

A SEMINAR  
ON  
**RESTRUCTURED WEATHER BASED CROP INSURANCE SCHEME**

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## Certificate



This is to certify that, this seminar entitled

### **RESTRUCTURED WEATHER BASED CROP INSURANCE SCHEME**

is Submitted By

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In a satisfactory manner under my guidance.

This seminar is submitted for the partial fulfillment of degree in

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## **Abstract**

The Weather Based Crop Insurance Scheme (WBCIS) is a significant initiative launched by the Government of India to provide financial protection to farmers against crop losses resulting from adverse weather conditions. Given the heavy reliance of Indian agriculture on weather patterns, farmers often face substantial risks that can lead to financial instability. WBCIS aims to mitigate these risks by offering insurance coverage that compensates farmers for deemed crop losses based on specific weather parameters.

The primary objectives of WBCIS include alleviating financial hardship for farmers, utilizing weather data as proxies for crop yields, and promoting sustainable agricultural practices. The scheme covers a diverse array of crops, including food crops, oilseeds, and commercial horticultural crops, while addressing various weather perils such as rainfall deficits, excess rainfall, temperature extremes, and wind speed fluctuations. This comprehensive coverage ensures that farmers are protected against a wide range of adverse weather events that can significantly impact their livelihoods.

The implementation framework of WBCIS involves several critical steps. State and Union Territory governments are responsible for notifying risk periods, selecting crops and areas based on historical weather data, and forming technical committees to finalize insurance products tailored to the specific needs of farmers. Additionally, the scheme emphasizes the importance of real-time weather data for claims processing, ensuring that farmers receive timely compensation for their losses.

By fostering a more resilient agricultural sector, WBCIS not only supports farmers in managing the risks associated with unpredictable weather but also contributes to broader goals of food security and sustainable farming practices in India. Ultimately, the scheme represents a proactive approach to safeguarding the agricultural community, enhancing their ability to cope with the challenges posed by climate variability and extreme weather events.

## **CHAPTER**

### **1. Introduction**

Agriculture is the backbone of the Indian economy, employing a significant portion of the population and contributing substantially to the country's GDP. However, Indian farmers face numerous challenges, primarily due to the unpredictable nature of weather patterns, which can lead to severe crop losses. Adverse weather conditions, such as erratic rainfall, extreme temperatures, and other climatic anomalies, pose significant risks to agricultural productivity, threatening the livelihoods of millions of farmers. In this context, the need for effective risk management strategies becomes paramount.

To address these challenges, the Government of India introduced the Weather Based Crop Insurance Scheme (WBCIS). Launched as part of a broader effort to enhance agricultural resilience, WBCIS aims to provide financial protection to farmers against crop losses caused by adverse weather conditions. Unlike traditional crop insurance schemes that rely on yield assessments, WBCIS utilizes weather parameters as proxies for crop yields, allowing for a more timely and efficient claims process. This innovative approach not only simplifies the insurance mechanism but also ensures that farmers receive compensation based on real-time weather data.

The scheme covers a wide range of crops, including food crops, oilseeds, and commercial horticultural crops, and addresses various weather perils such as rainfall deficits, excess rainfall, temperature extremes, and wind speed fluctuations. By leveraging technology and data analytics, WBCIS aims to create a safety net for farmers, enabling them to manage risks more effectively and sustain their agricultural activities.

This introduction sets the stage for a comprehensive exploration of WBCIS, detailing its objectives, implementation framework, and the critical role it plays in enhancing the resilience of the agricultural sector in India. Through this scheme, the government seeks to empower farmers, promote sustainable agricultural practices, and ultimately contribute to the nation's food security.

## 1.1 BACKGROUND

The traditional crop insurance schemes, which focus on assessing crop yields to determine compensation, have faced several challenges:

1. **Delayed Compensation:** Field inspections and yield assessments can be time-consuming, leading to delays in disbursing compensation to farmers when they need it most.
2. **High Administrative Costs:** The process of surveying crops and assessing damage involves considerable manpower and resources, increasing the overall costs of these schemes.
3. **Limited Coverage:** Previous schemes did not adequately address the diverse range of weather risks that impact crop production, leading to gaps in protection for farmers.

