

Agri-Startups in India- Promoting Innovation

Dr Anjani Srivastava

Chief-Editor, Anvesha A Multidisciplinary E-Journal for all Researches

E-mail anjanisrivastava23@gmail.com

Abstract

After seventy years of Independence we cannot say that India is not an agro based country. The finest Performance of Indian Agriculture during lockdown period and during the spread of pandemic, is a jewel in the crown. Present research paper discuss about the existing status and the key trends prevailing in Indian Agriculture. This paper also discuss about the conducive environment for start-ups in Agriculture sector in India. This will be explain with the help of various examples of agro- start-ups in India and their functioning, what are the basic challenges these start-up companies have to be faced? And the initiative taken by government to remove those challenges and make the working environment healthy.

Keywords: agriculture, agri- start-up, innovation, promotion government policy etc.

Introduction:

Agriculture is the back bone of Indian Economy. Agriculture is the primary source of livelihood for 58% of the population in India. The sector generates employment for 44% of the countries workforce. Indian Agriculture sector shows a tremendous boom in various products in the last few years.

India is the largest producer of spices, pulses, milk, tea, cashew and jute and the second largest producer of wheat, rice, fruits and vegetables, sugarcane, cotton and oilseed. Currently India secures the world's fourth largest producer of agrochemicals. We have the largest livestock population of around 512 million. India has the 10th largest plowable land resources in the world¹. We can find 20 agri-climatic regions and all 15 major climates in the world in India. Out of 60, 46 types of soils

presents in India. India is one of the largest manufacturers of farm equipment such as tractors, harvesters and tillers etc. India accounts for nearly one-third of the overall tractor production globally.¹

Discussion

Start-up's play an important role in the upliftment of society through innovation and novel ideas. Agri start-ups in India provides the solution to the various problems of farmers through their novel ideas incorporating with use of technology. Here one of the important question arises that why start-ups put their efforts in one of the most negligible sector from decades? That is agriculture. These start-ups find huge opportunity in agriculture sector. They learned many things by the live example of Israel, US and China. In These countries, the start-ups by tying their knot with technology not only brings the revolution in agriculture sector but also the bridge the gap between the final product and their end users. Development of new technology was not the concern here, basic challenge was the availability of these technology to the end users that is Farmers at cheap and affordable rate. With the help of start-ups these countries successfully done this task. Following are few examples of agro start-ups in India, who gives their best in this neglected sector:

1. **Agri Rain:** AgriRain is a precision irrigation systems company that deals with hose reel irrigators, which gives a complete irrigation package. Their main focus is on providing complete solution for irrigation problem of the farmers. Agri Rain can be the best example of development of Rural

¹ Source: : Ministry of Agriculture & Farmers' Welfare, Government of India, MOSPI, GoI, and industry estimates, PwC analysis

Entrepreneurship through social engineering.

2. **SPACPT Pvt. Ltd.:** SPL& Consultancy Centre aspires to create employment
3. opportunities to Indian farmers by creating
4. innovations in agricultural and farm mechanisation sector. SPACPT Pvt. Ltd., & Consultancy Centre has invented machinery like Push-type High-clearance Solar Sprayer, Solar operated Hydroponic Machine & Weeder, Solar operated Flourmill cum Mixer and Solar operated Portable Cold Storage. They are providing solar solution for the farmers.
5. **Farmify:** Farmify is an agri-fintech platform that gives an opportunity to investors to sponsor the cultivation activities of small and marginal farmers. The investors would get returns after the sale of the produce. For the farmers they provide no interest non collateral sponsorship.
6. **ABY Farmers:** Agri Business Yuva (ABY) Farmers procures commodities from farmers at the village level and pays them the prevailing market price at the village. They eliminate expenses of farmers related to the marketing of their produce. ABY processes the commodities into value-added products and markets them under registered brands (Green Royals) ABY pays 50% of the profit to farmers. By ensuring better price for the farmers they increase their income.
7. **Sri Suvarna Crop Clinic:** they provide lab-based diagnostic, guidance and consultancy services for control of various pests and diseases, weeds at reasonable price.
8. **Vraksh Agrotech:** Varkash Agrotech helps agriculture sector by developing an efficient and farmer centric eco system through providing the dual product based digital solution i.e. Agri Talk and Modern Kissan. AgriTalk coordinates with

government, private organisations, education institutions and students to discuss and share information and knowledge about agriculture and farming practices. Modern Kisan, will bring efficiency and transparency in the entire agri-value chain including buying, selling, financing, research, education, information dissemination, and job creation. Their aim is to revolutionise the agriculture through digitalisation.

