

CHAPTER –III

WBCIS- CONCEPT AND SPREAD OVER FIVE YEARS (2007-2012)

3.1 Concept of the scheme

While crop Insurance is based on the concept of specifically indemnifying the cultivators against shortfall in crop yield, Weather based Crop Insurance takes into account the fact that weather conditions affect crop production even when a cultivator has taken all the care to ensure good harvest. Weather thresholds (triggers) beyond which crop starts getting affected adversely are developed by historically correlating studies of crop yield with weather parameters. Based on this, Payout structures are developed to compensate cultivators to the extent of losses deemed to have been suffered by them using the weather triggers. Hence the entire concept devolves around weather parameters as a 'proxy' for crop yields in compensating the cultivators for deemed crop losses.

Weather based Crop Insurance Scheme (WBCIS) is an "Area Approach" concept as opposed to "Individual Approach", where claim assessment is made for every individual insured farmer who has suffered a loss. All Cultivators (including sharecroppers and tenant cultivators) growing the crop (insurable under the scheme) in any RUA in the Pilot areas are eligible for coverage. "Reference Unit Area" (RUA) is deemed to be a homogeneous unit of Insurance for the purpose of payment of claim which is notified before the commencement of the season by the State Government. All the insured cultivators of a particular insured crop in that Area are deemed to be at par for assessment of claims.

Each RUA is mapped to a Reference Weather Station (RWS) for obtaining current weather data and processing of claims. Adverse Weather Incidences, if

any during the current season would entitle the insured a payout. RWS at Block/Tehsil level, by and large, reflects the weather experience of individual cultivators within a RUA. The weather experience in a span of fortnight, month or season evens out all fluctuations of a short time deviation. In case of malfunctioning of RWS in extreme instances, there is a provision of back up data recording by the service providers.

The Scheme is mandatory for all Loanee Cultivators of Lending Banks /Financial Institutions who have Sanctioned Credit Limit for the particular crops and optional for 'Others'.

At the beginning of every crop season AIC in consultation with experts in the State Government pre-declares the sum insured per unit area (Hectare). It is broadly the cost of inputs expected to be incurred by the insured in raising that the crop and may be different for different crops in each RUAs. Relative importance of the weather parameters further defines the break up of the proportion of sum insured among the key parameters of weather.

Loanee cultivator: $\text{sum insured per crop} = \text{sum insured} * \text{Acreage declared}$ (for Max. borrowing limit).

Non Loanee: $\text{sum insured per crop} = \text{sum insured} * \text{Acreage expected to be sown}$ (Insurance form).

Calculation of premium is worked out on weather patterns over a period of 25-100 years by correlating ideal weather conditions and expected crop loss for data observed. Premium rate is RUA and crop specific. The WBCIS is based on actuarial rates of premium but to make the scheme reachable to poor farmers, premium actually charged from farmers have been restricted to be at par with

NAIS. Subsidy element has been introduced which is borne jointly by both Centre and State concerned on 50:50 basis on the difference between actuarial rates and premium actually paid by farmers. In addition a cap on premium payable by farmers for annual commercial/horticultural crops has been provided.

The claim arises when there is a deviation between the actual weather parameter reported by the weather station for that particular RUA as different from that defined in the specified weather trigger leading to crop loss. The policy pays when the levels of rainfall and /or temperature (defined weather parameters) increases or decreases around certain predetermined levels as specified in the policy. In this scheme all insured cultivators under a particular crop deemed to have suffered the same adverse deviation in weather and become eligible for claim.

Table 3.1: The premium rates payable by the cultivator for different crops are as follows:¹²

Food Crops & Oil Seeds		
Sr.No.	Crops	Premium
1.	Wheat	1.5% or Actuarial Rate, whichever is less
2	Other crops (other cereals, Millets, Pulses, Oilseeds)	2.0 or Actuarial Rate, whichever is less
Annual Commercial/Horticulture Crops		
Premium Slab		Subsidy/Premium
1.	Upto 2%	No Subsidy
2.	>2-5%	25%, subject to minimum net premium of 2% payable by farmer
3.	>5-8%	40% subject to minimum net premium of 3.75%% payable by farmer
4.	>8%	50% subject to minimum net premium of 4.8% & Max 6% payable by farmer

¹² Agriculture Insurance Corporation of India (AIC)

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 ACC. NO. GR-10091 Date: 6/6/13

The net premium payable in case of the insured loanee cultivator is financed by the Lending Bank.

