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Climate Smart Agriculture - Can Indian Farmers Adapt Faster than Climate Change?

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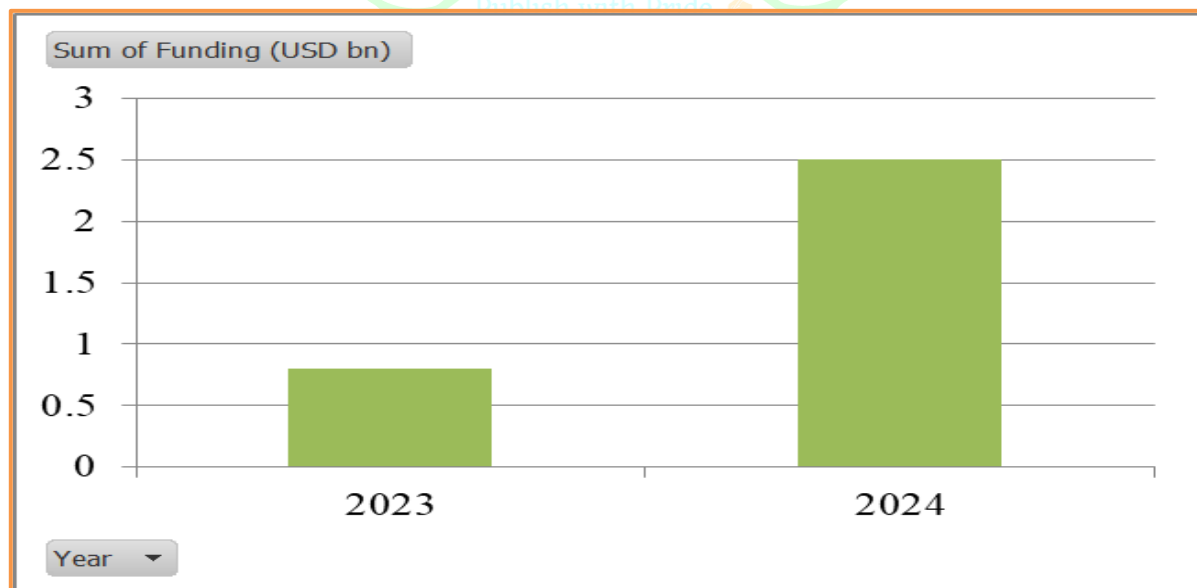
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India's monsoon has become a gamble itself and maintaining constant productivity of crop to feed the population sufficiently, is gradually becoming the most unpredictable bet in the gamble, which farmers are playing day in and out. Early arrival of heatwave, unseasonal pest outbreaks, unpredictable disease outrage, El-nino- swing agricultural productivity like pendulum and so does the livelihood of farmers. The question is not whether enough investment is poured into Indian Agriculture to make it climate smart, the real point of concern is whether every penny is invested strategically and efficiently enough that that it is strengthening farmers sufficiently to outpace the climatic gamble in the arena of agriculture.

Is The Funding Just More or Climate-Smart Too?

The point of concern here is that numbers are speaking for themselves but not narrating the whole truth – in 2024, India's agrifoodtech sector attracted \$2.5 billion which is almost three times of the investment of \$ 806 million in 2023, this lead to agrifoodtech sector garnering the postionof best funded developing market of the world in that year. Where, the sectorial investment rose by 63% making it valued at \$3.7 billion and India commanding 23% of its market share, simultaneously Zepto, the quick commerce platform seemed to raise \$ 1.4 billion alone – which translates that despite pouring of enormous investment in the agrifoodtech sector, the majority of it is confined into quick commerce platform in strengthening last-mile delivery logistics, rather than building farm level resilience. Delivering vegetables and grocery in a blink to urban households doesn't strengthen the grower of the vegetables and cereals to effectively bear the brunt of seasonality, is such a dichotomy within the sector that if left unaddressed will cripple a significant part of the sector beyond the point of recovery.



AI as Adaptation Lever

The global AI-in-Agriculture market is projected to grow at a CAGR of 23.1%, signaling that this isn't a passing trend. The climate specific interventions and Pest Surveillance happening in Agriculture now, is chiefly AI driven with explicit use of machine learning, helping farmer to scout pest outbreak in a much better way than human intervention. Precision farmin tools like Drones, IoT, Satellite Imagery are immensely helpful to plan irrigation and application of agri-input with precision as rainfall and dry spell have become too erratic to plan using traditional farming knowledge. Neural Network model can detect Apple Scab with 95% accuracy; Machine learning algorithm can identify Yellow Rust in Wheat way before the symptoms show up. These tools are of immense importance in Wheat belt of Punjab, Haryana and UP because one infestation can destroy the whole crop of a season within weeks. But, such result of such technological advancement can only be fully unleashed when instead of state of art agribusiness facility labs, it reaches to the small and marginal farmers having less than 2 hectare of landholding yet comprising the majority of the farmers' fraternity, translating its impact into the crop productivity- this last mile adoption is the real bottleneck not the technology itself.

Policy Commitment vs Execution Speed

Indian government has committed Rs.990 crore for the span of FY23-27, dedicated for three AI excellence center and one being Agriculture. This certainly shows meaning government backing towards the goal of achieving climate smart agriculture but the five year funding horizon move a policy speed whereas the factors of concern like El-nino, Heatwave, Erratic weather and Rainfall, Climate change etc, has almost become synonymous to annual events. Here lies the crux of the article, which translates to a situational dilemma that despite policy intervention and funding inflow the momentum of change in agricultural practices as well as extent of effective adoption is not synchronized enough with pace of the climate curve Indian Agriculture is trying to catch up to.

Conclusion

Indian Agriculture is adapting and the numbers that catalyze the same speak about it too, but the secret sauce behind the wholesome and tangibly effective success solely lies in the pace and extent of technology availability, affordability, accessibility and adoption by farmers, till the small and marginal landholding level. In order to pace up in synchrony with the climate change keeping the crop production and productivity intact, the fruit of the funding endowed for climate smart agriculture need to make their place at farm level as fast as it made to precision of doorstep delivery of grocery or at the headlines of leading bulletins.

References (Hyperlinked)

1. India's agrifoodtech startups raised \$2.5 bn in 2024, 3X rise from 2023- The Business Standard
2. How AI adoption is reshaping India's agri sector by Ajay Kakra- Businessline
3. Funding Winter Continues For Indian Agritech Startups by Anjali Jain- Inc42
4. AI in agriculture in 2025 by Dr. Nivash Jeevanandam- INDIAai