Except these, Bohecod, Agricx Lab, Gold Farm, Agrowave, FASAL. Airwood. CropIn, EM3 Agri services. Ninjacart. FarmLink etc are important agri start-ups which provide their services for the betterment of agriculture sector in India.

Challenges in front of start-ups: Though these and many other start-ups working efficiently still there are many hurdles in their way of success. Few of them are as follows:

1. **Small and scattered landholding size:** In India small and marginal farmers hold around 34.5% of the total sown land. Implementation of technology driven innovative techniques for improvement in agricultural activities are getting most costly here. Less cost effective project leads to continuous losses to the agri – start-ups and presents a big challenge to them.
2. **Inadequate supply chain management:** For the smooth functioning of agricultural activities interruptive supply chain is a must. Timely supply of seeds, fertilizers farm equipment and whenever required labour and finance should be easily available on time. This is not possible because of inadequate supply chain management. This may create one of the major hindrance in front of agri start-ups in India.
3. **Inappropriate irrigation facility:** Indian Agriculture is still dependent on good rainfall irrigation. Inappropriate irrigation facility still a constraint for agri start-ups to work properly in our country.
4. **Dominance of middleman and agent:** Middleman and various agricultural agent

plays a dominant role in supply of agricultural inputs as well as the sale of farm produce. This effects the cost effectiveness of agri start-ups in India.

5. **Inappropriate financing facility:** Government provides many financing facilities and subsidies on farm inputs to the farmers but they hardly get to know how to utilize those facilities. This cause a major problem in front of agri start-ups in India.
6. **Low investor returns:** Rate of returns on Investment of agri start-ups is low as compared to other segments. This discourages the start-ups to continue for long run in agriculture sector.
7. **Non-localised technologies:** most of the technology solution for agriculture are non-localised. Technology driven solution for agricultural problems are still is not in the reach of general farmers especially the marginal and small farmers.
8. **Shortage of subject matter experts:** In the gigantic country like India, appropriate number of agricultural scientist and subject matter experts are not available. This cause a lack of expertise advise whenever required. There is the requirement of educational support for the upcoming generation in the field.
9. **Climate change:** The agricultural sector is susceptible to changing weather and climatic condition. Unavailability of climatic condition on time create to suffer losses to agri start-ups.

Government Initiative:

Time to time various policies and schemes are drafted and implemented by government to improve the condition of Agriculture sector of our economy. Current government lays special emphasis on the development of agriculture sector which will directly assist the improvement of living standard of the farmers. Their aim is to doubling the income of farmers by 2022. Few of these initiatives are listed below:

1. **Crop Insurance Schemes:** There are four crop insurance schemes launched by Government of India to provide insurance for the crop losses of the farmers. These are:
 - a. **Pradhan-Mantri Fasal BimaYojana:** Pradhan-Mantri Fasal BimaYojana was launched in 2016. It provides Insurance protection for food crops, oilseeds and annual horticultural/commercial crops notified by state government. there is a provision of uniform maximum premium for all farmers i.e. 2% of sum insured for Kharif season and 1.5% of sum insure for Rabi season and for annual commercial horticulture crops, 5% of sum insured. The difference between actual premium and the rate of Insurance payable by farmers shall be shared equally by the Centre and State. If the sowing is not done due to adverse weather/climate, claims upto 25% of sum insured will be paid for prevented sowing/planting risk. When the crop yield is less than the guaranteed yield of notified crops, the claim payment equal to shortfall in yield is payable to all insured farmers. If 50% loss in mid season of crop then on account advance payment, upto 25% of likely claims will be paid as immediate relief. Losses caused due to inundation, hail storm and landslide would be assessed at individual farm level. Post -harvest losses assessment for damage to crops in cut and spread in the field up to 14 days on account of cyclonic rain and unseasonal rain in the entire country. remote sensing technique and drones will used to supplement Crop cutting experiments for faster settlement of claims.
 - b. **Weather based crop insurance scheme:** there are certain notified food crops, oil seeds horticulture and commercial crops get insured under this scheme. It provide the same uniform maximum premium for all farmers as given through the scheme of Pradhan Mantri Fasal Bima Yojana i.e. 2% of sum insured for Kharif season and 1.5% of sum insure for Rabi season and for annual commercial horticulture crops, 5% of sum insured. The difference between actual premium and the rate of Insurance

payable by farmers shall be shared equally by the Centre and State. When the Weather indices (rainfall/temperature/relative humidity/wind speed etc) is different (less/higher) from the Guaranteed Weather Index of notified crops, the claim payment equal to deviation/shortfall is payable to all insured farmers of notified area. Provision for assessment of losses caused by hailstorm and cloud burst at individual farm level.

