

A REVIEW ON EXISTING CROP INSURANCE SCHEMES IN INDIA

Ajeet Singh Chhabra*

Vijay Kumar Dwivedi**

Abstract

Risk is the integral part of economic and business activities. As agriculture is also an economic activity, it is also has a risk element with it. This risk can be treated by avoiding, preventing, sharing, transferring, spreading, and taking. In India agriculture depends on the climate conditions. Therefore agriculture is the most risky economic activities and hence need for insurance to share the risk in productivity. Having experienced the severity of the situation of agriculture in the country Government of India launched agriculture insurance in the country in the financial year 1972-73 and it is continue till now. This research article delineates the evolution of crop insurance schemes in India and performance of the existing crop insurance schemes such as NAIS, MNAIS. The study also describes the comparison of different crop insurance schemes from 1972 to till now.

Keywords: Crop Insurance, NAIS, MNAIS, Risk Mitigation Strategy.

* Research Scholar Department of Civil Engineering, National Institute of Technology, Durgapur, West Bengal, India

** Professor Department of Civil Engineering, National Institute of Technology, Durgapur, West Bengal, India

Introduction

Though the causes and extent of climate change remain unsettled, the issue of its occurrence is largely settled. Evidences of the changes in temperature, precipitation, and extreme weather events have been found on a scientific basis (IPCC, 2007a). These changes are likely to affect global socio-economic and environmental systems in various ways. Because climatic factors such as temperature and precipitation serve as direct inputs to agriculture, any change in these variables is bound to have a significant impact on crop yield and its variability. Therefore, this topic has drawn the attention of researchers, as evident by the growing number of studies (see, e.g., Dinar et al., 1998; Mall et al., 2006; Cline, 2007; Seo and Mendelsohn, 2008; Lobell et al., 2011).

Though these are unpredictable factors of the natural environment how such uncertainties and risks can be mitigated. About two thirds of the cropped acreage is vulnerable to drought in different degrees and on an average 12 million hectares of crop area is affected annually by these calamities severely impacting the yields and total agricultural production (Singh, 2010).

Agricultural insurance is considered as an important mechanism to address the risk of output and income resulting from various natural and manmade events. Agricultural Insurance is a means of protecting the agriculturist against financial losses due to uncertainties that may arise agricultural losses from all unforeseen perils beyond their control (AIC, 2008).

Risk is the integral part of economic and business activities. As agriculture is also an economic activity, it is also has a risk element with it. This risk can be treated by avoiding, preventing, sharing, transferring, spreading, and taking. In India agriculture depends on the climate conditions. Therefore agriculture is the most risky economic activities and hence need for insurance to share the risk in productivity. Having experienced the severity of the situation of agriculture in the country Government of India launched agriculture insurance in the country in the financial year 1972-73 and it is continue till now. This research article delineates the evolution of crop insurance schemes in India and performance of the existing crop insurance schemes such as NAIS, MNAIS. The study also describes the comparison of different crop insurance schemes from 1972 to till now.

Evolution of Crop Insurance schemes in India

In India, a number of experimental crop insurance schemes have been introduced from time to time. The first individual approach scheme was introduced in (1972-1978), Pilot Crop Insurance Scheme (1979-1984), Comprehensive Crop Insurance Scheme (1985-1999), Experimental Crop Insurance Scheme (1997-1998), Pilot Scheme on Seed Crop Insurance and National Agricultural Insurance Scheme (1999- 2000 onwards) (Mahajan and Bobade, 2012). The first scheme was based individual approach. After getting anomalies experience in the individual approach experts suggested shift to “Area Approach” in the year 1979. Hence, the GOI launched PCIS with 50% subsidy. The CCIS was introduced in 1985, to insure all loanee farmers under the protection of the scheme and oilseed were also covered under the scheme. The ECIS was launched to cover non loanee and marginal farmers. The NAIS was introduced to give a better solution to farming community. NAIS is the one of the successful scheme for farming community in terms of coverage both area wise and number wise followed by CCIS (Deshmukh, 2012). The Agriculture Insurance Company and private companies has been implemented the Weather based crop insurance scheme (WBCIS) in 2007. The scheme was launched to cover the crops by parametric weather related risks like rainfall, frost, heat (temperature), humidity etc.

