GOVERNMENT OF INDIA
SCIENCE AND TECHNOLOGY
LOK SABHA

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Attraction of Youth towards Science and Industry
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Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

(a) whether the Government is working with private or public sector to disseminate science and technology and to create awareness about immense possibilities in this sector;

(b) if so, the details thereof; and

(c) the action plan of the Government to encourage the talented youth of remote, backward, rural and border areas for taking up Science and Technology related projects?

Answer

MINISTER OF STATE IN THE MINISTRY OF SCIENCE AND TECHNOLOGY AND MINISTER OF STATE IN THE MINISTRY OF EARTH SCIENCES
(SHRI.Y. S. CHOWDARY)

(a) to (c): Yes, Madam. Department of Science & Technology (DST) is working with both the public as well as private sector to disseminate science and technology (S&T) and to create awareness about immense possibilities in this sector and to encourage youth to undertake S&T related projects. In this endeavor, DST has used several mechanisms and launched schemes and programmes across the entire length and breadth of the country including remote, backward, rural and border areas. Some of the major initiatives undertaken by DST are as follows:

National Children's Science Congress (NCSC): NCSC was launched in 1992 to encourage and engage the school students in the age group 10-17 years in identifying various thematic challenges in their localities/communities and try to find possible science and technology (S&T) solutions. Each year, more than 500,000 such child scientists from schools in public and private domain first participate at the district level competitions held across the country covering almost all the districts. The selected concepts/projects/models are then evaluated at the State level and then the best of these are further scrutinized at the National level. The winners of the National competitions also get a chance to participate in the Indian Science Congress held each year in January and a select few even go overseas to compete at the International level. DST has converged with Ministry of Human Resource Development (MHRD), Government of India and Departments of School Education of almost all the States and Union Territories (UTs) to enlist participation from school children from entire country. For example, in 2017 the silver jubilee of NCSC will be celebrated and it would be the endeavor of DST to engage school students from all the districts of the country.

Science Express: To spread awareness about science amongst masses, particularly the youth, DST has been playing an active role and one of its flagship initiatives is the Science Express. It is an innovative science exhibition mounted on a custom-built 16 coach AC train and it has been travelling across the country since its launch in October 2007. It has successfully completed 8 phases of journey, which includes 4 phases as 'Science Express' in collaboration with Max Planck Society, Germany, 3 phases as 'Biodiversity Special' and recently concluded 'Climate Action Special' in association with Ministry of Environment, Forests and Climate Change (MoEFCC), Government of India. To enable young minds and even the community at large to easily understand fundamental concepts of science and mathematics, they are encouraged to indulge in fun-filled activities, games and talks. For this, Science Express has complementary activities which are conducted in its 'Kids Zone', 'Joy-of-Science Lab', and through activities on railway platforms and outreach in schools located in near the railway stations. A team of well trained and highly motivated young science communicators stays on board during the run of 6-7 months in each phase to facilitate this learning. This mega outreach programme of DST, has travelled more than 150,000 kms, crisscrossing the length & breadth of the country on the broad-gauge network of Indian Railway and has received over 1.56 crore visitors at over 450 halts, several of these in remote, border and semi-urban areas. In addition, over 4000 article, news items, in newspapers, magazines, journals and huge coverage in electronic & digital media has brought this iconic mobile expo virtually to every nook & corner of India. It already has 6 entries in Limca Book of Records and has now registered for six more records. It is also a shining example of partnership with public & private sector as agencies like Ministry of Railways, MoEFCC, Department of Biotechnology, Petroleum Conservation Research Association, Central Electronics Ltd., and so on and BASF Ltd., HSBC Ltd., Indus Tower etc. also contributed to ensure maximum penetration of S&T in India.

Science, Technology, Engineering and Mathematics (STEM) demonstrations: STEM demonstrations comprises of Science fairs, melas, exhibitions, mobile science expositions, lecture-demonstrations, interactive media, visits to S&T establishments, hands-on-STEM activities, and so on. These events, whether stationary or mobile, utilize the expertise of resource persons trained by DST in various activities on a variety of themes like STEM, environment, science behind miracles, vermin-composting, health and so on. Science in toys including novel subjects, puppetry, student activity stalls where they solve puzzles or play mathematical games, ask a good question, design/redesign, spot-the-odd one, draw a future, quizzes, painting, etc.; and skits and street plays, on themes as in the stalls, expose a large number of people to S&T issues; S&T in daily life and cutting-edge S&T career options. About 250 such

programmes are held at various places in almost all States and UTs, etc. In addition, mobile science exhibition take S&T to the doorsteps of rural population. The activities include science models, sky gazing camps through telescope, scientific explanation of so-called miracles, etc. The target groups for these activities include youth, women, communities, teachers, gram panchayat members, voluntary organization and policy makers. Over 20 lakhs students, teachers and common peoples have visited these mobile buses so far. Further, visits to S&T establishments are undertaken to expose young minds to S&T and inculcate interest and develop their curiosity as well as creativity. State S&T Councils, Non Government Organizations, Science Clubs, Schools organize such activity in establishment like, research labs, industry, telephone exchanges, power stations, milk plants, railway control rooms, TV Kendra's, hospitals, refineries, weather forecasting centers, bakeries, printing presses, automobile workshops, modern agriculture, poultry farms, etc.

