GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH

LOK SABHA
UNSTARRED QUESTION NO. 3940
(TO BE ANSWERED ON 19.03.2021)
ROLE OF CSIR IN PROMOTING SCIENCE AMONG YOUTH

3940. SHRI GOPAL CHINNAYA SHETTY:

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

(a) whether Council of Scientific and Industrial Research (CSIR) plays a prominent role in providing necessary base of knowledge for the social and economic development of the country including that of rural areas and small cities;
(b) if so, the achievements and performance thereof during the last two years;
(c) whether CSIR has taken several new measures to imbibe scientific acumen among the youths; and
(d) 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)

(a) Yes.

(b) CSIR is actively working to promote Scientific & Technological interventions for the development and support to the society. Some of the recent significant initiatives taken by CSIR for the benefit of people especially from rural areas are as follows:

I. CSIR Aroma Mission - Catalysing Rural Empowerment through Cultivation, Processing, Value Addition and Marketing of Aromatic Plants: CSIR initiated a Mission Mode Project "CSIR-Aroma Mission" in 2017 and during last 3 years ~6000-hectare additional area has been brought under cultivation of economically important aromatic crops. During this period 25 new superior varieties of various aromatic crops have been developed, 34 agrotechnologies developed and are being deployed. 231 distillation units have been installed in various clusters developed across the country enabling the distillation of 500 tons quality

essential oils worth about Rs. 60 crores which helped to reduce the import of these oils. This has helped aroma industry in India especially during the long pandemic time duration. About 756 Training/ Awareness programs were conducted benefiting around 44,800 human resources. Besides 29 values added products have been developed to encourage the new entrepreneurs and start-ups. The socio-economic impact studies of the mission indicated that the impact on farmer's income from aroma cash crop cultivation lead to assured and enhanced income generation, (high B-C ratio for aroma crop than conventional crop cultivation). For aroma cash crop cultivation, maximum B-C ratio reached 9.9 fold in Kamrup (Assam) cluster, while for conventional crop cultivation; maximum B-C ratio reached 3.59 fold in Ri-Bhoi cluster (Meghalaya). The benefit of aroma cash crop cultivation has reached to marginal (18%) and small (23%) farmers besides medium (24%) and big (35%) farmers. The increase in the annual income of the marginal and small farmers from Rs. 50,000/ per month to Rs. 2 lakhs/ per month is encouraging after adoption of aroma cash crop cultivation. Annual income (farming and other sources) increased after Aroma Mission for all category of farmers and contribution of aroma cash crop cultivation is 60% to the annual income generation of the farmer household as compared with just 40% contribution to annual income of the farmer from conventional farming.

In Phase II of CSIR Aroma Mission, an additional area of about 30,000 hectares will be brought under cultivation of these crops in the next three years by interventions of CSIR. More than 75,000 farming families would be directly or indirectly benefitted and an employment of more than 40-45 lakhs man-days will be generated in rural areas. Cultivation and processing of aroma crops would be an important step for in enhancing rural economy through enhancing incomes and providing employment to thousands of migrants shifted back to rural areas after COVID 19 pandemic. About 80,000 farmers would be trained/ guided to cultivate these crops besides 45,000 skilled human resources capable of multiplying quality planting material, distillation, and value addition will be developed through skill development activities.

II. **Development of agriculture and increasing the income of farmers and poor people in tribal-dominated Nabrangpur District of Odisha: In collaboration with State Govt. and Nabrangpur District administration, cultivation and processing of Aromatic crops for essential oils and Curcuma longa (Haldi) for curcumin and leaf essential oil are being**

promoted. Essential oil processing units are provided for expansion of area under cultivation and on farm processing of essential oils. Farmers are provided necessary training and support to use new methods of agriculture to enhance their skills under this ambitious project.

III. Improved Samba Mahsuri variety for Bacterial blight resistance with low glycemic index Rice: Improved Samba Mahsuri being similar to Samba Mahsuri (BPT5204) in quality and yield traits and having additional features like resistance to bacterial blight disease, low glycemic index value, 7-10 days early maturation than existing variety has a potential to replace existing Samba Mahsuri which is cultivated in about 2-4 million hectares in India. Currently this variety is being cultivated in an area of ~120,000 hectare. Increased adoption of Improved Samba Mahsuri (ISM) by additional 2000 farmers can significantly stabilize incomes among Samba Mahsuri farmers in future.

IV. Seaweed farming for enhancing the income of coastal farmers: ~1000 (Mostly Women) trained in sea weed farming during last 2 years in association with National Fisheries Development Board, Hyderabad to get the assured income up to Rs 15,000/ per month. M/s. Aquagri private limited is the private partner offered the buyback of the biomass produced by the beneficiaries from cultivation. The program has been developed with M/s. Pidilite Industries where capacity building and hands on training will be imparted to the fishermen of coastal Gujarat for the next three years. This will be linked to CSR activities of the industry.

(c) Yes.

(d) Council of Scientific and Industrial Research (CSIR) has been providing doctoral and postdoctoral fellowships to young budding students through its various fellowship programmes such as Junior Research Fellowship through National Eligibility Test (JRF-NET), Shyama Prasad Mukherjee Fellowship (SPMF), Senior Research Fellowship- Direct (SRF-Direct), Research Associateships and CSIR- Nehru Postdoctoral Fellowship (CSIR-NPDF). These young researchers are basically involved in science and technology development. The main objective of the National S&T Human Resource Development programme is to nurture the budding scientific talent (Young science and engineering graduates/students) and to nourish the objective of pursuit of scientific research. Annually CSIR offers about 4500-5000 such fellowships to young students who are going to be future scientists. At any given time, CSIR supports about 8000-9000 young researchers in their pursuit for doctoral and

postdoctoral research in the field of science and technology. CSIR gives CSIR Innovation Award for School Children (CIASC). The objectives of this award are to capture creativity and innovativeness amongst school children and create awareness about IPR. The Award is open to all Indian school children and is popularized in all national languages. The awardees are provided opportunity to work with a CSIR labs during summer vacation. Further, the winners are provided an opportunity to connect to ATAL Tinkering Labs to further promote innovative activities of school children.

Apart from the above, CSIR has been engaged in connecting school students with scientists through its "Jigyasa" (Student-Scientist Connect) program which was initiated in 2017. Council of Scientific & Industrial Research (CSIR) and Kendriya Vidyalaya Sangathan (KVS) had signed an MoU on Scientist – Student Connect programme 'Jigyasa' on 6th July, 2017. The CSIR's Jigyasa program is a unique platform for bringing scientists and teachers for nurturing young minds. This program envisages opening up the national scientific facilities to school children, enabling CSIR scientific knowledgebase and facility to be utilized by school children. This model of engaging school children also has been extended to other schools in addition to KVS. The Jigyasa programme envisages some of the following models of engagement:

- **Laboratory Visit;**
- **Popular Lecture Series;**
- **Summer Vacation Programmes;**
- **Scientists as Teachers and Teachers as Scientists;**
- **Teachers' Workshop;**
- **Student Residential Programme;**
- **Visits of Scientists to Schools; and**
- **Lab specific activities / Onsite experiments**

37 Laboratories of CSIR have implemented the programme connecting schools, benefitting nearly 3 lakh students from 2017 till date. More recently, CSIR has signed MoU with NVS for collaboration in Scientist-Student Connect under "Jigyasa" platform of scientific social responsibility. Taking forward CSIR's Jigyasa program to millions of school students, the Jigyasa-Virtual Lab concept has been formalized. CSIR has joined hands with IIT Bombay for Virtual Lab to take Jigyasa benefits to large section of school student's community on completely digital mode.

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