Table 1: A comparative study of various crop insurance schemes in India
(Source: Adopted from Raju and Chand, 2010)

Insurance scheme	Period	Appro Ach	Crops covered	Farmers covered (lakhs)	Amount (Rs. in crores)		Salient features
					Premi um	Clai ms	
Crop Insurance Scheme	1972-78	Individ ual	Cotton, groundnut , wheat, potato	0.03	0.05	0.38	Implemented in 6 states on voluntary basis
Pilot Crop	1979-85	Area	Cereals,	6.23	1.95	1.56	Loanee

Insurance Scheme			milletts, oilseeds, cotton, potato and chickpea				farmers On compulsory and non-loanee on voluntary, 50% subsidy on premium for small and marginal farmers
Comprehensive Crop Insurance Scheme	1985-99	Area	Food grains and oil seeds	763	404	2303	Loanee farmers on compulsory
Experimental Crop Insurance Scheme	1997-98	Area	Cereals, Pulses and oilseeds	4.78	2.86	39.78	For covering non-loanee small and marginal farmers also in addition to loanee farmers.
National Agricultural Insurance Scheme	1999-Continuing	Area	Food grains, oilseeds, annual commercial and horticultural crops	971	2944	9857	Loanee farmers on compulsory basis and non-loanee on voluntary, subsidy on

							premium for small and marginal farmers
Modify National Insurance Scheme	2010-11	Area	Food grains, oilseeds, annual commercial and horticultural crops	4.58	1.09	8.64	Sowing, planting risk, post-harvest risk like cyclone
Farm Income Insurance Scheme	2003-04	Area	Wheat and rice	2.22	15.68	1.5	Loanee farmers on compulsory basis
Weather/Rainfall Insurance	2003-04-Continuing	Individual	Food grains, oilseeds annual commercial and horticultural crops.	5.39			Available to all farmers. Based on rainfall received at the IMD

National Agricultural Insurance Scheme (NAIS)

Keeping in mind the demand of all the states to improve quality and contents of CCIS, the National Agricultural Insurance Scheme has been introduced in 1999-2000 in Rabi season. In December 2002, The Agricultural Insurance Company of India Ltd (AIC) was incorporated to implement the scheme. The company started operating from April 2003, took over the implementation of NAIS. Both loanees and non-loanees farmers is eligible for this scheme. The

scheme is working on both 'individual approach', for localized calamities such as hailstorm, landslide, flood and cyclone and 'area approach', for widespread calamities. It covers all food crops, oilseeds, annual commercial / horticultural crops. Among the annual commercial and horticultural crops sugarcane, Cotton, Potato, Onion, Chilly, Turmeric, Ginger, Coriander, Cumin, Fennel, Fenugreek, Isabgol, Jute, Tapioca, Banana, Pineapple are covered in the scheme. This scheme follows differential premium rate because of the different risk exposure to crops in the country which can be broadly divided into two in majority Kharif and Rabi.

The NAIS has been implemented in 13 Kharif season, up to the year 2012. As indicating in Table 2 during the Kharif season, 15.27 crore (153 million) farmers and 23.12 crore (231 million) hectares of land were insured. Table 2 also showing that, the maximum farmers and area was covered in the year 2009. The farmers covered in 2009 was 1.83 crores and the area was 2.58 crores hectares. After this year up to 2012 it was significantly decreasing with respect to number farmers and area insured. However, highest premium received was 8.79 crore in the year 2012 against the claim of Rs 2.79 crore. The lowest claim was 4.94 crore and the maximum was 4.54 crore in the year 2001 and 2009 respectively.

For 13 Rabi season up to 2011-12, 5.11 crore (51.1 million) farmers and 7.64 crore (76.4 million) hectares of land were insured (Table 3). In the year 2008-09 maximum farmers and area insured, was 6.21 and 8.86 crores. Table 3 also indicating the maximum premium received was 2.99 crore against the claim of 6,579.30 crore, in the year 2010-11.

Table 2: NAIS Performance for Kharif seasons from Kharif 1999–2000 to Kharif 2012
(Source: Ministry of Agriculture, Government of India)

Season Kharif	Farmers Insured (in m.)	Area Insured (m. Ha.)	Sum Insured (m. Rs)	Gross Premium (m. Rs)	Claims (m. Rs)	Farmers Benefitted (m.)	Farmers benefitted (%)
2000	8.41	13.22	69,033.80	2,067.40	12,224.80	3.64	43.23

