

**GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF SCIENCE AND TECHNOLOGY
LOK SABHA
UNSTARRED QUESTION No. 4313
TO BE ANSWERED ON 13/12/2019**

YOUNG SCIENTIST RESEARCH PROGRAMME

4313. SHRI ARVIND KUMAR SHARMA:

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

- (a) whether there has been any corresponding increase in the number of patent filings, patent approvals, number of research papers published and increase in impact factor of research papers of India with increase in funding under Young Scientist Research Programme, if so, the details thereof and if not, the reasons therefor and the remedial steps taken thereon;
- (b) the achievements in “Agricultural Research” under the said programme along with the steps taken to roll out newly developed advance agri-technologies to agricultural farms, under this programme including research in semi-arid or dry land agriculture;
- (c) the rate of growth of funding by the Government to Young Scientist Research Programme during the last five years;
- (d) whether the said programme is focusing on next frontiers of energy storage technologies like “Solid state batteries” etc. catering to the technology requirement of national electric vehicle mobility mission and national solar mission programmes for its successful implementation;
- (e) whether the Government had fixed the eligibility criteria for selection of candidates under the said programmes less than 35 years during the current year, if so, the details thereof; and
- (f) whether the Government proposes to give age relaxation to economically poor candidates, if so, the details thereof?

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) Funding under Young Scientist Research Programme by the Government has resulted in several positive attributes including increase in patent filings, patent approvals, number of research papers and enhancement of quality of research papers. The number of applications for patents, filed by Indian applicants including young scientists in 2017-18, was 15,550, i.e. an increase of about 18% over the previous year. The number of patents granted to Indians in 2017-18 was 1937, which indicates a growth of 205% during the period 2013-18. India's research papers including that of Young Scientists increased by 50% from 90,864 in 2011 to 1,36,238 in 2016 with a growth rate of 8.4% as compared to the global growth rate of 1.9% during the

period 2011-16. As per Department of Science and Technology (DST) Commissioned study in 2019 based on SCOPUS (Elsevier) database, India moved from 14th position in 2011 to 10th position in 2017 in quality of scientific research measured in terms of number of citations for scientific publications. Improvement in quantity and quality of research with more papers published in high impact factor journals are traced back to growing research funding under various schemes and programmes of government including Young Scientist Research Programme. Some of the notable programmes of the Ministry targeted at young scientists include: Innovation in Science Pursuit for Inspired Research (INSPIRE) of DST, National Postdoctoral Fellowship and Start-up Research Grant of Science and Engineering Research Board (SERB), Research Fellowship Schemes of Council of Scientific and Industrial Research (CSIR) and Department of Biotechnology (DBT), Research Associateship, R&D project based Project Associates, Innovative Young Biotechnologist Award of DBT etc.

(b) During the last two years more than 100 high quality publications in the field of agricultural research emanated from SERB Schemes that are exclusively aimed at supporting Young Scientists. One of the patent applications filed on “process technology of utilizing biomass or bioresource or agro-industrial products or residues for production of low calories sugar D-psicose” relates to a process technology in resolving agriculture waste issue that the country is facing currently. The SERB Schemes also resulted in developing Computational Fluid Dynamics (CFD) as a tool to develop management protocols for efficient scientific fumigation practices leading to better storage of Indian spices. CFD model was developed to explain fumigation patterns in stored spice beds. Also, safe storage guidelines were established for storage of spices using hermetic technology. R&D projects on semi-arid crops like Foxtail millet (Kangni / Kakum), pearl millet (Bajra), great millet (Jowar), Finger millet (Ragi), chick pea (Channa), pigeon pea (arhar dal), groundnut etc. were also supported. Several studies were undertaken to understand the genomics of diseases resistance, nitrogen use efficiency, increased water use efficiency, water stress tolerance so as to develop new varieties through breeding.

(c) Funding by Ministry of Science and Technology exclusively for young scientist research programmes grew from Rs. 804 crore in 2013-14 to Rs. 1283 crore in 2018-19, i.e. a growth of 59.5% during the period 2013-18.

(d) A significant number of researchers including young scientists were supported to implement Research and Development (R&D) projects focusing on next frontiers of energy storage technologies like ‘Solid state batteries’. Many of the R&D studies undertaken in these projects are useful with potential to cater to the technology requirement of national missions like electric vehicle mobility mission, solar mission etc.

(e) & (f): The eligibility criteria in respect of age for applicants vary from scheme to scheme under the Young Scientist Research Programme. For INSPIRE Faculty Fellow Scheme of DST, the upper age limit is 32 years with relaxation of three years for applicants belonging to SC/ST categories; for National Postdoctoral Fellowship of SERB and Innovative Young Biotechnologist Award of DBT, it is 35 years with relaxation of five years for applicants belonging to SC/ST/OBC/ Physically Challenged / Women categories; for Start-up Research Grant of SERB, the age limit is 42 years with relaxation of three years for applicants belonging to SC/ST/OBC/ Physically Challenged/ Women categories; whereas for CSIR Fellowship Schemes, the upper age limit is 28 years with relaxation up to 5 years for applicants belonging to SC/ ST/ Physically Challenged/ Women categories and 3 years in case of OBCs. There is no proposal for giving age relaxation to economically poor candidates under Young Scientist Research Programme.
