Insuring Agriculture Production
How Insurance Can be a Tool for Development

Agriculture Insurance in India: An Old Scheme in Evolution
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OVERVIEW

- Indian Agriculture
- Agriculture Risks
- Crop Insurance: Evolution
- Crop Insurance: Why Index insurance?
- Crop Insurance: Key Characteristics
- Crop Insurance: Key Challenges
- Crop Insurance: New Initiatives

Indian Agriculture

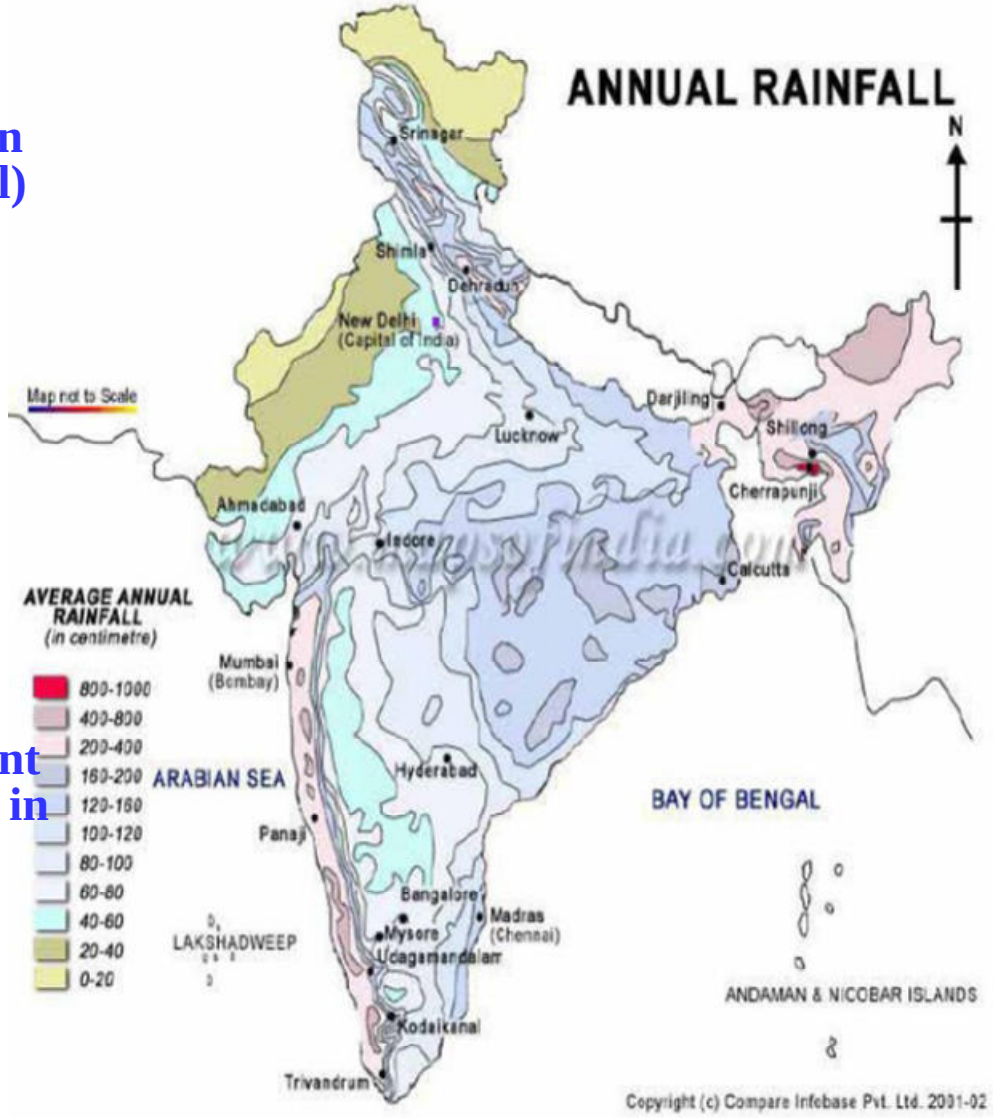
Indian Agriculture: The Setting

- 1.2 billion population
- 120 million farm holdings
- 80% farmers own less than two hectares
- 61% of rural households are farming households
- 145 million hectares of cultivated land
- 190 million hectares of gross cropped area
- 1.2 Hectare Average Farm-holding size
- 50% of area under cereals and millets
- 52% of the employment provided
- 69% of population is sustained
- Subsistence agriculture dominates
- Agrl. GDP estimated at US $ 285 billions (FAO, 2010)

Agriculture Risks

Rainfall Variability

- Rainfall variability is dominant due to the presence of the Monsoon (seasonal winds blowing from the Indian Ocean and Arabian Sea in the southwest bringing heavy rainfall)
- Monsoons contribute 78% India's annual rainfall - undergoes wide inter annual variations
- Large variations in rainfall distribution (<10cm in western desert to >10 mts in northeast)
- Disparity in the rainfall distribution is so great – droughts and floods occur at different parts of the country at the same period and in the same place at different periods
- One - third of the country is mostly under threat of drought
- One - sixth of the country prone to floods