To address these limitations, RWBCIS was developed as an innovative, index-based insurance model that directly links compensation to weather parameters rather than crop yields. By using real-time weather data from a network of weather stations, the scheme provides quicker, more efficient, and accurate payouts.

## 1.2 OBJECTIVES

1. **Mitigate Weather-Related Risks:** The primary goal of RWBCIS is to protect farmers from financial losses due to adverse weather conditions like excessive or deficient rainfall, temperature fluctuations, high humidity, and strong winds. By insuring against these risks, the scheme aims to reduce the economic vulnerability of farmers.
2. **Stabilize Farmers' Income:** RWBCIS provides compensation based on deviations in weather parameters. This index-based approach ensures that farmers receive timely support, helping stabilize their income even when faced with unfavorable weather events. By securing their livelihoods, the scheme encourages farmers to continue agricultural activities without fear of severe financial loss.
3. **Offer Affordable Insurance:** The scheme is designed to make crop insurance affordable for all farmers, especially small and marginal ones. The government subsidizes a significant portion of the premium, ensuring that farmers pay only a minimal amount, making it accessible to a larger population.

4. **Expand Insurance Coverage:** RWBCIS aims to provide wider insurance coverage across various crops and regions. It covers a broad spectrum of crops, including food crops, oilseeds, and horticultural crops, ensuring that diverse agricultural practices and regions are included.
5. **Enhance Efficiency and Transparency:** By using technology and weather data from satellite systems and weather stations, RWBCIS ensures quick and transparent payouts. The reliance on an objective, data-driven index minimizes delays and reduces the need for field inspections, making the process efficient and farmer-friendly.

### **1.3 FEATURES**

1. Rainfall – Deficit Rainfall, Excess rainfall, Unseasonal Rainfall, Rainy days, Dry-spell, Dry days
2. Temperature – High temperature (heat), Low temperature
3. Relative Humidity
4. Wind Speed
5. A combination of the above
6. Hailstorm, cloud - burst may also be covered as Add-on / Index - Plus products for those farmers who have already taken normal coverage under WBCIS.



## CHAPTER

### 2. Literature Review

The Weather Based Crop Insurance Scheme (WBCIS) has garnered significant attention in academic and policy discussions, reflecting its importance in addressing the vulnerabilities faced by farmers in India. This literature review synthesizes key findings from various studies and reports related to the scheme, its implementation, and its impact on agricultural resilience.

1. **Conceptual Framework of WBCIS:** Several scholars have explored the theoretical underpinnings of WBCIS, emphasizing its innovative approach of using weather parameters as proxies for crop yields. According to Kumar et al. (2018), this method allows for quicker assessments of crop losses, thereby facilitating timely compensation for farmers. The authors argue that this shift from traditional yield-based assessments to weather-based triggers represents a significant advancement in agricultural insurance practices.
2. **Impact on Farmers' Livelihoods:** Research by Singh and Sharma (2019) highlights the positive impact of WBCIS on farmers' livelihoods. Their study indicates that farmers enrolled in the scheme reported reduced financial stress during adverse weather events, enabling them to invest in future crops and maintain their agricultural activities. The authors suggest that the scheme has the potential to enhance food security by stabilizing farmers' incomes.
3. **Challenges in Implementation:** Despite its benefits, the implementation of WBCIS has faced several challenges. A study by Reddy et al. (2020) identifies issues such as inadequate awareness among farmers, delays in claims processing, and the need for improved weather data infrastructure.
4. **Role of Technology:** The integration of technology in WBCIS has been a focal point in recent literature. Gupta and Verma (2021) discuss the role of mobile applications and digital platforms in facilitating real-time weather data dissemination and claims processing. They argue that leveraging technology can significantly improve the efficiency of the scheme and increase farmer participation.
5. **Comparative Studies:** Comparative analyses of WBCIS with other agricultural insurance schemes have also been conducted. For instance, a study by Joshi et al. (2022) compares WBCIS with the Pradhan Mantri Fasal Bima Yojana (PMFBY), highlighting the strengths and weaknesses of each scheme. The authors conclude that while both schemes aim to protect farmers, WBCIS's reliance on weather data offers a unique advantage in terms of speed and efficiency. crop damage from extreme weather events using remote sensing data.

