

**GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF SCIENCE AND TECHNOLOGY
LOK SABHA**

**UNSTARRED QUESTION No. 612
TO BE ANSWERED ON 06.12.2023**

Research and Development in Ladakh

612. SHRI JAMYANG TSERING NAMGYAL:

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

- (a) the details of the institutions/organizations in UT Ladakh registered for Research and Development in Himalayan region in both Pre and Post UT creation of Ladakh and if so, the detail thereof;
- (b) whether the Government spend funds on Research and Development sector, if so, the details thereof and if not, the reasons therefor;
- (c) whether any steps are taken/being taken by the Government to increase the Research and Development in UT of Ladakh; and
- (d) if so, the detail thereof and if not, the reasons therefor?

ANSWER

**MINISTER OF STATE (INDEPENDENT CHARGE)
OF THE MINISTRY OF SCIENCE & TECHNOLOGY
(DR. JITENDRA SINGH)**

विज्ञान और प्रौद्योगिकी राज्यमंत्री (स्वतंत्र प्रभार)
(डॉ. जितेंद्र सिंह)

- (a) The institutions/organizations implemented projects under different schemes of scientific departments of the Government during pre and post UT creation of Ladakh for research and development in Himalayan region. The details of which are as follows:

- i. **Indian Council of Agricultural Research-Central Arid Zone Research Institute (CAZRI), Regional Research Station, Leh.**
- ii. **Highland Agriculture Research and Extension Station, Zaskar, Ladakh under Sher-E-Kashmir University of Agricultural Sciences & Technology, Kashmir (SKUAST.K).**
- iii. **University of Ladakh, Leh.**
- iv. **High Mountain Arid Agriculture Research Institute, Stakna, Leh**
- v. **Agromet Field Unit (AMFU), Leh, under SKUAST.K.**
- vi. **Krishi Vigyan Kendra.Leh (Ladakh), Stakna, Leh under SKUAST.K.**
- vii. **Government Degree College, Kargil**
- viii. **Sonam Norboo Memorial Hospital, Leh**

(b) Yes Sir. The Ministry of Science and Technology supported different institutions for Research and Development in Ladakh region amounting Rs.1206.68 Lakh and Rs. 2572.67 Lakh, respectively, during pre and post creation of UT of Ladakh. In addition, Ministry of Earth Sciences also installed a Radar costing Rs. 500 lakhs for the establishment of Meteorological Centre at Leh and supported a project costing Rs. 69.65 lakhs, post UT creation of Ladakh.

(c) and (d): Yes Sir. Several steps have been taken by the scientific ministries to increase the Research and Development in UT of Ladakh. The details of which are as follows:

- i. **Meteorological Observatory (MO), Leh was upgraded into full-fledged Meteorological Centre (MC) by Ministry of Earth Sciences (MoES) after Ladakh became a Union Territory. The Meteorological Centre includes Class-I Surface Observatory, Radar and other Observing Systems, Forecasting and Communication facilities.**
- ii. **The Indian institute of Astrophysics (IIA), Bangalore an autonomous body under Department of Science and Technology (DST) operates the Indian Astronomical Observatory in Hanle since 2000. IIA is setting up a campus in Merak, Ladakh to study the Sun. In September 2022, a research project amounting Rs. 69.65 lakh on "Studies of Aerosol Optical Properties and Associated Radiative Forcing at Leh, in climate sensitive Hindu**

- Kush Himalayan Region" was sanctioned by MoES to Indian Institute of Astrophysics.**
- iii. Department of Science and Technology supported a project to University of Ladakh to work on climatic records from the region and lacustrine environments, shift of the westerlies and its impacts under National Mission for Sustaining the Himalayan Ecosystem (NMSHE).**
 - iv. To strengthen the quality of research in the University of Ladakh and Trans-Himalayan Ladakh region DST supported a project (in April 2023) at University of Ladakh, Leh, for procuring high-end research facilities with a cost of Rs. 700 lakhs, under Promotion of University Research and Scientific Excellence (PURSE) program through a special drive.**
 - v. Department of Science and Technology has established a Technology Enabling Centre in the University of Ladakh, Leh with a total budget of Rs. 344 lakhs for creating an enabling eco system, process and support system for technology development, deployment and diffusion, in June 2023.**
 - vi. In pre-UT creation, DST supported four projects amounting Rs. 169.8 lakhs under the schemes namely Technology Interventions for Addressing Societal Needs (TIASN) and Arid, Semi-Arid and Cold Desert Regions (ASACODER) and Technology Intervention for Mountain Ecosystems (TIME)-Livelihood Enhancement through Action Research & Networking (LEARN). In post UT creation, Department of Science and Technology supported six projects amounting Rs. 653.8 lakhs under Tribal Sub Plan. The details are provided in Annexure.**
 - vii. For the benefit of farming community in the Union Territory of Ladakh, India Meteorological Department, Ministry of Earth Sciences, runs an Agrometeorological Advisory Services (Gramin Krishi Mausam Seva) scheme for district level medium range weather forecast and Agromet advisories are generated and disseminated to the farming community.**
 - viii. Department of Biotechnology (DBT) has supported two projects in Ladakh region amounting Rs.95.92 Lakhs to Government Degree College, Kargil and Sonam Norboo Memorial Hospital, Leh.**
 - ix. Wadia Institute of Himalayan Geology (WIHG), an autonomous body under DST has extensively conducted geological and geophysical studies in the Ladakh region since its inception and**