India

Crop Insurance: History

Evolution of Crop Insurance-1

S.No	Period	Program
1	Early 1970s	➢ Inception & Pilot-1 ➢ Named Peril ➢ Single crop, few Areas, Voluntary ➢ Ad-hoc Premium Rates and No Premium Subsidies ➢ Distribution through a Fertilizer Company ➢ Insured value based on expected value ➢ Huge difficulties in operation ➢ High Claim Ratio 3,110 farmers for a premium of INR 454,000 and paid claims of INR 3,790,000.
2	Late 1970s & Early 1980s (Pilot Crop Insurance Scheme – PCIS)	➢ Pilot -2 ➢ Yield Index ➢ Single State Insurance Provider ➢ A few Crops, A few States, Only Borrowing Farmers & Voluntary ➢ Risk based Premium Rates and No Premium Subsidies ➢ Insured value based on Crop Credit ➢ Distribution through Credit Institutions ➢ Administratively Feasible ➢ Sustainable Claim Ratio (~80%) 627,000 farmers, for a premium of INR 197 lakhs and paid indemnities of INR 157 lakhs

Evolution of Crop Insurance-2

S.No	Period	Program
3	Mid 1980s Comprehensive Crop Insurance Scheme – CCIS)	➢ National Program ➢ Yield Index ➢ Single State Insurance Provider ➢ Cereals, Millets, Pulses & Oilseeds ➢ Many States ➢ Only Borrowing Farmers & Mandatory ➢ Administered Premium Rates and Claim Subsidies ➢ Premium Subsidies for Small Holdings ➢ Insured value restricted to INR 10,000 / farmer / season ➢ Distribution through Credit Institutions ➢ Multi-Agency Approach and Administratively Feasible ➢ High Claim Ratio Annual Coverage 6.76 million farmers, 11.65 million hectares, Insured value of INR 16.17 billion for a premium of INR 0.28 billion Overall Loss cost 17.97 % and Claim Ratio 1036%

Evolution of Crop Insurance-3

S.No	Period	Program
4	Late 1990s (National Agricultural Insurance Scheme – NAIS)	➢ National Program ➢ Yield Index ➢ Single State Insurance Provider ➢ Group 1-Cereals, Millets, Pulses & Oilseeds and Group 2-Annual Commercial Crops ➢ Majority States ➢ Borrowing Farmers Mandatory and Non-Borrowing Voluntary ➢ Premium of Borrowing Farmers financed by Credit Institutions ➢ Administered Premium Rates for Group 1 and Risk Based Premium for Group 2 ➢ Claim Subsidies for Group 1 ➢ Insured value based on Production Cost with option to choose upto 150% ➢ Distribution through Credit Institutions ➢ Multi-Agency Approach and Administratively Feasible ➢ High Claim Ratio for Group 1 Annual Coverage of 23.9 million farmers, 33.6 million hectares, Insured value of INR 386.24 billion and Premium of INR 11.54 billion. Overall Loss cost 12 % and Claim Ratio 425%

Evolution of Crop Insurance-4

S.No	Period	Program
5	Early 2000s (Farm Income Insurance Scheme – FIIS)	➢ Pilot Program-3 ➢ Area Revenue Index (Yield and Price) ➢ Rice and Wheat ➢ Few States & Few Areas ➢ Borrowing Farmers Mandatory and Non-Borrowing Voluntary ➢ Premium of Borrowing Farmers financed by Credit Institutions ➢ Risk based Premium Rates with Up-front Subsidies ➢ Insured value based on 80% / 90% of 3 years' Average Farm Income ➢ Distribution through Credit Institutions ➢ Multi-Agency Approach and Administratively Somewhat Difficult ➢ Reasonable Claim Ratio ➢ Minimum Support Price (MSP) withdrawn for all farmers in the pilot areas, affecting the interest of non-insured farmers 415,000 million farmers, 402,000 million hectares, Insured value of INR 4.20 billion for a premium of INR 285 million and paid indemnities of INR 283 million Overall Loss cost 6.73 % and Claim Ratio 99%

Evolution of Crop Insurance-5

S.No	Period	Program
6	Mid 2000s (Weather Index Insurance Scheme – WIIS)	➢ Pilot Program 4 ➢ Weather Index ➢ 2003 to 2006 merely initiative of insurance industry with no subsidies ➢ All Crops including Tree / Perennial Crops ➢ Many States ➢ Borrowing Farmers Mandatory and Non-Borrowing Voluntary ➢ Premium of Borrowing Farmers financed by Credit Institutions ➢ Risk based Premium Rates with a Premium cap ➢ Up-front subsidies in Premium ➢ Insured value based on Production Cost ➢ Distribution through Credit Institutions as well as Insurance Intermediaries, Micro Insurance Agents ➢ Multiple Insurance Providers ➢ Multi-Agency Approach, including Role for Private Weather Data Providers ➢ Sustainable Claim Ratio 11.61 million farmers, 15.62 million hectares, Insured value of INR 208.95 billion for a premium of INR 18.51 billion. Overall Loss cost 5.5 % and Claim Ratio 62%

