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Innovations in Agricultural Insurance in India: Retrospect and Prospect

Debisree Banerjee and Uttam Bhattacharya*

I

INTRODUCTION

Agriculture is one of the most significant economic activities in India. It is a major contributor to the gross domestic product (GDP), and it provides livelihood to majority of people of the country. According to the, *Economic Survey 2010-11*, the agricultural sector together with allied activities contributed 14.2 per cent of the GDP during 2010, at constant prices 2004-05 and agriculture alone provides about 58 per cent of total employment. It is one of the most vulnerable sectors involving large amount of risk, making the condition of the farmers unstable. Such vulnerability in agriculture is associated with excessive dependence on climatic conditions and other natural factors. Moreover, most of the farmers are small and marginal with limited resources and low level of education. According to the, 11th Five Year Plan 70 per cent of the farmers have landholding below 1 hectare in 2003 compared to 56 per cent in 1982. It is also seen that the farming members in such families are twice likely to be illiterate as the non-farming members. These problems combined with limited resources and low level of education make the situation worse.

It is often considered that insurance is an effective tool for reducing and/or eliminating risk, by which the losses suffered by a few are met from the contributions made by a group of homogeneous people. According to Wenner (2005) agriculture is a risky business subject to price, climatic, geological and biological shocks. To deal with these kinds of risks some strategies for coping with the problems are necessary and financial management instruments are required. Insurance could be beneficial in improving access to credit by serving as a guarantee against involuntary default.

The basic objective of insurance is to protect the insurer against the risks insured for. A pool is created through contributions collected from the person who is willing to insure in the form of premium by the insurance companies to protect from some kind of common risk. It is expected that this would serve the economy better in the best interest of the community and ensure that concentration of wealth does not take

*Institute of Development Studies, Kolkata - 700 064.

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place to a common detriment. Agricultural insurance provides coverage to the farmers for any loss occurring in agriculture, which covers wide objectives. It comprises various kinds of insurance apart from different crop insurance schemes that protects farmers in case of crop failure due to natural and man-made hazards, perils and risks due to different economic policies pursued by the Government. In the field of agricultural insurance, crop insurance, weather insurance, seed crop insurance, plantation, horticulture and floriculture insurance, agricultural tools insurance, etc., plays an important role as a risk-transferring device.

In this paper we try to focus on the importance of agricultural insurance in India and try to give a brief sketch about how agricultural insurance has evolved over time under different experimentations. It also explains the performance of the National Agricultural Insurance Scheme (NAIS) – the major agricultural insurance scheme in India and analyses its performance in different states of India.

II

REVIEW OF LITERATURE

Considering the element of risk inherent in agriculture Chand and Raju (2008) studied the pattern of Indian agriculture and found that agricultural production and income suffers from large year-to-year fluctuations due to variability in distribution, timeliness and variations in rainfall and other climatic factors, expected prices and availability of crop specific inputs. Moreover the outbreak of disease, pests and other natural or man-made hazards affects agriculture adversely. Thus, the authors explained that in spite of progress in irrigation and technology, instability in agricultural production is dominant. Agricultural risk is uncontrollable and over here the role of insurance becomes significant. Insurance is a mechanism that can be utilised to eliminate risk by bringing together an adequate number of homogeneous groups which can help in minimising individual risk and its impact. However, it was observed that the performance of agricultural insurance in India was insufficient to cover such risks.

Different experimental crop insurance schemes were studied and criticised on several grounds. After several experiments and efforts a Comprehensive Crop Insurance Scheme (CCIS) was implemented in India in 1985. Again it was criticised on various grounds. According to Prabhu and Ramchandran (1986), crop credit insurance is generally preferred as it automatically makes the borrower of a crop loan a subscriber of crop insurance. This ensures that the risks insured against are spread widely among members. However, dependence on agricultural credit may keep a large portion of farmers uncovered. Moreover, the problem of corruption and biasedness favoured large farmers. Another limitation of CCIS pointed out was the unrealistic uniform low premium rates which ignored yield variations across regions and crops.