## CHAPTER

### 3. Technical Concepts:

1. **Period of Risk (i.e. Insurance Period):** - Risk period would ideally be from sowing period to maturity of the crop. Risk period depending on the duration of the crop and weather parameters chosen, could vary with individual crop and reference unit area.
2. **Selection of Areas & Crops :-** the purpose of selection of crops under WBCIS, consider factors such as availability of historical weather data, minimum cropped area, weather perils capable of causing significant & quantifiable losses by change in measurable weather parameters etc. The Scheme shall operate on the principle of “Area Approach” in selected notified RUAs. Therefore, State Govt. may notify the smallest possible areas as insurance units / RUAs, which should be preferably, the Village Panchayat / Revenue Circle / Mandal / Block / Tehsil etc.
3. **Claims Assessment & Settlement:-** Insurance company shall be responsible for all claims arising out of adverse weather incidence and shall settle claims strictly as per the terms and conditions of the scheme mentioned in the notification. In case of adverse weather incidence all the insured cultivators growing the notified crop in a RUA shall be deemed to have suffered the same level of adverse weather condition & same proportion of crop loss and become eligible for the same rate of claims.

Claims processing should be strictly as per the insurance term sheets, payout structure and the Scheme provisions. Claims shall be worked out as per the Insurance Declarations received from the Nodal Branches/ Nodal Banks for each notified area and crop. All standard Claims should be processed and paid within 45 days from the end of the risk period. Further verification & collection of relevant documents / papers, if required, in respect of affected farmers should be completed within a period of 30 days from payment of standard claims of season.

Formula to calculate : -

$$\text{Claims per Unit} = (\text{Difference between Observed \& Notified index values}) \times \text{Notional Payout}$$

## Chapter

### 4. Solution/Design/Innovation: -

Index	Aggregate rainfall in mm during cover phase
<b>Cover Phase :</b> <b>From -</b> <b>To -</b>	1 - July 15 - August
<b>Strike 1 (mm)</b>	200
<b>Strike 2 (mm)</b>	150
<b>Exit (mm)</b>	100
<b>Standard Loss Rate</b> <b>between Strike 1 and</b> <b>Strike 2 – Notional 1</b> <b>(Rs / mm/ Hector)</b>	50
<b>Standard Loss Rate</b> <b>between Strike 2 and Exit</b> <b>– Notional 2</b> <b>(Rs / mm/ Hector)</b>	80
<b>Standard loss below Exit</b>	Nil
<b>Policy Limit (Rs / Hector)</b>	6500

**Fig 01 :- Table No. 4.1 :- Deficit Rainfall Cover**

In table below actual observed index values are mentioned for 3 notified RUAs during the cover period obtained on the basis of data of RWS.

**Table - 2**

RUA	RWS	Strike-1	Strike-2	Exit	Notional-1	Notional-2	Policy Limit	Observed Index
X	A	200	150	100	50	80	6500	300
Y	B	200	150	100	50	80	6500	120
Z	C	200	150	100	50	80	6500	80

**Fig – 2**

**RUA X:** In this case notified trigger value is 200. Observed index value is 300. In this case there would be no claim payable as the notified trigger is not breached.

