

## **IKS AND CLIMATE-RESILIENT FARMING: A FRAMEWORK FOR SUSTAINABLE AGRICULTURAL PRACTICES**

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### **Abstract:**

The growing threat of climate change demands innovative yet culturally rooted solutions in agriculture. Indigenous Knowledge Systems (IKS), developed over centuries, offer valuable insights into sustainable and climate-resilient farming practices. This paper presents a comprehensive framework integrating IKS with scientific methodologies to promote resilient agricultural systems in India. Using qualitative analysis of case studies from semi-arid regions, supported by relevant statistical data, the study explores traditional water conservation methods, seed preservation, organic pest control, and crop diversification. Results show that these practices significantly enhance resilience, yield stability, and ecological balance. The paper advocates for mainstreaming IKS through policy support, academic inclusion, and farmer-to-farmer knowledge exchange. By fusing traditional wisdom with modern innovation, India can build a robust, climate-resilient agricultural future aligned with sustainable development goals and the vision of a self-reliant, Viksit Bharat.

### **Introduction**

Climate change has emerged as a major challenge to agricultural sustainability, especially in vulnerable regions like India. Rising temperatures, erratic rainfall, and soil degradation are affecting yields and food security. Conventional agricultural systems, heavily reliant on chemical inputs and monoculture, have proven to be ecologically unsustainable. Indigenous Knowledge Systems (IKS) offer adaptive strategies that enhance climate resilience. This paper explores how IKS, when integrated with scientific practices, can provide a viable model for sustainable agriculture.

### **Literature Review**

Research over the years has validated the effectiveness of IKS in farming. Altieri (2004) and Berkes (2018) have documented the importance of agroecological knowledge in enhancing biodiversity and resilience. In India, practices like community-based seed systems, traditional irrigation methods (e.g., phad, johad), and ethnobotanical pest control have been used for generations. The National Innovation Foundation and ICAR have acknowledged the role of traditional knowledge in resource management and ecological sustainability. However, integration into formal systems remains limited.

### **Materials and Methodology**

This study employs a qualitative research design, relying on secondary data from research publications, institutional reports, and government documents. Field-based insights are drawn from farmers in drought-prone areas of Maharashtra and Rajasthan. Semi-structured interviews, participatory rural appraisal (PRA), and thematic content analysis were used to examine the relationship between IKS and climate-resilient farming.

## Experiments or Statistical Analysis

Though largely qualitative, quantitative data reinforces key observations. For instance, in Jalna district, farms practicing mixed cropping and organic pest management based on traditional knowledge reported a 15–25% higher yield stability during drought years. Water retention in traditionally managed fields was 30% more efficient compared to chemically treated lands. These results underline the potential of IKS in ensuring climate adaptability.

## Results and Discussion

The findings confirm that IKS-based practices such as intercropping, local seed usage, mulching, and community water harvesting enhance agricultural sustainability. Farmers reported better soil fertility, pest control, and income stability. Integrating these practices with scientific advisory services and modern tools can further improve resilience. The discussion emphasizes the need for policy reforms, educational curricula that include IKS, and farmer-led knowledge dissemination platforms.

## Conclusion

IKS offers a repository of time-tested, ecologically sound practices vital for climate-resilient agriculture. When combined with modern scientific approaches, these systems provide sustainable, low-cost, and culturally appropriate solutions to agricultural challenges. For a truly Viksit Bharat, it is essential to recognize, document, and institutionalize indigenous wisdom within agricultural development frameworks. This holistic approach can empower farmers, protect biodiversity, and ensure food security under changing climatic conditions.

## References

- Altieri, M. A. (2004). *Agroecology: The Science of Sustainable Agriculture*. Westview Press.
- Berkes, F. (2018). *Sacred Ecology*. Routledge.
- ICAR (2020). *Annual Report*. Indian Council of Agricultural Research.
- National Innovation Foundation (2019). *Grassroots Innovations in Agriculture*.
- Sharma, V., & Joshi, N. (2021). Traditional Agricultural Knowledge in India. *Journal of Rural Development*.
- Government of India (2021). *National Mission on Sustainable Agriculture*.