c. Coconut palm insurance scheme: this scheme provides insurance protection to the farmers who grows coconut and palm. Insurance protection for Coconut Palm growers. Premium rate per palm ranges from Rs. 9.00 (in the plant age group of 4 to 15 years) to Rs. 14.00 (in the plant age group of 16-60 years). 50-75% subsidy of premium is provided to all types of farmers. When the palm damaged, the claim payment equal to input cost loss damage is payable to the insured in notified areas.

d. Unified Package Insurance Scheme (UPIS) as pilot in 45 districts: this scheme has launched by the government to provide financial protection and comprehensive risk coverage of crops, assets, and life and student safety to farmers. Pilot will include 7 section Viz - Crop Insurance (PMFBY / WBCIS), Loss of life (Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY)), Accident Insurance (Pradhan Mantri Surakha Bima Yojana - PMSBY), Student safety, Household, Agriculture implements and Tractor. Crop insurance will be compulsory. However farmers can choose atleast 2 sections from remaining. Farmers may be able to get all requisite insurance products for farmers through one simple proposal/ application Form and through single window. Two flagship schemes of the Government viz PMSBY & PMJJBY have been included apart from insurance of assets. These Pilot scheme will be implemented through single window.

2. Pradhan Mantri Krishi Sinchayee Yojana (PMKSY):

Pradhan Mantri Krishi Sinchai Yojana has been launched with a good investment of Rs. 50,000 Crores. The motive is to assist irrigation, expanding cultivable area, improve efficiency of on-farm water to reduce wastage, enhance adoption of precision irrigation, etc. This is not only a scheme but a national mission to improve the farm efficiency and to utilise the water resources of the country to the optimum. PMKSY consists of three major components implemented by various ministries. They are as follows.

- a. **Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti :** following functioning have been performed by this ministry
 - i. Accelerated Irrigation Benefits Programme (AIBP)
 - ii. Har Khet Ko Pani (HKKP)
 - iii. Command Area Development (CAD)
 - iv. Surface Minor Irrigation (SMI)
 - v. Repair, Renovation and Restoration (RRR) of Water Bodies
 - vi. Ground Water Development
- b. **Department of Land Resources, Ministry of Rural Development:** Ministry of Rural Department takes care of watershed development.
- c. **Department of Agriculture and Farmers Welfare, Ministry of Agriculture & Farmers Welfare:** their main concentration on 'Per Drop More Crop'.

3. Rashtriya Krishi Vikas Yojana – Remunerative Approaches for Agricultural and Allied Sector Rejuvenation (RKVY-RAFTAAR):

In the year 2018 Ministry of Agriculture and Farmers welfare comes with a scheme namely Rashtriya Krishi Vikas Yojana – Remunerative Approaches for Agricultural and Allied Sector Rejuvenation (RKVY-

RAFTAAR), under the component called "Innovation and Agri-Entrepreneurship Development". The scheme was launched for providing financial support and nurturing the incubation ecosystem. Their motive is to assist and encourage Agri-start-ups and to contribute directly and indirectly income of the farmers.

4. Atal Innovation Mission (AIM): Atal Innovation Mission is a flagship plan of Government of India which not only create a culture of innovation and entrepreneurship but also promote it at National level. It is very good initiative of Niti Ayog with an objective of developing new programme and policies for fostering innovation in all the segments of the Indian economy and also provide platform for collaboration opportunities for different stakeholders. It can act as a buffer for innovation and entrepreneurship ecosystem of the country.

5. Pradhan Mantri Mudra Yojana (PMMY): Prime Minister of India launched Pradhan Mantri Mudra Yojana, wherein Micro Units Development and Refinance Agency Bank or MUDRA Banks provide loans at low rates to micro-finance institutions and non-banking financial institutions, who in turn provide low-interest loans to start-ups and MSMEs. Loans up to Rs 10 lakh can be availed under the MUDRA scheme. There are three categories of businesses, which can avail loans under MUDRA loan for startups.

Shishu - For new businesses. Loans up to Rs. 50,000 can be availed

Kishor - For mid-aged business. Loans up to Rs. 5 lakh can be availed

Tarun - For an existing, experienced business. Loans up to Rs. 10 lakh can be availed.

This facility is available for the entrepreneur of all the segments including Agriculture of the society.