Crop insurance in India still depends upon the institutional credit system with very low voluntary participation from non-borrower farmers. Thus, the objective of crop insurance still remains only partially fulfilled. Bhalla (2006) observed the socio-economic pattern of the farmers in different parts of India. In the context of crop insurance, he found that only in Gujarat and Maharashtra more than ten percent farmer households have ever insured their crops. Shockingly large proportions of farmers were found to be unaware of the practice of crop insurance. Thus, there is an urgent need to upgrade the knowledge base of the farmers. He suggested that besides improving the educational level, focus should also be given to strengthen the publicity services through radio, television etc.

Most of the government sponsored crop insurance schemes have suffered loss due to several factors including insufficient coverage. In this context Golait and Pradhan (2008), opined that in most cases when government sponsored schemes fail private insurance schemes could be successful as there is enough competition in the private sector. The private crop insurance schemes have tended to cover specific risks without including incidental risks. In the same direction Raju and Chand (2007, 2008a,b, 2009) opined that public corporation to private sector insurers could help in increasing insurance coverage and in improving the variability of the insurance schemes over time. The authors also pointed out that there is a lot of interest in the private sector to invest in the general insurance business. This opportunity could be utilised to allot some targets to various general insurance companies to cover agriculture. Though private participation is welcomed these policies are quite expensive without any subsidy. Golait and Pradhan (2008) mentioned that collecting information on weather conditions is quite expensive. Though these policies are beyond farmer's affordability, they were perceived as beneficial to the farmers due to easy and speedier claim settlement.

Weather variability is a major contributor of agricultural risk which needs special attention and yield based crop insurance is not always sufficient. In the last few years private sector have entered the agriculture insurance sector with weather insurance products and government have also introduced a on pilot basis weather insurance to cover risk from climatic variations. According to Lilleor *et al.*, (2005), weather insurance is an alternative solution to provide additional income to the farmers during adverse weather conditions which reduce agricultural profits. Nair (2010) pointed out again that weather insurance could help in expanding the domain of crop insurance programme in the country. It is argued that it could be implemented on horticultural crops for which age group wise yield estimates are unavailable. According to the author, weather insurance is also easier to administer and it can reduce costs by eliminating the need for yield estimation and field visits.

This review of literature showed the significance of agricultural insurance in India and briefly about how it has developed and changed over time. In the next section we will discuss about different agricultural insurance schemes in India and their innovations.

III

DEVELOPMENT AND INNOVATIONS OF VARIOUS AGRICULTURAL
INSURANCE SCHEMES IN INDIA

The significance of insurance in the field of agriculture was realised even before attainment of Independence. Some princely states like Baroda and Mysore had developed certain crop and grain insurance schemes to protect their farmers. However, details of those schemes are not available (Narayanan, 2008). Some recognised efforts were also taken soon after Independence in 1947. A study was undertaken during 1947-48, in order to recommend on the various aspects of crop insurance. The study preferred 'homogeneous approach'¹ to 'individual approach'.² In 1965, the Central Government introduced a Crop Insurance Bill and circulated a model scheme to all the states. However, the scheme was not favoured by the states as the question of financial obligations was not settled; based on such reactions of the states an expert committee was formed in 1970 headed by the then Chairman, Agricultural Price Commission to examine the various aspects of crop insurance scheme.

Agricultural insurance was formally started in India in 1972 by General Insurance Corporation of India (GICI) with First Individual Approach Scheme on H4 cotton in Gujarat, extending to Andhra Pradesh, Karnataka, Maharashtra, Tamil Nadu and West Bengal. The scheme was based on 'individual approach' and also covered groundnut, wheat, and potato later. The scheme continued till 1978, covering 3,110 farmers for a premium of Rs. 4.54 lakh all against a claim of Rs. 37.88 lakh. The scheme was not economic and could not be extended on a large scale. The scheme was modified and re-modified in 1985 and again in 1997 in the form of Comprehensive Crop Insurance Scheme (CCIS) and Experimental Crop Insurance Scheme (ECIS). However, agricultural insurance could be implemented on a large scale only with the introduction of National Agricultural Insurance Scheme (NAIS), which continues till date.