Community Radio: Community Radio (CR) is a radio service offering an alternative model of broadcasting in addition to commercial and public broadcasting. Community stations serve geographic communities and broadcast content that is popular and relevant to local and specific audiences that are often overlooked by commercial or mass-media broadcasters. CR stations are operated, owned, and influenced by the very communities that these serve. These are generally nonprofit and enable individuals, groups, and communities to tell their own stories, share experiences and become creators and contributors of media. The listening zone is between 15-25 kms radius with a 50W transmitter and 30 meter high antenna. DST initiated CR in the 21st century and now has supported over 40 such station. DST initially focused on women health issues specially on anemia and menstrual hygiene in adolescent youth, low birth weight, non-communicable diseases, TB, HIV, etc. through 30 minute long programmes produced and broadcast by the community for 365 days with 3 repeats every day. Later, programmes on Planet Earth targeting children were produced. Radio Mathematics, the latest offering, was tried on a pilot basis in 2013. The target groups and focus area were MNREGA workers, local vendors & street children, small scale industry workers (for business maths) and school students. Presently, 10 CR stations have produced and broadcast 182 programmes each with alternate day broadcast. Several CR stations target masses in rural, backward and border areas like Bhimavaram, Mukteshwar, Mewat, Guwahati, Assam, Solan, Wayanad, Konark, Siwan, Dharwad, Alwar, Azamgarh, Lalitpur, and so on.

INSPIRE: DST is implementing a national programme, Innovation in Science Pursuit for Inspired Research (INSPIRE) for attraction of talent amongst the students to study Science and pursue career in research. Though the programme was launched in December 2008, the implementation started during 2009-10. INSPIRE Award, a Component of INSPIRE programme is implemented centrally through the States/UTs. Under this scheme, during the five years period, two students are selected from each middle and high school of the country for an INSPIRE Award of Rs.5000/- each for preparing a Science Project/Model. These awardees, who are students from classes 6th to 10th, then participate in a three tier competition: District, State and National Level. The projects exhibited are evaluated by a jury of experts. All the 29 states and 7 UTs are participating in the scheme.

Empowering young women scientists: KIRAN (Knowledge Involvement in Research Advancement through Nurturing) is a holistic initiative of DST that is primarily aimed at providing more opportunities to young women scientists & technologists to pursue and sustain a career in Science & Technology (S&T) through its various components namely Women Scientists Scheme, Capacity Building Programs, Consolidation of University Research for Innovation and Excellence (CURIE), Women Technology Parks (WTP), and the recently launched 'Mobility Scheme'. Women Scientists Scheme acts as a launch-pad for those women scientists who have a break in career, primarily due to family responsibilities. The scheme has three components WOS-A (for basic and applied research), WOS-B (S&T intervention for societal development) and WOS-C (Internship in Intellectual Property Rights). More than 3700 young women have been supported so far to pursue careers in S&T. CURIE is mandated to develop state-of-the-art R&D infrastructure and research facilities in Women-only universities besides exposing students to best practices. DST has extended budgetary support to 6 women-only Universities in the country.

In addition, Socio-economic development programmes of DST primarily aim at reaching S&T to the remote, backward, rural and border areas through adaptive research and development (R&D) so that they derive benefit in terms of inclusive growth. DST has taken steps to motivate S&T community and young researchers from difficult and remote areas to apply and disseminate knowledge for the benefit and empowerment of people. Such schemes & programmes comprise of Technological Advancement for Rural Areas (TARA), Technological Intervention for Addressing Societal Needs including Technology Intervention Programme for Disabled & Elderly Population Scheme for Young Scientists |& Technologists, Women Technology Parks (WTP), Technology Application for Livelihood Improvement of Scheduled Caste Population and Technological Interventions for Tribal Empowerment including specific initiatives like People & Protected Area programme for tribal communalities for better quality-of-life. S&T led projects are being implemented engaging youth of remote, backward rural and border areas for inclusive growth both in farm and non-farm sectors, such as diversified agriculture, post-harvest processing, nursery technology, bio-fertilizers, food processing, medicinal and aromatic plants, cottage industries, low cost housing, energy efficient devices, waste management though value addition and income generation etc across the country. For instance, Vigyan Ashram, based in Pune, has been able to disseminate Solar and Pedal power LED lamp technology in tribal areas of Maharashtra, Chhattisgarh and Madhya Pradesh by adopting concept of "learning while doing". In this endeavor, 372 rural youth were trained during 2013-14 in assembly and marketing of Solar LED lamps as Village Level Entrepreneurs (VLEs) and 18400 units of LED lamps have been provided by VLEs to tribal households which evidently indicates their effective role to source and use technology led employment opportunity as well as providing lighting service in remote rural areas. In such an effort, 11 tribal villages have been converted into Solar Gram with 100% households adopting solar LED lamps. Besides, VA has been able to engage rural youths and 10th drop-outs in IBT (introduction to basic rural technology in farm and non-farm sector like poultry farming, electrical and carpentry work etc.) based secondary school technology transfer programme. Also, WTPs have been launched in 32 locations, mostly in rural hinterland and border areas including in Manipur, Nagaland, Assam, Jharkhand, Uttrakhand, and so on where young girls are trained through various mechanisms in utilizing S&T to become self-employed and also engage in community services.

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