2001	8.70	12.89	75,024.60	2,616.20	4,936.40	1.74	20.03
2002	9.77	15.53	94,316.90	3,254.70	18,243.90	4.30	43.99
2003	7.97	12.36	81,141.30	2,833.30	6,526.80	1.71	21.48
2004	12.69	24.27	1,31,706.20	4,589.40	10,381.70	2.68	21.08
2005	12.67	20.53	1,35,191.00	4,499.50	10,850.30	2.69	21.19
2006	12.93	19.67	1,47,593.60	4,672.90	17,762.20	3.13	24.22
2007	13.40	20.76	1,70,079.60	5,243.20	9,153.60	1.59	11.88
2008	12.99	17.64	1,56,660.70	5,119.40	23,778.00	4.22	32.47
2009	18.25	25.77	2,76,167.10	8,628.50	45,374.50	7.97	43.67
2010	12.68	17.11	2,37,110.70	7,217.90	16,412.10	2.25	17.77
2011	11.56	15.78	2,34,871.00	7,143.50	16,654.10	1.85	15.97
2012	10.65	15.69	2,71,813.60	8,782.40	27,895.20	1.90	17.83
Total	152.67	231.21	20,80,710.10	66,668.30	2,20,193.60	39.66	25.98

Table 3: NAIS Performance for Rabi seasons from Rabi 2000 to Rabi 2011-12
(Source: Ministry of Agriculture, Government of India)

Season Rabi	Farmers Insured (in m.)	Area Insured (m. Ha.)	Sum Insured (m. Rs)	Gross Premium (m. Rs)	Claims (m. Rs)	Farmers Benefitted (m.)	Farmers benefitted (%)
1999-00	0.58	0.78	3,564.10	54.20	76.90	0.06	9.48
2000-01	2.09	3.11	16,026.80	277.90	594.90	0.53	25.19
2001-02	1.96	3.15	14,975.10	301.50	646.60	0.45	23.17
2002-03	2.33	4.04	18,375.50	385.00	1,885.50	0.93	39.83
2003-04	4.42	6.47	30,494.90	640.60	4,970.60	2.10	47.46

2004-05	3.53	5.34	37,742.10	758.50	1,605.90	0.77	21.89
2005-06	4.05	7.22	50,716.60	1,048.20	3,383.00	0.98	24.23
2006-07	4.98	7.63	65,422.10	1,428.80	5,159.70	1.39	27.96
2007-08	5.04	7.39	74,666.40	1,587.10	8,101.80	1.58	31.30
2008-09	6.21	8.86	1,11,487.10	2,957.20	15,101.80	1.98	31.88
2009-10	5.68	7.90	1,10,075.00	2,917.00	5,861.70	1.04	18.36
2010-11	4.97	6.94	1,10,105.60	2,981.70	6,579.30	1.14	22.91
2011-12	5.24	7.61	1,12,839.40	2,576.80	5,454.80	1.29	24.58
Total	51.08	76.43	7,56,490.70	17,914.50	59,422.50	14.23	27.87
Kharif + rabi 203.74		307.64	28,37,200.80	84,582.80	2,79,616.10	53.89	26.45

The states accounted for the major part of the coverage in terms of number of farmers insured, these states are Andhra Pradesh, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Uttar Pradesh and West Bengal (Table 4).

Table 4: NAIS State-wise business statistics from Rabi 1999–2000 to Kharif 2012 (All States)

(Source: Ministry of Agriculture, Government of India)

State	Farmers Insured ('000)	Area Insured ('000 Ha.)	Sum Insured (m. Rs)	Gross Premium (m. Rs)	Claims (m. Rs)	Farmers Benefitted ('000)	Farmers Benefitted (%)

Andhra Pradesh	28,386	43,501	5,53,018	15,895	46,372	6,698	23.60
Assam	316	240	5,628	156	142	61	19.30
Bihar	6,037	7,378	1,19,040	3,038	23,062	2,431	40.27
Chhattisgarh	9,774	19,781	1,02,214	2,611	3,824	1,672	17.11
Goa	8	13	28	1	0	1	12.50
Gujarat	13,266	30,505	3,53,695	13,719	64,522	4,886	36.83
Haryana	631	765	8,233	239	434	129	20.44
Himachal Pradesh	290	223	4,253	92	175	107	36.90
Jharkhand	6,070	3,577	32,207	802	5,222	2,178	35.88
Karnataka	12,788	20,391	1,55,950	4,641	19,044	5,133	40.14
Kerala	423	374	7,169	154	251	76	17.97
Madhya Pradesh	26,634	66,065	4,04,351	11,871	17,301	4,679	17.57
Maharashtra	31,764	27,483	1,95,061	7,868	22,508	9,534	30.02
Manipur	19	22	620	16	77	19	100.00
Meghalaya	28	30	456	22	5	3	10.71
Mizoram	0.1	0.1	2	0.1	1	0.1	98.35
Odisha	14,412	14,442	1,92,788	4,818	14,275	2,662	18.47
Rajasthan	15,059	31,380	1,62,031	4,575	26,217	5,201	34.54
Sikkim	2	1	25	0	0	0	4.50
Tamil Nadu	4,993	6,691	1,32,290	3,305	15,934	1,723	34.51
Tripura	19	13	289	8	6	3	15.79
Uttar Pradesh	21,541	28,813	2,87,333	5,884	10,097	4,228	19.63
Uttarakhand	371	347	7,915	183	414	117	31.54
West Bengal	10,834	5,494	1,11,111	4,657	9,691	2,337	21.57
Andaman & Nicobar Islands	3	4	73	2	2	0	14.67