Loanee cultivators for whom the scheme is mandatory are serviced by the lending bank. Non-Loanee farmers can purchase through existing network of Lending banks at the grass root level, authorized representatives of AIC or Insurance intermediaries. The NAIS scheme is not available for the locations and crops selected for WBCIS. The schemes are available as per the dates specified by each State before the commencement of the risk period.

Pay out or claim settlement is an automatic process based on RWS recordings. Submission of form for claim payment is not required.

WBCIS covers more than 9 million farmers as per World Bank Study released in 2012.

3.2 Advantages

There are many advantages of Weather Based Crop Insurance Scheme. It is broad based and covers all categories of cultivators. Premiums are affordable due to Government subsidy. It ensures Speedy & transparent claim settlement within 45 days as there is pre-decided pay out chart and published rainfall data. There is no hassle of crop cutting experiments and surveys as in NAIS scheme. Claim forms are not required to be filled. It is a transparent system as contracts allow the policyholder direct access to the information on which the payouts are calculated. Trigger events like adverse weather (rainfall, temperature, relative humidity etc.) are independently verified & measured.

There is no adverse selection problem as in Index insurance all insured farmers within the defined area have the same insurance payout conditions, regardless of their specific risk exposure.

Moral hazard is eliminated with WBCIS as there is no benefit in individual producers trying to influence claims. All producers in the defined area are treated equally.

There is low operational and transaction cost as Index insurance requires limited individual underwriting (client assessment). It can be distributed, and claims can be settled, at relatively lower cost. However, education about the product remains important, both prior to product launch and as an ongoing process.

3.3 Disadvantages

Design Challenges & Basis Risk: The two biggest challenges of the present weather-based crop insurance program are: (i) designing a proxy weather index with predictive capability to realistically measure crop losses (this, is closer to the indemnity principle); and (ii) the basis risk. Basis risk is the difference between the loss experienced by the farmer and the payout triggered.

On one hand poor design of weather index may result in inability of the index in capturing the yield loss while basis risk, on the other hand, may arise from poor density of weather stations. Both may lead to a similar results, i.e. may not trigger a payout despite the occurrence of damages/loss at individual farm, or trigger a payout when loss did not occur. Alternatively, a perfectly correlated index along with low basis risk would result in a situation shown by quadrant I and IV.

Diagram-3.1: Effect of Basis Risk & Poor Design of Weather Index

		Crop	
		Good Crop	Poor Crop
Claim	Poor Claim	No / Low Claim during Good Crop season (1)	No / Low Claim during Poor Crop season (2)
	Good Claim	Full / High Claim during Good Crop season (3)	Full / High Claim during Poor Crop season (4)

Source: Rao (2007).

3.4 Basis risk.

Index insurance works best where losses are homogeneous in the defined area and highly correlated with the indexed peril. There are various types of basis risk:

- **Geographic basis risk.** Local variations in the peril occurrence (e.g. rainfall) within the area surrounding a weather station. This arises when a weather station is referenced for a larger area covering areas far off from the weather station.
- **Temporal basis risk.** Inter-annual variations in seasonal crop phases, meaning that the insurance phases are not temporally aligned with the intended crop growth stage.
- **Product basis risk.** Weather index covers risk arising out of deviations in parametric weather exigencies only. Crop losses can be caused by many factors like pests, diseases, hailstorms, flooding etc. Where there is no clear-cut relationship between loss and the indexed weather peril, basis risk can be high.
- **Product design basis Risk** arises because of imperfect correlation between weather index and the production process (yield).

WBCIS normally covers only one, or sometimes two, weather perils. Although this reduces the cost compared with MPCI, the product may not provide broad enough coverage to satisfy risk management needs. Technical capacity and expertise are required, particularly during the initial design phase for new products, in agro-meteorology and in operationalizing the products.

