encourages scientists and technologists to take up societal challenges and provide Science and Technology (S&T) driven solutions. Young scientists below the age of 35 years and having M.Sc or Ph.D in any stream of science and technology are eligible for the scheme. There is five years’ age relaxation for women scientists to apply in SYST. In last three years 128 projects (24 in 2016-17, 65 in 2017-18 and 39 in 2018-19) have been sanctioned in SYST to the young scientists for addressing the problems of society.

Under SYST programme, some of the noteworthy projects are related to development of manually operated machine for manufacturing bamboo stripes, development of Integrated Pest Management (IPM) package for the management of red spiders in tea garden, standardization of eco-friendly cultivation practice for Phalaenopsis orchid, development of eco-friendly biopesticide for *Poplar defoliator* and development and dissemination of communication package on adverse effects of Sex Selection Drugs (SSDs) on growing fetus. Under these projects, 2000 artisans and around 1400 farmers have been trained.

(e) The “Innovation in Science Pursuit for Inspired Research (INSPIRE)” Scheme aims to impart excitement of creative pursuit of science in young minds and attract meritorious ones for higher study in basic and natural sciences and ultimately to pursue research careers in basic and applied sciences. INSPIRE has four (4) components viz. i) INSPIRE Internship: aims to provide exposure to students of Class XI pursuing science through Science camps; ii) The Scholarship for Higher Education (SHE): aims to encourage meritorious students to study basic and natural sciences in B.Sc. and M.Sc. through attractive scholarship and mentorship opportunities; iii) INSPIRE Fellowship: offers 1000 Fellowships every year to students in the age group of 22-27 years to pursue Ph.D. in basic and applied sciences including engineering, medicine, agriculture and veterinary sciences and iv) INSPIRE Faculty Fellowship: provides opportunities to Ph.D. holder in the age group of 27-32 years to carry out post-doctoral research.

The achievements under various components of INSPIRE Programme in last three years are as follows:

Sl. No.	INSPIRE Components	No. in 2016-17	No. in 2017-18	No. in 2018-19	Total
	INSPIRE Internship	40000	25000	25000	90000
	The Scholarship for Higher Education (SHE)	8329	10146	8474	26949
	INSPIRE Fellowship	1000	1000	1000	3000
	INSPIRE Faculty Fellowship	212	210	216	638

Additionally, INSPIRE has a special component ‘MANAK (Million Minds Augmenting National Aspiration and Knowledge)’ for school students in the age group of 10-15 years and studying in Class 6-10. MANAK is a unique initiative to foster a culture of creative and innovative thinking among school children to address societal needs through innovative ideas based on science and technology. Each student selected under MANAK is awarded Rs. 10,000/- to develop a prototype project. In last three years, 30769 students in 2017-18, 50279 students in 2018-19 and 42143 students in 2019-20 were selected for awards under the scheme.