Evolution of Crop Insurance-6

S.No	Period	Program
7	Early 2010 (Modified National Agricultural Insurance Scheme – MNAIS)	➢ Pilot Program 5 ➢ Yield Index + ➢ Many additional features (smaller sized insurance units, prevented sowing, post-harvest loss benefits, on-account payment of claims, farm level loss assessment for localized losses, improved coverage limits etc.) ➢ Multiple Insurance Providers ➢ Cereals, Millets, Pulses & Oilseeds and Annual Commercial Crops ➢ 50 / 650 Districts ➢ Borrowing Farmers Mandatory and Non-Borrowing Voluntary ➢ Premium of Borrowing Farmers financed by Credit Institutions ➢ Risk based Premium Rates ➢ Up-front subsidies in Premium ➢ Insured value based on Production Cost ➢ Distribution through Credit Institutions as well as Insurance Intermediaries, Micro Insurance Agents ➢ Multi-Agency Approach ➢ Sustainable Claim Ratio Annual Coverage of 1.18 million farmers, 1.39 million hectares, Insured value of INR 31.95 billion and Premium of INR 2.76 billion. Overall Loss cost 5% and Claim Ratio 60%

Evolution of Crop Insurance-7

S.No	Period	Program
8	Other Programs (Recent)	➢ Crop Health (NDVI) + Weather Index Pilot for Wheat crop ➢ Named Peril Insurance for High Value / Perennial Crops ➢ Weather Index + Pilot for High Value Perennial Fruit Crops ➢ Loyalty Bonus Pilot Weather Index Insurance for Bon Borrowing Farmers

Evolution of Crop Insurance - Summary

S.NO	FEATURE	OLD	NEW
1	Crops	Few (seasonal)	Many (seasonal, perennial)
2	Sum Insured	< Cost of production	Cost of production +
3	Premium Rating	Administered rates	Risk based rates
4	Nature of Subsidies	Claim (Back-end)	Premium (Up-front)
5	Products	Single Index, No Choice	Many Indices, Index +, some choice for NB farmers
6	Basis Risk	High	Low
7	Scope of Insurance	Standing crop	Standing crop + Prevented sowing + Post Harvest crop
8	Target farmers	Only Borrowing	All (tenants, share-croppers etc.)
9	Insurer	One (Public)	Many (Public & Private)
10	Distribution Channels	Lending Banks	Lending Banks + Insurance Intermediaries
11	Claim Settlement timelines	Longer	Relatively Shorter
12	Risk transfer	Government	Mostly Markets

Why India Needed Index Based Crop Insurance?

- Non availability of past record of Yields, Land surveys, Ownership and Tenancy
- Large number of Farm-holdings (nearly 120 million)
- Small size of farm-holdings (Average size of 1.2 hectare)
- Remoteness & inaccessibility of Farm-holdings
- Low value per unit
- Large variety of crops, varied agro-climatic conditions and package of practices
- Difficulty in collection of small amount of premium from large number of farmers
- Simultaneous harvesting of crops all over the country
- Prohibitive cost of Manpower and Infrastructure

India

Crop Insurance: Key Characteristics

Index Based Crop Insurance
Progress: 2011-12

Program	Farmers (Millions)	Hectares (Millions)	Sum Insured (US $ Millions)	Premium (US $ Millions)	Program Nature
NAIS	16.731	22.947	7415.29	219.22	Adminstered
WBCIS	11.607	15.629	4179.99	370.28	Actuarial
MNAIS	1.084	1.182	730.56	66.67	Actuarial
TOTAL	29.422	39.758	12325.84	656.17	

Source: Agriculture Insurance Company of India

India: Architecture of Crop Insurance Implementation

- Credit linkage, and mandatory for borrowing farmers
- Risk covered is based on production cost (safety-net)
- Credit institutions also finance the premium (in addition to crop loan)
- Insurance acts as collateral, and lending agencies have the first lien on claim
- Minimal distribution costs
- Claims process is automated
- Yield estimation is done by the provincial government agencies , and based on 'single series'
- Weather product uses crop modeling inputs
- Weather data comes from both public as well as private data providers
- Extension activities and awareness programs are also organized by the government
- Private insurance providers are allowed for actuarially priced programs, and enjoy same level of support as AIC
- Government provides for about 2/3rd cost of the program

Key Challenges

- **Basis risk**
- **Issues of financial literacy**
- **Crop Insurance Vs Other Subsidy programs**
- **Un-realistic expectation– high frequency payouts to sustain interest**
- **Technically Complex Products (weather index)**
- **Climate Change & Seasonal Forecasts**
- **Yield estimates prone to manipulation risk**

Some Solutions…

- Yield audit system
- Smaller Insurance Units (Minimize Basis risk)
- Technology support for Data creation
- Weather data standardization and integration
- Technical Support Unit (TSU) & product bench-marking
- Financial literacy and consumer education
- Distribution (Micro Insurance Agents, On-line portal)
- Information interface for stakeholders

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