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A STUDY ON THE 'DIGITAL AGRICULTURE MISSION' OF THE REPUBLIC IN INDIA

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Abstract: It would not be possible to create a more efficient, resilient and inclusive digital economy without the participation of its farmers in adapting digital technologies for agricultural produce and sales as well as for their finance. This article is intended to study the decade-old 'Digital India' program as well as the recently-launched Digital Agriculture Mission by the government of India in the year 2024 to achieve this objective.

Key words: Digital farming, data-driven decision making, predictive performance analytics, digital integration, digital infrastructure.

'Digital India' program

The Digital India program, launched in 2015, has altered the pace of India's growth story while transforming the country into a digitally empowered society and a knowledge-based economy. This vision is being realized through three key pillars: robust digital infrastructure, accessible government services, and empowered citizens. The foundation of India's digital transformation lies in building a ubiquitous digital infrastructure to ensure ease of living.

In September 2016, the Digital India program got a big impetus with the launch of a high quality and affordable telecommunication service – Reliance Jio, which introduced the first smartphone device through the electronic outlets of the parent company Reliance India Limited.

Reliance Jio managed faster customer acquisition, crossing 100 million users in just 170 days, by leveraging 'Aadhaar', India's digital identity system, which provides a unique number for every resident to access services (similar to Uzbekistan's PINFL-Personal Identification of an Individual).

Subsequently, after the advent of Covid-19 pandemic, the Indian public increased the adaptation of UPI, Unified Payment Interface, a contactless payment method.

Similarly, more digital infrastructure was created in India, such as: Digilocker (a platform for securely storing important documents), e-KYC (a paperless and presence-less digital identity verification) as well as the integration of bank account with digital identity and mobile connectivity, which has revolutionized the direct transfer of government benefits.

The Digital Agriculture Mission

For a similar transformation of the Agriculture Sector, the Indian government approved the 'Digital Agriculture Mission' in September 2024. The digital economy relies on farmers to supply raw agricultural products, which are foundational to numerous goods and services. Farmers' participation in the digital economy, using technologies like big data and the Internet of Things (IoT) for production, sales, and finance, is crucial for creating a more efficient,

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resilient, and inclusive digital economy. Digital tools also improve farmers' market access, increase their productivity, and enhance their access to information and capital, which are vital for economic growth.

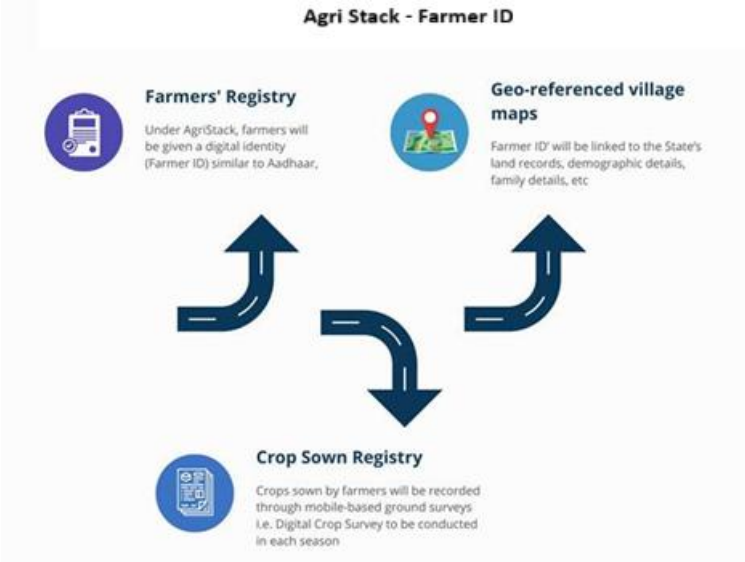
This mission has been designed to establish extensive public digital infrastructure, empowering farmers with ICT-based tools for expert advice, real-time solutions, and improved farming skills. Digital tools are expected to streamline land records, financial transactions, and procurement, thereby, reducing disputes, malpractices, as well as boosting policy efficiency.

The Digital Agriculture Mission is built on the three pillars:

I. Agri stack;
II. Agri decision support system;
III. Soil profile mapping.

I. <u>Agri stack would consist of the following:</u>

a. **Farmers' Registry**: Farmers will be given a digital identity (Farmer ID);
b. Geo-referenced village maps: Farmer ID would be linked to the State's land records, as well as demographic and family details, live stock ownership, crops sown and benefits availed.
c. Crop sown registry: Crop sown will be recorded through mobile-based ground surveys by conducting Digital Crop Survey in each season.



The Agri stack is intended to create digital identity to 110 million farmers over five years, as well as, to launch digital crop survey in all districts in the next two years;

II. **Agri decision support system** will integrate remote sensing data on crops, soil, weather, and water resources into a comprehensive geospatial system.

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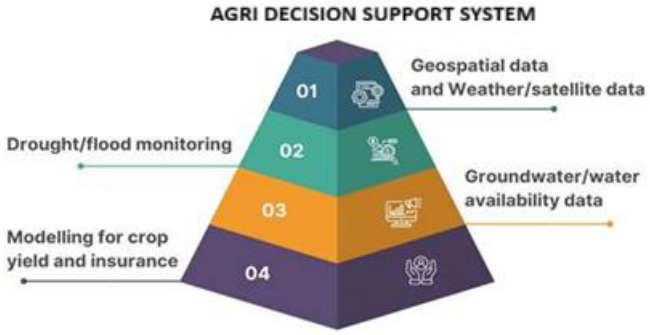

III. Under the initiative, detailed **soil profile maps** on a 1:10,000 scale for approximately 142 million hectares of agricultural land have been envisaged, with 29 million hectares of soil profile inventory already being mapped.

The mission is expected to create direct and indirect employment in agriculture, providing opportunities for around 250,000 trained local youth and Agri volunteers.

By leveraging modern technologies like data analytics, AI, and remote sensing, the mission will improve service delivery for farmers, including streamlined access to government schemes, crop loans, and real-time advisories.

Way Ahead for Digitisation of Agriculture in India

- **Strengthening Digital Infrastructure**: Broadband internet access, mobile towers, and digital literacy programs are essential to expand digital reach in rural areas.
  - Investment in satellite imaging, soil health information systems, and land mapping will improve data accuracy, empowering data-driven decisions.
- **Encouraging Public-Private Partnerships**: Collaborations with tech startups, Farmers Producer Organisations (FPO), and private agri-tech firms can foster faster adoption of digital tools.
  - FPOs can facilitate group purchases of digital resources for small farmers, reducing costs and increasing adoption rates.
- **Improving Financial Accessibility**: Banks should provide low-interest loans, subsidies, and microfinancing specifically for digital agriculture investments.
  - Introducing flexible credit options and incentives for adopting digital tools will improve financial viability for farmers.
- **Enhancing Farmer Capacity and Digital Literacy**: **Government-led training programs** and **awareness campaigns** can bridge the digital literacy gap, ensuring rural communities can leverage digital tools effectively.
  - Extension workers should be trained to assist farmers in using ICT solutions, ensuring hands-on guidance.
- **Data Security and Privacy Measures**: With increased reliance on data through initiatives like AgriStack, robust data protection policies are essential to safeguard farmers' personal information.

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- Clear guidelines on data usage, transparency, and farmer consent should be established to protect data integrity.

Conclusion

These comprehensive approaches would leverage digital technologies to enhance productivity, efficiency, and sustainability in India's agricultural sector, potentially transforming the lives of millions of farmers across the country. By extending the digital revolution to agriculture, India aims to further solidify its position as a global leader in innovative, technology-driven solutions for critical sectors of the economy.

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