WBCIS depends on the availability and quality of weather data, which can drastically vary from country to country. In developing countries, the shortage of historical and real-time weather data is often a major hurdle.¹³

3.5 Scheme Acceptance by the State Government

The State Government intending to participate in the Scheme has to communicate its consent along with areas and crops selected for the Pilot. Such consent of the States implies acceptance to abide by the provisions of the Scheme in totality as spelt out in the text of the Scheme & operational modalities and other guidelines issued from time to time.

The State/UT is required to make necessary budgetary provision in the State/UT budget, to release premium subsidy for the notified crop(s)/area(s) at beginning of crop season based on fair estimates and also facilitate strengthening of weather station network in notified areas/districts.

The State level Coordination Committee on Crop Insurance (SLCCCI) which oversees the implementation of National Agricultural Insurance Scheme (NAIS) also oversees the implementation of WBCIS. The Committee in addition to the present composition can include representatives from State Horticulture Dept.,

¹³ Weather Index-based Insurance in Agricultural Development, A Technical Guide, World Food Programme, <http://documents.wfp.org>.

State Remote Sensing Application Centre and India Meteorological Department (IMD). Chairman of SLCCCI can also co-opt representatives from other departments / agencies & other stakeholders as special invitees, if considered necessary. The States not implementing NAIS constitute SLCCCI on the above pattern.

3.6 Coverage

Districts covered

The scheme was initiated as a pilot in Kharif 2007 in 70 hoblis of Karnataka for 8 rain-fed crops.

- During the Rabi 2007-08 seasons, the scheme was implemented in the 4 states of Rajasthan, Chhattisgarh, Madhya Pradesh and Bihar covering 21 Districts and 139 Tehsils.
- During the Kharif 2008 season, the scheme was implemented in 10 states namely Madhya Pradesh, Haryana, Punjab, Bihar, Rajasthan, Jharkhand, Maharashtra, Karnataka, Orissa and Tamilnadu covering 57 Districts and 269 Blocks.
- During the Rabi 2008-09 season, the scheme was again implemented in 10 states namely Haryana, Bihar, Rajasthan, Jharkhand, Karnataka, Tamilnadu, Kerala, West Bengal, Chhattisgarh and Himachal Pradesh covering 78 Districts and 301 Blocks.
- During the Kharif 2009 season, the scheme was implemented in 13 states with an addition of Andhra Pradesh, Gujarat and Kerela covering 103 Districts and 672 Blocks.

- During Rabi 2009-2010 season, the scheme was implemented in 11 states with addition of Andhra Pradesh covering 98 Districts and 665 blocks.
- During Kharif 2010 season, the scheme was implemented in 16 states with addition of Chhattisgarh, uttarakhand and Uttar Pradesh covering 118 districts and 1010 Blocks.
- During Rabi 2010-2011 season, the scheme was implemented in 14 states with addition of Chhattisgarh, Uttarakhand and Uttar Pradesh covering 115 districts and 911 Blocks.
- During Kharif 2011 season, the scheme was implemented in 14 states with deletion of Chhattisgarh and Maharashtra, covering 109 districts and 1425 Blocks.
- During Rabi 2011-2012 season, the scheme was implemented in 14 states covering 137 districts and 1842 Blocks. (See Table 3.2).

Table 3.2: State, District and Block wise coverage

Year	Season	States	Districts	Blocks
2007	Kharif			
2007-08	Rabi	4	21	139
2008	Kharif	10	57	269
2008-09	Rabi	10	78	301
2009	Kharif	13	103	672
2009-10	Rabi	11	98	665
2010	Kharif	16	118	1010
2010-11	Rabi	14	115	911
2011	Kharif	14	109	1425
2011-12	Rabi	14	137	1842

Source: Agricultural Insurance of India for AIC (Annexure-viii).

Crops covered- The various crops covered are as follows:

Kharif: Black gram, green gram, paddy, bajra, maize, jowar, guar, soya bean, rice, groundnut, castor, cotton, chilly, kinnow, potato , black pepper, pulses, sunflower , citrus, orange, mango, red gram, apple, moth, sesame, oil palm, chauli, tur, onion, grapes, banana, tapioca, tomato, turmeric, etc.

Rabi: wheat, barley, gram, lentil, potato, tomato, rai & mustard, linseed, peas, taramira, cumin, coriander, fenugreek, isabgol, grape , gingelly, sunflower, cashewnut, onion, citrus, mango, boro -paddy, litchi, cauliflower, cabbage, tapioca, brinjal, pomegranate, methi, etc.