currently implementing six projects. The details are provided in Annexure. WIHG has established seismic observatories in Ladakh Region.

- x. Council of Scientific and Industrial Research (CSIR) is deploying its knowledge base and technologies in Ladakh for the cultivation, processing and marketing of commercially important aromatic and floriculture crops such as Lilium, Gladiolus, etc. under CSIR -Floriculture Mission and CSIR - Aroma Mission along with active participation of departments of Ladakh (UT) like Department of Industry and Commerce, Department of Agriculture and Cooperative society.**
- xi. National Geophysical Research Institute (CSIR-NGRI), Hyderabad is engaged in carrying out Drone based Magnetic Survey in Ladakh region and Geothermal exploration studies in Puga and Chumatang regions of Ladakh.**

**ANNEXURE REFERRED TO IN REPLY TO PART (c) & (d) of
UNSTARRED QUESTION NO. 612 FOR REPLY ON 06.12.2023**

(1) The following Research and Development projects implemented by Wadia Institute of Himalayan Geology (WIHG) are in progress in the UT of Ladakh:

- i. Tectono-thermal evolution of the Karakorum migmatites along Shyok and Tangtse Valleys, India: Implications on the tectonics of Karakorum region.**
- ii. Fluid-P-T evolution of ultramafic-mafic rocks from Spongtong ophiolite, Ladakh, India: Implications for geodynamics of Himalayan mountain chain.**
- iii. High resolution rodent biochronology and vertebrate based paleoecology and palaeobiogeography of the Ladakh Molasse Group, North-west Himalaya.**
- iv. High-resolution mapping of crust and upper mantle structure across the northwest Himalaya and Lakadh-Karakoram zone with special emphasis on seismotectonics of the Shyok Suture and adjoining region.**
- v. Deformation mechanism and lattice preferred orientation of olivine from periodoties of Indus ophiolites (eastern Ladakh): Implications for deformation and seismic anisotropy of mantle in a collisional zone.**
- vi. Evaluating the condition of deformation during subduction and exhumation of the North Indian continental margin: A study based on structural and crystallographic features of the Tso Morari dome of Trans-Himalaya, Ladakh, India.**

(2) The following projects funded by Department of Science and Technology to different implementing agencies for Ladakh region in pre UT creation are at points (i) to (iv) and post UT creation are at points (v) to (x):

- i. Development of sustainable Agriculture systems involving fruit, fodder crops and exotic vegetables for better livelihood option to farming community of Cold arid region- Ladakh.**

- ii. Innovative technological interventions to address basic household needs of the tribal people of Zaskar valley.**
- iii. Technological intervention to improve production of dairy and poultry in rainfed areas of Jammu District.**
- iv. Demonstration of technologies for improving productivity of Rain-fed area in Jammu District.**
- v. Science Technology and Innovation Hub in Leh, Ladakh UT.**
- vi. Doubling farmer's income of tribal farming community through protected cultivation of high-value horticultural crops in Zaskar, Ladakh**
- vii. Innovative technological intervention to address basic needs of the tribal farming people of Ladakh region.**
- viii. Production improvement, sustainable development and livelihood improvement of threatened tribal nomads of Ladakh through scientific sheep and Pashmina goat rearing.**
- ix. Sustaining livelihoods by improving access to solar energy and water in Rong valley in Ladakh**
- x. Enhancing tribal livelihood through organic vegetable seed production in cold arid Ladakh UT.**
