

# Pricing Weather Related Insurance Products in India

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# Acknowledgements

I have developed the following slides from my experience in various insurance companies that write weather insurance business. These companies are not responsible for the contents of these slides. The issues discussed are representative and not exhaustive. Any remaining error in the presentation is mine. This presentation should not be considered as actuarial advice.

# Agenda

- Basics of Pricing
- Product Structure
- Simple Product but Complex Interrelationships
- Market Structure
- Actuarial Certificate on Product Viability

# Basics of Pricing

- Pure Premium or Loss Cost or Burn
- Frequency
- Severity
- Cost Load
- Investment Income
- Profit Load
- Market Adjustments

# Product Structure

- Product Structure
- Modified National Agricultural Insurance Scheme -- MNAIS -- Single Comprehensive Peril
- Weather Based Crop Insurance Schemes – WBCIS – Multi Peril
- Thresholds and deviation
- Pay-off Tables

# Data

- Time Series
- Multiple Locations
- Temperature
- Rainfall
- Relative Humidity
- Basis Error

# Complexity

- Reference Unit Area (RUA)
- Reference Weather Station (RWS)
- Multi Peril/Multi Sub Period
- Data by RWS?
- Other Factors (?)
- How to compute the convolution?

# Market Structure

- Open Tender Process
- Sun Insured is Specified – depends on crop; cost of cultivation
- Competition on Price
- Competition on Structure
- Distribution Costs



# Role of Actuary

- In theory – post tender certification
- Signing on Product Viability
- Setting up Reserves
- Potential for Catastrophes
- Limited Investment Income
- Diversification Issues