6. Ministry of Micro, Small & Medium Enterprises- ASPIRE: A Scheme for Promotion of Innovation, Rural Industry & Entrepreneurship (ASPIRE) has started by Ministry of Micro Small and Medium

Enterprise, Government of India. their aim is to set up a network of technology centres and to set up incubation centres to accelerate entrepreneurship and also to promote start-ups for innovation in agro-industry. The Start-up can get funding upto Rs 4 lakh at initial stage and upto Rs 20 lakhs at scaleup stage.

7. MANAGE Centre for Innovation and Agripreneurship (MANAGE-CIA): Centre for Innovation and Agripreneurship (CIA) is hosted at National Institute of Agricultural Extension Management (MANAGE). Center for Innovation and Agripreneurship (CIA)-MANAGE runs a regular Incubation Programme to facilitate early stage Agri Startups to scale up their business. They provide free of cost membership for aspiring entrepreneurship. there are many flagship programmes runs under the mentorship of CIA like, Krishi Vikas- Search for Agri Innovations, Impulse- An Agribusiness Mentoring Platform, Aqua Clinics and Aquapreneurship Development Programme (AC&ADP), Aqua One Centres (AOC) etc.

Conclusion

Several interventions are being taken up by Central and State governments, Private Sector and NGOs towards strengthening of the agri-startup ecosystem. Top most companies in India like Tech Mahindra, Infosys, Cognizant and TCS are now playing vital role in Indian Agriculture. TCS has mobile delivery based advisory platform mKrishi. It provides information system for farmers which help them access localized information and advice on agricultural issues. Tech Mahindra enables companies to transport produce and meat grown at farm and deliver it as fresh, real time alerts/ notifications on violations, monitor storage temperature and humidity levels ensuring food quality. Cognizant helped AQUATEK, a brand of Monsanto Corporation to improve their product.

These start-ups are making significant impact on the livelihood of farmers. It generates employment opportunity as well as remarkable increase in farmer's income. Full support of government for these entrepreneurs plays a

mind changing role for youth. Now agri-entrepreneurship attracts more attention of the young blood to initiate the start-ups in agriculture also. In future such changes can change the face of the entire agriculture sector of Indian economy.

References:

- [1] डा अंजनी श्रीवास्तव डा अविनाश कुमार, डा शालिनी श्रीवास्तव, श्वसन वायरस - कोविड-19 का भारतीय कृषि पर प्रभाव, मेकल मीमांसा- अर्धवार्षिक शोध पत्रिका, जलुई-दिसम्बर 2021
- [2] Dr Anjani Srivastava, Reviving Eight Core Sectors-An Initiative of Government of India amidst COVID-19 Annals of Multi-Disciplinary Research, Volume 11 Issue IV December 2021, Page No. 51-61
- [3] PURI VK, MISHRA SK, Indian Economy 38th Edition, Himalaya Publishing House, New Delhi, 2021
- [4] Datt and Sundaram, Indian Economy, S.Chand and Sons New Delhi, 2021
- [5] S.Ayyaappan, Mukund A. Kataktaaware, Letha Devi G Agri Startups for Smart Farming, , Satish Serial Publishing House, 2019
- [6] Dr. R.B. Thakare , Indian Agriculture Yesterday, Today & Tomorrow, Story mirror Info Tech Ltd ,India,2017
- [7] S.S. Acharya (Author), N.L. Agarwal , Agricultural Marketing In India, CBS Publishers & Distributors; 7th edition February 2021
- [8] Sujit Sahgal , Agribusiness and Technology: Revolutionizing the Future of Farming, SAGE Publications Pvt. Ltd; 1st edition, December 2021
- [9] Arun Katyayan, Fundamentals of Agriculture, Kushal Publication & Distributors, volume 2
- [10] V K Pandey & B B Singh R K Sharma, S K Bhoi, N Pandey, S Shinde, Agriculture at a Glance 21st Revised Edition, Daya Publishing House 2019
- [11] Mahesh Kumar, Entrepreneurship in Agricultural Development, Book Enclave publishers and exporters, jaipur, 2017
- [12] Dileep Kumar, Entrepreneurship in Agriculture, Astral International Pvt Ltd
- [13] Shakti Ranjan Panigrahy , Baljeet Singh, Agro Entrepreneurship, Scientific Publishers, 2017
- [14] C Sekhar, Entrepreneurship in Indian Agriculture MJP Publishers, 2017
- [15] <http://cia.manage.gov.in>
- [16] <http://nmoop.gov.in>
- [17] www.agrospheremagazine.com
- [18] <https://ficci.in>