

GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF BIOTECHNOLOGY

LOK SABHA
UNSTARRED QUESTION No. 3991
TO BE ANSWERED ON 10/08/2016

LIFE SCIENCES EDUCATION/RESEARCH/ ENTREPRENEURSHIP

3991. SHRI NAGAR RODMAL

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

- (a) whether the Government is encouraging the life sciences education, research and entrepreneurship in the country;
- (b) if so, the details thereof;
- (c) whether the draft policy has been finalised in this regard; and
- (d) if so, the details thereof?

ANSWER

MINISTER OF STATE FOR SCIENCE & TECHNOLOGY AND EARTH SCIENCES
(Y. S. CHOWDARY)

विज्ञान और प्रौद्योगिकी तथा पृथ्वी विज्ञान राज्य मंत्री
(वाई. एस. चौधरी)

(a) & (b) Yes, Madam. Ministry of Science and Technology, Government of India is encouraging the life science and biotechnology education, research and entrepreneurship in the country. Department of Biotechnology (DBT) has implemented an integrated human resource development programme in the field of biotechnology by providing support to postgraduate teaching programme viz. M.Sc./M.Tech. in 71 universities in the country, colleges for holistic development of science education at undergraduate level under star college scheme, industrial training for B.Tech./M.Sc./M.Tech. biotech students and finishing school for bridging skill gaps and enhancing employment prospects, re-training of existing faculty and scientists in advanced areas for upgrading their skills by conducting short term training courses, fellowships for doctoral and post - doctoral research. DBT has also instituted Ramalingaswami Re-entry fellowships for encouraging Indian scientists working in overseas laboratories to return to the country. DBT has launched DBT-BUILDER programme (DBT-Boost to University Inter-disciplinary Departments of Life Sciences for Education and Research) for advanced education and research by upgradation/re-engineering/remodelling/ creation of life science departments in universities. The details of education programmes of Department of Biotechnology are enclosed at Annexure-A.

The Department of Science & Technology (DST) has supported major scholarship program: Innovation in Science Pursuit for Inspired Research (INSPIRE). The INSPIRE scheme offers 10,000 scholarships every year for undertaking Bachelor and Masters level education in natural and basic sciences including life sciences. DST is also supporting a major programme entitled "Fund for Improvement of S&T infrastructure in universities & higher educational institutions (FIST)" to rebuild the Science & Technology infrastructure in the country.

The Ministry of Science & Technology is providing extramural funding on competitive basis to teachers and scientists working in universities and national laboratories to carry out the basic and applied research in areas of life sciences and biotechnology. In 2015-16, around 300 Research & Development projects were sanctioned by Department of Biotechnology.

The National Science & Technology Entrepreneurship Development Board (NSTEDB), established in 1982 by the Government of India under the aegis of Department of Science & Technology, is an institutional mechanism to help promote knowledge driven and technology intensive enterprises. The major objective of NSTEDB to promote and develop high-end entrepreneurship for Science & Technology (S&T) manpower as well as self-employment by utilising S&T infrastructure and by using S&T methods, facilitate and conduct various informational services relating to promotion of entrepreneurship.

Department of Biotechnology has supported entrepreneurship training programmes for establishment of small and medium enterprises in North Eastern Region of country. DBT has also established Biotechnology Industry Research Assistance Council (BIRAC) as a Section 8 (not for profit) Public Sector Entity in 2012 with the mandate to build the biotechnology innovation ecosystem in the country. Since, its inception, BIRAC is providing funding to entrepreneurs, start-ups, small and medium enterprises (SME) and translational organisations. BIRAC has initiated several flagship programs such as Biotechnology Ignition Grant (BIG), Small Business Innovation Research Initiatives (SBIRI), Biotechnology Industry Partnership Program (BIPP) etc., for biotechnology innovation and to encourage entrepreneurship. Department of Biotechnology has also established the Biotech Parks and incubators to support start-ups and entrepreneurs for innovative product development in the country.

(c) & (d) Yes, Madam. Department of Biotechnology has released "The National Biotechnology Development Strategy-2015-2020" and has identified following sectors to accelerate the pace of growth of biotechnology at par with global requirements:

- 1). **Human Resource Development:** In addition to continuous improvement of current programmes, the strategy proposes to address the needs of institutes for facilitating training, education and research aspirations of students, faculty and other biotech professionals by specialized training programs, induction of new courses, faculty improvement programs and by attracting overseas scientists.
- 2). **Building Knowledge Environment:** Capacity for innovation and technology development in biotechnology rests largely on access to core facilities and instrumentation.
- 3). **Research Opportunities:** DBT is providing support for research activities in the areas of basic research, agriculture, environment, bio-energy human genome research, vaccines, infectious & chronic disease biology, stem cells & regenerative medicine, etc.
- 4). **Nurturing Entrepreneurship-IP Landscaping, Technology Transfer, Incubators, Entrepreneurship, SME Support Systems:** The Department is supporting creation of technology transfer platform, domain specific innovation accelerators and translational accelerators in key locations and nurture bio-entrepreneurship in collaboration with Biotechnology Industry Research Assistance Council (BIRAC).

