

GOVERNMENT OF INDIA
MINISTRY OF AGRICULTURE AND FARMERS WELFARE
DEPARTMENT OF AGRICULTURE AND FARMERS WELFARE

LOK SABHA

STARRED QUESTION NO. 76
TO BE ANSWERED ON THE 25TH JULY, 2023

“HYPERSPETRAL REMOTE SENSING TECHNOLOGY FOR AGRICULTURE”

*76. SHRI CHANDRA SEKHAR SAHU:
SHRI RAHUL RAMESH SHEWALE:

Will the Minister of AGRICULTURE AND FARMERS WELFARE कृषि एवं किसान कल्याण मंत्री be pleased to state:

- (a) whether the Hyperspectral Remote Sensing Technology plays a crucial role in monitoring and assessing the health of crops and soils in the country;
- (b) if so, the details and the salient features of the said technology;
- (c) whether the Union Government has entered into a Memorandum of Understanding (MoU) with Pixxel Space India Pvt. Limited recently to develop various geospatial solutions, if so, the details thereof and likely benefits from the MoU;
- (d) whether it is a fact that this is a significant step towards leveraging advanced satellite imaging technology for the benefit of the Indian Agriculture Ecosystem; and
- (e) if so, the extent to which this system will reduce dependence on time-consuming and error-prone manual surveys and measurements by harnessing advanced satellite imaging technology in the country particularly in Odisha?

ANSWER

MINISTER OF AGRICULTURE AND FARMERS WELFARE

कृषि एवं किसान कल्याण मंत्री (SHRI NARENDRA SINGH TOMAR)

(a) to (e): A statement is laid on the Table of the House.

STATEMENT IN RESPECT OF PARTS (a) TO (e) OF THE LOK SABHA STARRED QUESTION NO. 76 DUE FOR ANSWER ON 25.07.2023 REGARDING HYPERSPECTRAL REMOTE SENSING TECHNOLOGY FOR AGRICULTURE”.

(a) & (b): Yes, Sir. Hyperspectral remote sensing is an emerging and innovative satellite technology. Hyperspectral satellites collect data in narrow spectral bands whereas the conventional satellites collect the data in broad bands. Narrow bands spectral data show higher sensitivity to changes in crop health compared to broadband data. These satellites capture spectral finger prints of crops and soils producing valuable information. This upcoming technology is useful to improve crop health monitoring and crop risk assessments due to drought, pests and disease etc. The new information and knowledge on crops generated from hypersepral data are useful to improve farmer advisory system.

Hyperspectral data is also sensitive to organic carbon content in soils and hence this technology has huge potential for mapping soil organic content. This new knowledge is useful for the farmers for improving soil health.

(c): Yes, Sir. Mahalanobis National Crop Forecast Centre (MNCFC), an attached Office of the Department of Agriculture and Farmers Welfare (DAFW) has signed an MoU with Pixxel Space India Pvt. Limited, an Indian Start-up Company, on 26 June 2023.

The objective of the MoU is to develop use cases with the hyperspectral data of Pixxel for crop identification and mapping, crop health monitoring and soil organic carbon estimation over selected regions on pilot basis.

(d): Yes, this is an emerging technology in satellite remote sensing and its potential in crop health monitoring is established by Scientists. Therefore, this collaboration helps in our preparedness and capability for adoption of new technologies in Agriculture.

(e): Hyperspectral remote sensing technology is useful for crop mapping and inventory, crop health monitoring, mapping risk affected crop lands and yield estimation. Satellite based assessments are objective, transparent, timely and cost-effective. Satellite technology can reduce the dependence on manual estimation process which is cumbersome and prone to human bias. In the States like Odisha where paddy crop is grown predominantly, satellite technology is very useful in producing more accurate results. This is because satellite technology for paddy monitoring is well proven and widely adopted.