Insurance Coverage

The coverage has been steadily increasing. The no. of farmers covered during 2007 -08 was 67.84 lacs, during 2008-09 was 37.51 lacs, during 2009-10 was 23.62 lakh which increased to 92.95 lakhs during 2010-11 which further increased to 116.14 lakhs during 2011-12. Similarly the cropped area insured which was 10.68 lacs hectares during 2007-2008, was 9.64 lacs hectares during 2008-2009, increased to 34.21 lakh hectares during 2009-10, increased to 131.48 lakhs during 2010-11, which further went up to 156.37 lakhs in 2011-12. Sum insured too increased exponentially during this period. The gross premium which was at Rs.447.63 crore during 2009-10, increased to Rs 1290.98 crore during 2010-11, further Rs. crore 1850.7 during 2011-12 (see Table 3.3).

Value for Money

In terms of the value for the government subsidies, AIC provided the best value which was 58.03% based on the cumulative value of previous years, and is significantly higher compared to the private sector insurers. Within the private

sector ICICI-Lombard provided 46.45 %, IFFCO-Tokio provided 43.69 %, and at the bottom was HDFC Ergo with 29.09 %. As regards claim paid / hectare AIC and ICICI Lombard is at Rs.6624 and Rs.5031 respectively, while IFFCO-Tokio at Rs 4868 and HDFC Ergo at Rs.3751. In terms of claim amount/ farmer AIC was on top with Rs.1773.29 followed by ICICI Lombard with Rs.1576.38, IFFCO-Tokio with Rs.1239.04 and HDFC Ergo at the bottom with Rs. 1007.44 (see Table 3.3).

Table 3.3: Comparative statement of Performance

States / Uts.	Farmers Insured (no.)	Area Insured (ha.)	Sum Insured	Premium Collected	(Rs. In lakh)		Claims to premium (ratio)	Claims to farmers insured (Rs.)	Claims to farmers benefitted (Rs.)
					Claims Paid	Farmers Benefitted (no.)			
AIC	18121951	25064940	3116554	286119	166037	9363223	0.58	916.22	1773.29
ICICI-Lombard	4832431	6895265	910132	74675	34688	2200446	0.46	717.80	1576.38
IFFCO-Tokio	1060854	1337001	170368	14898	6509	525315	0.43	613.55	1239.04
Om MS	50488	57257	12112	1038	337	30377	0.32	667.98	1110.21
HDFC-Ergo	260975	404010	79193	5208	1515	150428	0.29	580.69	1007.44
Total	24326699	33758473	4288359	381937	209086	12269789	0.54	859.49	1704.07

Source: Ministry of Agriculture and Department of Co-operation (last 3 columns derived calculation for Annexure-i)

Market Share

As regards the market share, AIC has over 80% market share which can be understood from the fact that the state has favoured the insurance company which gave the best value among the insurance company. Private sector Insurance cos. were also allowed to compete with public insurers to offer subsidized products. 20% of portfolio by premium volume presently is sold by them. Within private companies ICICI Lombard is dominant having almost 75% of the market of the private insurers (see Table 3.4).

At present WBCIS has about one-third the coverage of the National Agricultural Insurance Scheme (NAIS), the main crop-insurance vehicle.

Rajasthan became the first state of India to implement pilot WBCIS across the entire state. Bihar has also taken WBCIS to all districts of the state.

Table 3.4: WBCIS: Market Share

Insurance Company	Hectares Insured (Lakhs)	Premium (Rs. Crs)	Claims (Rs. Crs.)	Farmers Insured (Lakhs)	Farmers received Claims (Lakhs)
AIC	74.25%	74.91%	79.41%	74.49%	76.31%
ICICI Lombard	20.43%	19.55%	16.59%	19.86%	17.93%
IFCO-Tokio	3.96%	3.90%	3.11%	4.36%	4.28%
CMMS	0.17%	0.27%	0.16%	0.21%	0.25%
HDFC Ergo	1.20%	1.36%	0.72%	1.07%	1.23%
TOTAL	100%	100%	100%	100%	100%

Source: Own calculation based on data from Ministry of Agriculture, Department of Agriculture and Cooperation (Annexure-i).