Details of Education Programmes of Department of Biotechnology

(I) Postgraduate Teaching Programme (M.Sc./M.Tech./M.VSc.) supported by Department of Biotechnology:

S.No.	Name of University and State	Programme
ANDHRA PRADESH		
1	Sri Padmavati Mahila Visvavidyalaya, Tirupati	M.Sc. Biotechnology
ASSAM		
2	Tezpur University, Tezpur	M.Sc. Biotechnology
3	Assam Agricultural University, Jorhat	M.Sc. Agriculture Biotechnology
4	Assam Agricultural University, Guwahati	M.VSc. Animal Biotechnology
5	Indian Institute of Technology, Guwahati	M.Tech. Biotechnology
BIHAR		
6	Tilka Manjhi Bhagalpur University, Bhagalpur	M.Sc. Biotechnology
7	Rajendra Agricultural University, Samastipur	M.Sc. Agriculture Biotechnology
CHHATTISGARH		
8	Indira Gandhi Agricultural University, Raipur	M.Sc. Agriculture Biotechnology
DELHI		
9	Jawaharlal Nehru University, New Delhi	M.Sc. Biotechnology
10	All India Institute of Medical Sciences, New Delhi	M.Sc. Medical Biotechnology
11	Indian Institute of Technology, Delhi	M.Tech. Biotechnology
GOA		
12	Goa University, Goa	M.Sc. Marine Biotechnology
GUJARAT		
13	Maharaja Sayajirao University of Baroda, Baroda	M.Sc. Biotechnology
14	Sardar Patel University, Anand	M.Sc. Industrial Biotechnology
HARYANA		
15	Guru Jambheshwar University, Hisar	M.Sc. Biotechnology
16	Lala Lajpat Rai University of Animal Sciences, Hisar	M.VSc. Animal Biotechnology
17	Maharshi Dayanand University, Rohtak	M.Sc. Medical Biotechnology
HIMACHAL PRADESH		
18	Himachal Pradesh University, Shimla	M.Sc. Biotechnology
19	Himachal Pradesh Krishi Vishvavidyalaya, Palampur	M.Sc. Agriculture Biotechnology
KERALA		
20	Calicut University, Calicut	M.Sc. Biotechnology
21	Kerala Agricultural University, Thrissur	M.Sc. Agriculture Biotechnology
22	Cochin University of Science & Technology, Kochi	M.Tech. Marine Biotechnology
JAMMU & KASHMIR		
23	Jammu University, Jammu	M. Sc. Biotechnology
24	University of Kashmir, Srinagar	M. Sc. Biotechnology
25	Baba Ghulam Shah Badshah University, Rajouri	M.Sc. Bioresources and Biotechnology
26	Sher-e-Kashmir University of Agricultural Sciences & Technology of Kashmir, Srinagar	M.VSc. Animal Biotechnology
KARNATAKA		
27	Gulbarga University, Gulbarga	M.Sc. Biotechnology
28	Mysore University, Mysore	M.Sc. Biotechnology
29	University of Agricultural Sciences, Bangalore	M.Sc. Agriculture Biotechnology

