



**KAMARAJ IAS ACADEMY**  
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# FAO Report: ‘Leveraging Space Technology for Agricultural Development and Food Security’

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## Context:

The Food and Agriculture Organization (FAO) recently released a report titled ‘Leveraging Space Technology for Agricultural Development and Food Security’, in collaboration with the United Nations Office for Outer Space Affairs. The report discusses the challenges and opportunities in different segments of the space sector as they relate to agriculture.

## Challenges and Opportunities in Space for Agriculture

The report is structured around three key segments of the space sector: **Upstream**, **Midstream**, and **Downstream**.

### 1. Upstream (Space Infrastructure Development)

- **Challenges:**
- **Reliance on external support** for satellite development.
- **Stagnation in remote-sensing innovation**, limiting the potential for new advancements in agricultural applications.
- **Opportunities:**
- **Capacity-building initiatives** like **Access to Space for All** and the **BIRDS project** aim to develop national capabilities in mission planning and satellite development, focusing on **agricultural applications**.

### 2. Midstream (Data Processing, Storage, and Management)

- **Challenges:**
- **Limited access to Earth observation and GNSS (Global Navigation Satellite System) data.**
- **Overlapping platforms for data access**, leading to **data inconsistencies** and inefficiencies.
- **Opportunities:**
- Initiatives like the **ESA’s Copernicus Open Access Hub** and **NASA’s Earth Data** platforms aim to reduce **data duplication** and improve **data-sharing efficiency**, benefiting agricultural research and applications.

### 3. Downstream (Practical Agricultural Uses)

- **Challenges:**
- **Agricultural monitoring gaps** such as missing **crop calendars**, **meteorological data**, and **cropland maps**, which hinder effective monitoring and decision-making.
- **Opportunities:**
- **Collaborations** for initiatives like **GEOGLAM (Global Agricultural Monitoring)** and **ESA’s World Cereal program** aim to improve **data sharing** and **standardization**, ensuring better monitoring and management of agricultural resources.

## Conclusion

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The FAO's report highlights the vast potential of **space technology** in improving **agricultural development** and **food security**. By addressing the challenges in the space sector and capitalizing on emerging opportunities, space technology can significantly contribute to more efficient and sustainable agricultural practices worldwide.

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