Pondicherry	36	52	877	17	29	7	19.44
Jammu & Kashmir	37	53	546	11	12	4	10.81
Total	2,03,743	3,07,638	28,37,201	84,583	2,79,616	53,889	26.45

As shown in the table 5, oilseeds accounted for 31.40 per cent of premium and 32.72 per cent of indemnity. Groundnut contributed 17.67 per cent of premium and accounted for 25.28 per cent of indemnity. Cereals contributed 41.24 per cent of premium and accounted for 48.57 per cent of indemnity. It can be seen that, cereals has highest indemnity and premium ratio among all the crops. It is also clear from the table that the share of different crops in the indemnity was approximately similar to their contribution to the premium. There is greater balance among crops, unlike in CCIS, where groundnut had a share of 53% in the indemnity against its contribution of 19% to the premium (Ministry of Agriculture, GOI). All the oilseeds taken together also had a more than proportionate share in the indemnity in case of CCIS.

Table 5: NAIS Crop-wise premium (as % of the total), indemnity (as % of the total), claims ratio and loss cost Rabi1999–2000 to Kharif 2012

(Source: Ministry of Agriculture, Government of India)

Crop	Premium (% of Total for all Crops)	Indemnity (% of Total for all Crops)	Claims Ratio (Claims/Premium)	Loss Cost (Claims as % of Sum Insured)
Paddy	30.79	32.77	3.52	8.65
Wheat	3.94	6.47	5.43	6.81
Other Cereals	6.51	9.33	4.74	15.14
All Cereals	41.24	48.57	3.89	9.07
Rapeseed and Mustard	0.53	1.06	6.64	11.14
Groundnut	17.67	25.28	4.73	16.58
Other Oilseeds	13.20	6.38	1.60	5.65
All Oilseeds	31.40	32.72	3.44	11.90
Major Pulses (Black	3.65	4.34	3.94	9.92

Gram, Green Gram and Bengal Gram)				
Other Pulses	1.96	2.30	3.43	9.25
All Pulses	5.61	6.38	3.76	9.70
Sugarcane	3.10	0.79	0.84	1.59
Potato	5.32	7.39	4.67	23.12
Other Commercial	13.42	4.15	1.02	7.32
All Commercial	21.75	12.33	1.87	8.92
All Crops	100	100	3.31	9.86

Modify national agriculture insurance scheme

The MNAIS covered 20, 59,000 and 25, 21,000 farmers in Rabi and Kharif seasons respectively. The total insured area was 17, 73,000 hectares in Rabi season and 29, 05,000 hectares in Kharif season (Table 6 and 7).

Table 6: MNAIS Business statistics for Rabi seasons from Rabi 2010–11 to Rabi 2012-13 (All companies combined)

Source: Ministry of Agriculture, Government of India

Season Rabi	Farmers Insured (‘000)	Area Insured (‘000 Ha.)	Sum Insured (m. Rs)	Gross Premium (m. Rs)	Claims (m Rs)	Farmers benefitted (‘000)	Farmers benefitted (%)
2010-11	358	324	6,940	473	161	47	13
2011-12	755	707	20,100	1,652	824	122	16
2012-13	946	742	20,770	1,894	546	103	11
TOTAL	2,059	1,773	47,810	4,019	1,531	272	13

Table 7: MNAIS Business statistics for Kharif seasons from Kharif 2011 to Kharif 2012 (All companies combined)

(Source: Ministry of Agriculture, Government of India)

Season Kharif	Farmers Insured ('000)	Area Insured ('000 Ha.)	Sum Insured (m. Rs)	Gross Premium (m. Rs)	Claims (m Rs)	Farmers benefitted ('000)	Farmers benefitted (%)
2011	458	666	13,460	1,218	961	100	22
2012	2,063	2,239	48,970	5,643	6,148	595	29
TOTAL	2,521	2,905	62,430	6,861	7,109	695	28

The states from which major participation came are, Andhra Pradesh, Bihar, Haryana, Karnataka, Rajasthan, Tamil Nadu and West Bengal. These States have a share of 85% of the sum insured and 93% of the premium. They also account for 98 per cent of the claims paid (Table 8). The claims ratio was highest in Andhra Pradesh (2.19) followed by Tamil Nadu (1.65) and Haryana (1.02). It was less than 1 in all the other states. The claims payout was lower than the premium collected in the MNAIS. The data shows that, MNAIS has a better financial performance than NAIS.