30	University of Agricultural Sciences, Dharwad	M.Sc. Agriculture Biotechnology
MAHARASHTRA		
31	Savitribai Phule Pune University, Pune	M.Sc. Biotechnology
32	Indian Institute of Technology, Mumbai	M.Sc. Biotechnology
33	Institute of Chemical Technology, Mumbai	M.Tech. Bioprocess Technology
34	Institute of Chemical Technology, Mumbai	M.Tech. Food Technology
35	Vasantrao Naik Marathwada Krishi Vidyapeeth, Parbhani	M.Sc. Agriculture Biotechnology
36	Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur	M.Sc. Biotechnology
37	Maharashtra Animal & Fishery Sciences University, Nagpur	M.VSc. Animal Biotechnology
38	Shivaji University, Kolhapur	M.Sc. Environmental Biotechnology
MADHYA PRADESH		
39	Devi Ahilya Vishwavidyalaya, Indore	M.Sc. Biotechnology
40	Jiwaji University, Gwalior	M.Sc. Neuroscience
41	Nanaji Deshmukh Pashu Chikitsa Vigyan Vishwavidyalaya, Jabalpur	M.VSc. Animal Biotechnology
MEGHALAYA		
42	North Eastern Hill University, Shillong	M.Sc. Biotechnology
ODISHA		
43	Orissa University of Agriculture & Technology, Bhubaneswar	M.Sc. Agriculture Biotechnology
44	Utkal University, Bhubaneswar	M.Sc. Biotechnology
PUDUCHERRY		
45	Pondicherry University, Puducherry	M.Sc. Biotechnology
PUNJAB		
46	Guru Nanak Dev University, Amritsar	M.Sc. Biotechnology
47	National Institute of Pharmaceutical Education and Research, Mohali	M.Tech. in Pharmaceutical Biotechnology
48	Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana	M.VSc. Animal Biotechnology
RAJASTHAN		
49	Banasthali Vidyapeeth, Banasthali	M.Sc. Biotechnology
TAMIL NADU		
50	Madurai Kamaraj University, Madurai	M.Sc. Biotechnology
51	Tamil Nadu Agricultural University, Coimbatore	M.Sc. Agriculture Biotechnology
52	Anna University, Chennai	M.Tech. Biotechnology
53	Annamalai University, Parangipettai	M.Sc. Marine Biotechnology
TELANGANA		
54	University of Hyderabad, Hyderabad	M.Sc. Biotechnology
UTTAR PRADESH		
55	Banaras Hindu University, Varanasi	M.Sc. Biotechnology
56	Banaras Hindu University, Varanasi	M.Sc. Molecular & Human Genetics
57	Aligarh Muslim University, Aligarh	M.Sc. Biotechnology
58	University of Allahabad, Allahabad	M.Sc. Biotechnology
59	Lucknow University, Lucknow	M.Sc. Biotechnology
60	Indian Institute of Technology, Kanpur	M.Tech. Biotechnology
61	Narendra Deva University of Agriculture & Technology, Faizabad	M.Sc. Agriculture Biotechnology
UTTARAKHAND		
62	Kumaun University, Nainital	M.Sc. Biotechnology

63	Indian Institute of Technology, Roorkee	M.Sc. Biotechnology
64	GovindBallabh Pant University of Agriculture and Technology, Pantnagar	M.Sc. Agriculture Biotechnology
65	Hemwati Nandan Bahuguna Garhwal University, Srinagar	M.Sc. Biotechnology
WEST BENGAL		
66	Indian Institute of Technology, Kharagpur	M.Tech. Biotechnology
67	West Bengal University of Technology, Kolkata	M.Tech. Biotechnology
68	University of North Bengal, Siliguri	M.Sc. Biotechnology
69	Visva Bharati University, Santiniketan	M.Sc. Biotechnology
70	Burdwan University, Burdwan	M.Sc. Biotechnology
71	Bidhan Chandra Krishi Visvavidyalaya, Mohanpur	M.Sc. Agriculture Biotechnology

(II) Colleges supported under Star College Scheme by Department of Biotechnology:

S. No.	Name of supported Colleges
ANDHRA PRADESH	
1.	Andhra Loyola College, Vijayawada
ASSAM	
2.	Darrang College, Tezpur, Sonitpur
3.	Nowgong College, Nagaon
4.	Srikishan Sharda College, College Road, Hailakandi
5.	Kaliabor College, Kuwartol, Kaliabor
6.	Mangaldai College, Darang
7.	Jawaharlal Nehru College, Kamrup
8.	Handique Girls College, Guwahati
9.	Chaiduar College, Gohpur
10.	B.P. Chaliha College, Nagarbera Kamrup
11.	Jagannath Barooah College, Jorhat
CHANDIGARH	
12.	M.C.M DAV College for Women, Chandigarh
CHHATTISGARH	
13.	Govt. V.Y.T.P.G College, Durg
DELHI	
14.	Gargi College, New Delhi
15.	Maitreyi College, New Delhi
16.	Bhaskaracharya College of Applied Sciences, New Delhi
17.	Daulat Ram College for Women, New Delhi
18.	Miranda House College, New Delhi
19.	Ramjas College, New Delhi
20.	Sri Venkateswara College, New Delhi
21.	Hans Raj College, New Delhi
22.	Shaheed Rajguru College of Applied Sciences for Women, New Delhi
23.	Atma Ram Sanatan Dharam College, University of Delhi, New Delhi
GUJARAT	
24.	Shree Manibhai Virani & Smt. Navalben Virani Science College, Rajkot
JAMMU & KASHMIR	
25.	College of Veterinary Sciences & Animal Husbandry, Sher e Kashmir University of Agri. & Tech. of Kashmir, (FVSc & AH), Shuhama, Srinagar
26.	Government Degree College (Boys), Udhampur
27.	Government College for Women, Parade Ground, Jammu
28.	College of Agriculture, Sher-e-Kashmir University of Agricultural Sciences and

	Technology of Kashmir, Wadura Campus, Sopore
29.	Government College for Women, Gandhinagar, Jammu

KARNATAKA

30.	St Aloysius College Mangalore
31.	Maharani Lakshmi Ammanni College for women, Bangalore
32.	St. Agnes College (Autonomous), Mangalore
33.	St. Joseph's College, Bangalore
34.	Maharani Science College for Women, Bangalore