Government of India's Expenditure on Crop Insurance Schemes over the five year period has increased under WBCIS and decreased under NAIS (see Table 3.5 below).

Table 3.5: Financial progress of the scheme¹⁴

Year	(Rs. In crore)				
	NAIS	WBCIS	MNAIS	CPIS	Total
2007-08	718.88	69.19			788.07
2008-09	694.00	100.00			794.00
2009-10	1419.00	120.00		0.10	1539.10
2010-11	2660.00	450.00	25.00	0.85	3135.85
2011-12	360.00	631.18	62.15	1.00	1054.33
XIth Plan	5851.88	1370.37	87.15	1.95	7311.35

Source: Ministry of Agriculture, Department of Agriculture and Cooperation

¹⁴Ministry of Agriculture, Department of Agriculture and Co-operation

3.7 At a glance picture of the scheme is tabulated in Table 3.6.

Table 3.6: A Summary - Pilot Weather Based Crop Insurance Scheme (WBCIS)

1.	Title :	Pilot Weather Based Crop Insurance Scheme (WBCIS)
2	Type :	Central Sector Scheme (CSS)
3	Year of Commencement :	2007-08 (on pilot basis)
4	Objectives :	To provide insurance protection to farmers against adverse weather incidence, such as deficit & excess rainfall, frost (low temperature), heat (temperature), relative humidity etc. which are deemed to impact crops adversely during their cultivation period
5	Salient features :	<ul style="list-style-type: none"> • Among various weather parameters like rain, temperature, wind, sunshine etc. rainfall is an important parameter in the context of Indian agriculture particularly for the Kharif season. • In the Rabi season, weather parameters like unseasonal rain, temperature, frost, humidity etc. are some of the important parameters which affect crops adversely. • The scheme is applicable to major cereals, millets, pulses, oilseeds and commercial/horticultural crops. • All farmers including sharecroppers and tenant farmers growing notified crops in the notified areas are eligible for coverage. • The scheme is compulsory for loanee farmers and voluntary for non-loanee farmers. • NAIS will not be implemented for loanee farmers in areas where WBCIS is implemented. However, loanee farmers may choose between NAIS and WBCIS, and also the insurance company. • Maximum Sum Insured (SI) is broadly equivalent to cost of cultivation. However, non-loanee farmers have flexibility to insure smaller amounts within maximum limit, but not less than 50% of sum insured. • Actuarial rates would be worked out but premium actually payable by farmers for food and oilseeds crops would be at par with existing rates ranging between 2.5% to 3.5% under NAIS in the Kharif season. • Difference between the Actuarial Rates and Rates Charged from farmers is being subsidized on slab basis and is shared by the Central and State Government on 50 : 50 basis.
6	Structure of Scheme	The scheme, at present, is being implemented by Agriculture Insurance Company of India Ltd. (AIC) and

		private general insurance companies viz. ICICI Lombard, IFFCO-Tokio and Cholamandalam MS General Insurance Companies.
7	Funding Pattern	Only up-front support in the form of premium subsidy to the farmers is provided, which is equally shared by the Central and State Government. All the payable claims are the responsibility of the insurance companies.
8	Eligibility	Farmers irrespective of the size of holding.
9	Area of Operation	All India level Voluntary Scheme i.e. States/UTs are free to opt in favour of the scheme.
10	Procedure to apply	At the beginning of each crop season, the State Government/Union Territory Administration in consultation with insurance companies notifies the crops and defines areas, which will be covered during the season. The monthly crop-wise and defined area-wise details of crop insurance with premium in respect of loanee farmers are remitted to the insurance companies by the financial institutions. Non-loanee farmers who desire to join the scheme are required to fill up prescribed proposal form of WBCIS and submit the same along with premium in the village branch of commercial bank or Regional Rural Bank or PACS of Cooperative Bank and other intermediaries.
11	Eleventh Plan Outlay Yearwise (Rs. in crores)	2007-08 – Rs. 69.19 2008-09 – Rs. 100.00 2009-10 – Rs. 50.00

Source: www.indg.in/agriculture-India Development Gateway.