Table 8: State-wise business statistics from Rabi 2010-11 to Rabi 2012-13 (All companies combined)

(Source: Ministry of Agriculture, Government of India)

State	Farmers Insured ('000)	Area Insured ('000 Ha.)	Sum Insured (m. Rs)	Gross Premium (m. Rs)	Claims (m. Rs)	Farmers benefitted ('000)	Farmers Benefitted (%)
Andhra Pradesh	681	744	29,007	2,008	4,391	300	44
Assam	16	13	489	19	12	2	14
Bihar	504	566	11,612	2,401	564	61	12
Chhattisgarh	0.02	0.03	0.5	0.02	0	0	0
Gujarat	0.40	1	26	3	0	0	0

Haryana	170	285	11,714	398	405	30	18
Jharkhand	45	39	907	88	2	0.4	1
Karnataka	414	693	9,909	1,107	807	114	28
Madhya Pradesh	146	225	2,827	135	10	3	2
Maharashtra	52	50	762	136	0	0	0
Mizoram	1	0.50	10	1	1	1	100
Odisha	76	55	1,623	72	74	13	18
Rajasthan	1,319	1,251	11,462	1,281	601	201	15
Tamil Nadu	212	240	5,141	576	950	104	49
Uttar Pradesh	325	283	8,837	304	78	38	12
Uttarakhand	55	37	930	39	10	8	14
West Bengal	566	196	14,982	2,311	736	91	16
TOTAL	4,580	4,678	1,10,240	10,880	8,640	967	21

In various crops, groundnut has the highest claims ratio of 1.71 and loss cost of 27%. Paddy has a claims ratio of 1.21 and loss cost 13%. Paddy and groundnut accounted for 52% of the premium received, but 83% of the claims payout.

Table 9: MNAIS Crop-wise premium, claims, claims ratio, and loss cost from Rabi 2010–11 to Rabi 2012–13 (All Seasons; Agriculture Insurance Company of India)
(Source: Ministry of Agriculture, Government of India)

Crop	Sum Insured		Premium		Claims		Claim Ratio (Claims/ Premium s)	Loss Cost (Claim as % of Sum Insured)
	(m. Rs)	(% of total of all crops)	(m. Rs)	(% of total of all crops)	(m. Rs)	(% of total of all crops)		
Cereal								

Crops								
Wheat	9,370.4	10	542.0	5	145.2	2	0.27	2
Paddy	47,406.9	50	4,927.7	49	5,979.1	77	1.21	13
Other cereal	1,647.3	2	195.3	2	207.9	3	1.06	13
All cereal	58,424.5	62	5,664.9	56	6,332.3	81	1.12	11
Oilseed Crops								
Groundnut	1,788.2	2	285.2	3	487.5	6	1.71	27
Mustard	2,377.6	3	243.8	2	97.6	1	0.40	4
Other Oilseeds	341.5	0.4	43.8	0	22.1	0	0.50	6
All Oilseeds	4,507.2	5	572.8	6	607.2	8	1.06	13
Pulses	9,206.6	10	1,123.2	11	257.2	3	0.23	3
Commercial Crops								
Chilli	729.5	1	49.9	0	15.1	0	0.30	2
Potato	15,021.1	16	2,313.0	23	450.2	6	0.19	3
Sugarcane	4,691.0	5	127.0	1	71.8	1	0.56	2
Other commercial crops	1,866.7	2	176.4	2	71.8	1	0.41	4
All Comm. Crops	22,308.3	24	2,666.3	27	608.9	8	0.23	3
All Crops	94,446.6		10,027.3		7805.6		0.78	8

Summary and Conclusion

This article provides an overview on financial aspects of the successful and existing crop insurance schemes in India, like NAIS, MNAIS.

NAIS is the largest crop insurance program in the world. However, the claims payout is more than premium collected. In both Kharif and Rabi season the amount of the premium collected is

less than claims paid to the farmers. The farmers were not interested to avail the scheme. Moreover, the scheme only covers loanee farmers, thus major portion of non loanee farmers left behind. While, in case of MNAIS the claims ratio is less as comparison to the premium collected. MNAIS experienced better response than NAIS, after few modifications in the existing NAIS. However, there is no transparency in determining the premium rate.

Further the entry of government and the private agencies should be expedited. Both, the government and the independent agencies come together for proper training and counselling to farmers to apply for the crop insurance and the risk mitigation techniques. This may enable achieving maximum coverage.

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