KERALA

35.	Mar Ivanious College, Tiruvananthapuram
36.	St. Albert's College, Ernakulam
37.	St. Berchmans College, Changanacherry
38.	St. John's College, Anchal, Kollam

MADHYA PRADESH

39.	College of Veterinary Science and Animal Husbandry, Jabalpur
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MAHARASHTRA

40.	Vidya Pratishthan's, Arts, Science & Commerce College, Pune
41.	K.C.E. Society's Moolji Jaitha College, Jalgaon
42.	Birla College of Arts, Science & Commerce, Kalyan
43.	St. Xavier's College, Mumbai
44.	Modern College of Arts, Science & Commerce, Ganeshkhind, Pune.
45.	Ramanarain Ruia College, Mumbai
46.	Jankidevi Bajaj College of Science, Wardha
47.	Modern College of Arts, Science & Commerce, Shivaji nagar, Pune
48.	Deccan Education Society's Fergusson College, Pune
49.	Ramniranjan Jhunjhunwala College, Ghatkopar (W), Mumbai
50.	K. R. T. Arts, B. H. Commerce and A.M Science College, Nashik
51.	K. J. Somaiya College of Science and Commerce, Mumbai
52.	Yashvantrao Chavan Institute of Science, Satara
53.	Guru Nanak Khalsa College of Arts, Science and Commerce, Mumbai
54.	Pune District Education Association's Baburaoji Gholap College, Sangvi, Pune
55.	Rayat Shikshan Sanstha's Karmaveer Bhaurao Patil College, Vashi, Mumbai
56.	Sangamner Nagarpalika Arts, D.J Malpani Commerce and B.N. Sarda Science College, Sangamner, Ghulewadi, Pune
57.	The New College Kolhapur, Kolhapur
58.	B.N. Bandodkar College of Science, Thane
59.	New Arts, Commerce and Science College, Ahmednagar
60.	Tuljaram Chaturchand College of Arts, Science and Commerce, Pune
61.	Kishinchand Chellaram College, Mumbai
62.	Sophia College for Women, Mumbai
63.	VES College of Arts, Science and Commerce, Sindhi Society, Mumbai
64.	V.G. Vaze College of Arts, Science and Commerce, Mumbai
65.	Prof. Ramkrishna More Arts, Commerce and Science College, Pune
66.	KME Society's G.M. Momin Women's College, Thane
67.	Sir Parshuram Bhau College, Pune
68.	College of Veterinary and Animal Sciences, Parbhani

MEGHALAYA

69.	St. Anthony's College, Shillong
70.	St. Edmund's College, Shillong
71.	Saint Mary's College, Shillong
72.	Synod College, Shillong

PUNJAB

73.	S. Govt College of Science Education & Research, Jagraon
74.	Doaba College, Jalandhar
75.	B.B.K DAV College for Women Amritsar

76.	Hans Raj MahilaMahaVidyalaya, Mahatma Hans Raj Marg, Jalandhar
77.	Kanya Maha Vidyalaya, Vidyalaya Marg, Tanda Road, Jalandhar
78.	Shanti Devi Arya Mahila College, Dinanagar
RAJASTHAN	
79.	University Maharaja College, Jaipur
Tamil Nadu	
80.	Madras Christian College, Chennai
81.	Stella Maris College Chennai
82.	PSG College of Arts & Science, Coimbatore
83.	Holy Cross College Tiruchirappalli
84.	P.S.G.R. Krishnammal College For Women, Coimbatore
85.	Nirmala College for Women Coimbatore
86.	Kongunadu Arts & Science college, Coimbatore
87.	Dwarka Doss Goverdhan Doss Vaishnav College, Chennai
88.	St. Xavier's College, Palayamkottai
89.	Ayya Nadar Janaki Ammal College (Autonomous) Sivakasi, Virudhunagar
90.	Justice Basheer Ahmed Sayeed College for Women, Chennai
91.	Shrimathi Devkunvar Nanala Bhatt Vaishnav College for Women (Autonomous), Chennai
92.	St. Joseph's College, Teppakulam, Tiruchirappalli
93.	Women's Christian College, Chennai
94.	Vellalar College for Women, Erode
95.	Bishop Heber College, Tiruchirappalli
TELANGANA	
96.	Chaitanya Degree College (Autonomous), Warangal
Uttar Pradesh	
97.	Udai Pratap Autonomous College, Varanasi
98.	Dayanand Girls (PG) College, Kanpur
West Bengal	
99.	Maulana Azad College, Kolkata
100.	Lady Brabourne College, Kolkata
101.	Raja Narendralal Khan Women's College, Paschim Medinipur
102.	St. Xavier's College (Autonomous), Kolkata