

AGRICULTURE TRANSFORMATION UNDER DIGITALIZATION

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ABSTRACT:

India's agriculture growth is projected at 3.8 percent during the 2018-19 financial year, almost 0.4 percent more than last year. During 2015-16, per capita farm income was \$1693 per annum. To double farm income by 2022-23, agriculture output will need to grow at 10.4 percent annually. The central government budgeted Rs.200 crore for two years and proposed one time grant of Rs.30 lakh to every mandi willing to join the e-NAM (Electronic National Agriculture Market) platform. The government also initiated a startup movement for not only in industrial development but for agricultural development and give incentives for more research and development in agriculture sector to increase production and productivity and thereby enhancing farm income to facilitate rapid economic growth. This paper talks about various initiatives by different stakeholders who are new startups by their inventions which support agriculture transformation under digitalization in this 21st century.

INTRODUCTION:

In a country where two-thirds of the population depends on agriculture for their livelihood, the importance of this sector cannot be overemphasized. It accounts for nearly 17 per cent of the country's GDP and feeds 1.3 billion people. Over the past few decades, agriculture has witnessed different phases of growth. The first phase, which is referred to as Farming 1.0, extended from 1947 to 1966 and was characterized by radical land reforms. The second phase was the Green Revolution which increased farm productivity and rid us of our dependence on foreign food aid. Farming 2.0 was a golden age in India's agriculture. India's farmlands today are at a critical juncture. Our population continues to grow, placing an ever increasing strain on the sector. The country is also rapidly industrializing and there is massive migration to cities. Agricultural incomes are falling and the sector is in danger of being left behind.

Today is an age of digitalization. India is facing a gigantic task of making the whole country as working under digital economy. There are vast opportunities for digital revolution not only in urban areas but also in rural areas with usage of digital technologies for number of things. Government has propagated and promoted the use of digital devices for making registration, validation, submission and authorization of every legal and government document without standing in a queue for long hours which was earlier a monotonous task.

INNOVATION AND TECHNOLOGY IN AGRICULTURE

The need has arisen for another revolution: a new phase in Indian agriculture which will be defined by innovation and technology; an age where we will look to balance productivity and economics with social and environmental considerations. This age will usher in an era of unprecedented productivity and prosperity for farmers. This Farming 3.0 age will be all about disruptive innovations like Smart Farm Machinery, Micro Irrigation, Precision Farming, Digital Platforms and Partnering Stakeholders. Smart Farm Machinery is about producing more with less. Smart machines and technological breakthroughs have the potential to increase output, lower costs and boost farm incomes.

Innovation in agriculture sector is important for reducing wastage, increasing production, and cutting fertilizer use to enhance soil fertility and there are huge opportunities exist for start ups in the agriculture sector to encourage growth. Modernizing Indian agriculture will require nothing less than a step change in key elements of the sector: supply chains and markets, production support, and credit and crop insurance. Most small farmers lack access to production support, including high quality inputs, advisory services, equipment rentals, crop health and yield data, and weather forecasts. A number of startups are using data and technology to improve supply chain efficiency.

According to NASSCOM report, the Indian government specifically supports AgriTech startups through its start up India programme. The Government of India has announced to launch a scheme that aims to provide cheaper loans to startups in the cooperative sectors and those having innovative projects costing up to Rs.3 crore.

The Cooperative Enterprise Support and Innovation Scheme will be implemented by the National Cooperative Development Corporation (NCDC) and will be linked to its Cooperative Startup Innovation Fund that has an annual corpus of Rs. 100 crores.

Micro irrigation frees the farmer from vagaries of seasonal monsoon while also conserving the limited water resources. With agriculture consuming about 80 per cent of the total renewable water resources, adoption of micro-irrigation practices will help conserve our precious water reserves and also boost yields and productivity. Precision farming is an approach to farm management that uses information technology to access real time data about crops, soil, weather etc. to ensure crops and soil receive exactly what they need for optimum health and productivity. Digital platforms have the potential to put farmers directly in touch with the consumer. Middlemen will be frozen out of the system, and farmers will get fair price for their produce.

The government is working with a few States to move APMCs — the Agricultural Produce Market Committees — to the national electronic platform, eNAM, for selling fruits and vegetables. Digitization of agriculture also has the power to boost productivity by putting farmers in touch with each other and also with agri experts.

THE IMPORTANT STARTUPS IN AGRICULTURE ARE AS UNDER:

SatSure : It is founded in early 2016, bringing the best practices of satellite image processing, big data capabilities, and IT to agriculture.

Fasal: It is founded for microclimate forecasts for each farm location and point scale.

Gobasco: It is Gurgaon and Lucknow based AgriTech startup leverage realtime data analytics on data streams coming from multiple sources across the country.

CropIn: It is based in Bangalore and provides a full suite of farm management, monitoring and analytics solutions. It provides software as a service solution to agri-business globally and it has raised a total funding of USD 12 million till date.

AgroStar: It facilitates data, analytics and artificial intelligence to power a standalone mobile app, a web service, and a customer call centre where farmers can obtain high quality products for all of their farming needs. It provides facility for renting of equipments. Around 1 million farmers are connected to it and it is currently operated in Gujarat, Maharashtra and Rajasthan.

WayCool: It distributes fresh produce to sellers ranging from small shops to large retail outlets, reduces waste and inefficiency by using analytics, process management software and connected devices.

Gold Farm: It is a virtual market place for tractors and farm implements connects farmers who need equipment with farmers who own equipment, using a cloud-based platform that combines IOT-driven, farm specific data with remote sensing imagery.

CONCLUSION:

There is an urgent need for the government and the policymakers to explore innovative solutions to accelerate development in India's agricultural sector through productivity growth, higher returns to farming, acceleration of poverty reduction, and the improvement of social and economic welfare in rural India. Thus, startups in India can be looked as new emerging trend in agriculture transformation. The success of agriculture growth now depends on these startups and innovative movements. This can reduce fixed costs for farmers and make it more affordable for small and marginal farmers. By awareness and outreach programmes, government can enhance the scope of these startups for rapid transformation of agriculture and its production capacities.

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