GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
LOK SABHA
UNSTARRED QUESTION No. 3220
TO BE ANSWERED ON FRIDAY, JULY 12, 2019

SCHEMES/PROJECTS IN MAHARASHTRA

3220. SHRI HEMANT TUKARAM GODSE:

Will the Minister of EARTH SCIENCES be pleased to state:

(a) the details of schemes or projects implemented or being implemented by the Government in Maharashtra along with the details of funds allocated in this regard during the last three years;
(b) whether the Government has conducted any survey for continuous rising sea-level in coastal areas of Maharashtra ; and
(c) if so, the details thereof and the action being taken in this regard?

ANSWER
MINISTER FOR MINISTRY OF SCIENCE AND TECHNOLOGY AND MINISTRY OF EARTH SCIENCES
(DR. HARSH VARDHAN)

(a) Following projects are being implemented by the Ministry of Earth Sciences in Maharashtra :

(i) Under Gramin Krishi Mausam Sewa (GKMS) scheme of India Meteorological Department (IMD), District AgroMet Units (DAMUs) are being established at Krishi Vigyan Kendras (KVKs) in collaboration with Indian Council of Agricultural Research (ICAR) to implement block level AgroMet Advisory Services (AAS) for the farmers.At present, in the State of Maharashtra, the process of setting up of DAMUs in the KVKs in 10 districts has been undertaken.

(ii) System of Air Quality and Weather Forecasting and Research" known as "SAFAR" for greater metropolitan cities of India to provide location specific information on air quality in near real time and its forecast 1-3 days in advance for the first time in India. It has been combined with the early warning system on weather parameters. The SAFAR system is developed by Indian Institute of Tropical Meteorology, Pune, along with India Meteorological Department (IMD) and National Centre for Medium Range Weather Forecasting (NCMRWF).

(iii) **The High Altitude Cloud Physics Laboratory (HACPL) originated from such a unique requirement, where clouds could be continuously monitored at a single location, where cloud base touches the ground. Observations on regular basis at the HACPL will provide continuous data for the study of cloud microphysics and interaction between clouds and aerosol and the process of precipitation and related dynamics. The impact of orography of Western Ghat on the precipitation dynamics will be addressed with continuous observations with radar at this site.**

(iv) **Indian Institute of Tropical Meteorology/MoES is developing a weather modification program (Cloud Aerosol Interaction and Precipitation Enhancement Experiment; CAIPEEX) to formulate protocols for such activities in India. This program made key observations of aerosol-cloud-precipitation interaction and thermodynamic state of the atmosphere. Based on the results, a science based cloud seeding experiment is being conducted during 2017-2019 over the rain shadow region using radar, aircraft and other ground based instruments. The cloud seeding protocols formulated from the experiment could be used for planning effective cloud seeding operational programs.**

(v) **Thunderstorms that occur over Marathwada and Vidharba regions in Maharashtra cause heavy losses to live stock and humans. In view of the severity of the losses in Maharashtra, Indian Institute of Tropical Meteorology, Pune, under the Ministry of Earth Sciences, Govt. of India has initiated a project to study the characteristics of lightning by using Lightning Location Network (LLN). This network can accurately detect the location of occurrence of lightning and forewarn the public atleast 1-2 hours before the occurrence of thunderstorm. A 20-sensor network has been established in Maharashtra with the Central Processing Station at IITM, Pune. Each sensor can have a coverage of about 200 km.**

(vi) **A major national project, "Scientific Deep Drilling in the Koyna Intra-plate Seismic zone of Maharashtra", has been undertaken for directly measuring the in-situ physical properties of rocks, pore-fluid pressure, hydrological parameters, temperature and other parameters of an intra-plate, active fault zone in the near-field of earthquakes – before, during and after their occurrence. As a part of the project, a Borehole Geophysics Research Laboratory has been set up at Karad, Maharashtra which will serve as the operational centre for carrying out the research activities related to the scientific deep drilling. The laboratory will mainly focus on the borehole geophysics investigations and related research, including core analysis and associated field / research studies.**

(vii) The earthquake sequence started in and around Dhundhalwadi village, Palghar in Nov 2018 which is continuing even now, though with low frequency. The earthquake monitoring is on-going in Palghar region by NCS with the help of national seismological network along with the temporary installation of broadband stations (4 nos.)in the region.

(viii) Indian Centre for Ocean Information Services (INCOIS) of Ministry of Earth Sciences is providing various information such as Potential Fishing Zone (PFZ), Advisory Services, Ocean State Forecast (OSF) Services, Early Warning Service for Tsunami and Storm surges to the coastal population, especially fishermen community of Maharashtra state throughout the year except during the period of marine fishing ban imposed by Government of India.

(ix) A research project on "Assessment of Nearshore Dynamics Sediment Transport and Shoreline Changes along Maharashtra Coast' was initiated in 2018 by Ministry through National Centre for Coastal Research (NCCR).

The total fund allocation in this regard is used from the schemes ACROSS, SAGE and O-SMART and no separate fund is allocated for Maharashtra during the last 3 years. The details are given as under:

Budget allocated during the last three years for the whole schemes wherein these projects are part of :

Projects	Places in Maharashtra	Scheme	Funds allocated (in Crores)		
			2016-17	2017-18	2019-20
District AgroMet Units (DAMUs)	Nagpur, Palghar, Nandurbar, Solapur, Osmanabad, Aurangabad, Bhandara, Gadchiroli, Buldhana and Washim	Atmosphere & Climate Research Modelling Observing Systems & Services (ACROSS)	449.97	423.00	348.00
System of Air Quality and Weather Forecasting And Research (SAFAR)	Colaba, Worli, Chembur, Navi Mumbai, Andheri, Bandra-Kurla complex				
High Altitude Cloud Physics Laboratory (HACPL)	Mahabaleshwar, Mandra Devi				

Cloud Aerosol Interaction and Precipitation Enhancement Experiment	Solapur				
Lightning Location Network	Ratnagiri, Kolhapur, Vengrula, Solapur, Latur , Pune, Aurangabad, Jalgoan, Akola, Yevatmal, Chandrapur, Nagpur, Parbhani, Harhareshwar, Nashik, Beed, Mumbai, Dhule, Ghondia, Mahabaleshwar.				
Borehole Geophysical Research Laboratory (BGRL)	Karad	Seismology And Geosciences Research (SAGE)	60.01	88.82	96.00
Palgarh Earth quake monitoring	Palgarh				
Potential Fishing Zone (PFZ), Advisory Services, Ocean State Forecast (OSF) Services, Early Warning Service for Tsunami and Storm surges to the coastal population of Maharashtra	Coastal areas of Maharashtra	Ocean Services, Technology, Observations, Resources Modelling and Science (O-SMART)	315.00	326.00	440.50
Assessment of Nearshore Dynamics Sediment Transport and Shoreline Changes along Maharashtra Coast					

(b) & (c) Yes, Sir. There are tide gauges installed in the coasts of Maharashtra. Also, astronomical tide predictions are done for locations (fish landing centres) of Maharashtra coastline. INCOIS has installed two gauges at Jawaharlal Nehru Port Trust (JNPT, Mumbai) during November 2010 and another at Jaigarh in December 2015. The rate of change of sea level in Mumbai is 0.74 mm per year. The project aims at understanding nearshore process at 3 coastal sites, including small component of sea level rise impact on coast. The project was just initiated.

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