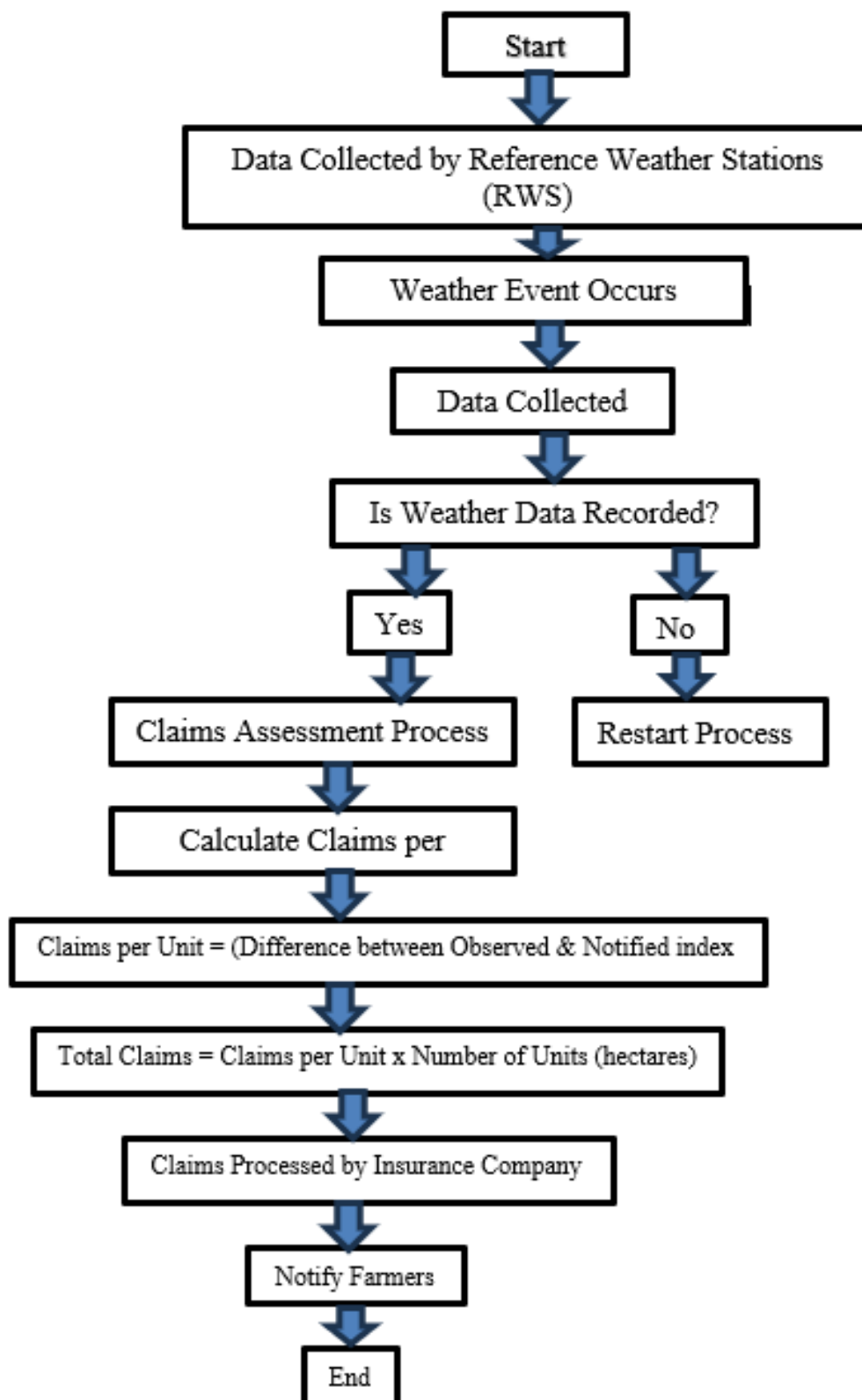
**RUA Y:** Here observed index value is 120. Hence, claims per unit will be:  $\{(200-150)*50\} + \{(150-120)*80\} = \text{Rs. } 4900$ . For two hectares, overall claim= Rs. 4900 X 2= Rs. 9800/-

**RUA Z:** Here observed index value is 80 which has breached the exit level. Hence in this case the full sum insured assigned to the phase of Rs. 6500 per unit would be payable. For two hectares, overall claim= Rs. 6500 X 2= Rs. 13000/-

Using the methodology discussed above, total claims will be worked out.

## Chapter

### 5. Methodology :



## **Chapter**

### **6. Applications**

The Weather Based Crop Insurance Scheme (WBCIS) has several applications that benefit various stakeholders in the agricultural sector.

- i. Financial Protection for Farmers:
- ii. Data-Driven Decision Making:
- iii. Improved Agricultural Practices:
- iv. Enhanced Access to Credit:
- v. Policy Formulation and Improvement:

## **Chapter**

### **7. Conclusion**

In conclusion, the Weather Based Crop Insurance Scheme (WBCIS) represents a vital initiative aimed at safeguarding farmers against the uncertainties posed by climate change and adverse weather conditions. By utilizing technology and real-time weather data, WBCIS not only provides financial security to farmers but also encourages sustainable agricultural practices. The scheme's ability to adapt and evolve in response to challenges and opportunities will be crucial for its long-term success and for ensuring that farmers can thrive in an increasingly unpredictable environment. As WBCIS continues to develop, it holds the promise of transforming the agricultural landscape in India, making it more resilient and sustainable for future generations.

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