National Agriculture Insurance Scheme (NAIS) or 'Rashtriya Krishi Bima Yojna' was first introduced during *rabi* 1999-2000, by improving the scope of CCIS in India. The scheme was initially introduced by the GICI and was taken over by Agricultural Insurance Company of India Ltd. (AICL)³ after its incorporation in 2003. This scheme is available to both borrowers as well as non-borrowers (compulsory for the borrowers and voluntary for the non-borrowers). It covers all food grains, oilseeds and annual horticultural/commercial crops. The scheme operates on the basis of both the 'area approach' (for widespread calamities) and the 'individual approach' (for localised calamities such as hailstorms, landslides, cyclones and floods). Till 2009-10 it has been implemented in 25 states and two Union Territories. The amount of loss for this scheme is decided on the basis of 'threshold yield'⁴, 'actual yield' and 'shortfall in yield'. If actual yield per hectare of insured crop for defined area on the basis of requisite number of crop-cutting

experiments (CCEs) falls short of 'threshold yield', all the insured farmers growing that crop in the defined area are deemed to have suffered shortfall in their yield. The scheme seeks to provide coverage against such contingency.⁵ The sum insured in case of loanee farmers is the amount of loan availed, which can be extended to 150 per cent of the average yield. For non-loanee farmers it can be upto 150 per cent of the average yield. The premium rates are 3.5 per cent for oilseeds and *bajra*, 1.5 per cent for wheat, 2.5 percent for other *kharif* crops and 2 percent for *rabi* crops or actuarial rate⁶, whichever is less. Actuarial rates are also applicable for annual commercial and horticultural crops. The scheme has so far covered 1,586 lakh farmers with gross premium of Rs. 5,584 crore against claim of Rs. 20,437 crore till *rabi* 2009-10.

Apart from the NAIS there are other schemes which have been introduced from time to time experimentally on pilot basis to cope with the changing and increasing needs of agriculture and farming such as weather insurance, farm income insurance, etc.

All the crop insurance schemes protected farmers against yield fluctuations. It often appeared that in spite of normal production, the farmer's income was affected due to fluctuations in market price. To cover the variability in both yield and market price, the government introduced Farm Income Insurance (FIIS) on a pilot basis in 2003-04. Its objective was to reduce government expenditure on procurement at minimum support price and encourage crop diversification. The scheme was based on 'homogeneous area approach' for rice and wheat, compulsory for loanee farmers and voluntary for non-loanee farmers. It covered 2.22 lakh farmers for a premium of Rs.15.68 crore against claim paid of Rs. 1.5 crore. However, as the NAIS already covers yield risks and government already provided minimum support price so the scheme has become redundant and is not functioning at present.

Agriculture depends often upon various weather parameters such as rainfall, temperature, heat, frost, humidity etc. Thus, only safeguarding against crop yield could not be considered sufficient. Considering these limitations the concept of weather insurance is developed. The basic idea of weather insurance is to estimate the percentage of deviation in crop output due to adverse weather conditions. It is designed to cover the shortcomings of the previous yield based crop insurance schemes. Hence, weather insurance could be considered much more than a mere yield guarantee scheme. AICL introduced a Pilot Weather Based Crop Insurance Scheme (WBCIS) in Karnataka during *kharif* 2007, covering 70 'Hoblis' and eight rainfed crops. During *rabi* 2007-08, the scheme was implemented in Rajasthan, Chhattisgarh, Madhya Pradesh and Bihar. During 2007 and 2010 the pilot scheme has covered more than 80 lakh farmers.

Some other weather based schemes are also introduced considering the need of different states. One such scheme introduced is Rainfall Insurance Scheme for Coffee Growers (RISC), to provide insurance cover for possible losses in coffee yield arising out of rainfall risks from *kharif* 2006 in the states of Karnataka, Kerala and Tamil Nadu. The risk covered is deficiency in rains during blossom and backing periods as

well as excess rains during monsoon period. RISC provides insurance protection to the extent of Rs.16,000 per hectare for *Arabica* and Rs.12,000 per hectare for *Robusta*. Coffee Board is offering premium subsidy to small growers having 10 ha or less under coffee plantation. Other coffee growers can also avail insurance coverage under the RISC.

Apart from weather based schemes some crop based insurance schemes are also being innovated to protect the interest of a group of farmers who cultivate those crops such as; rubber insurance, coconut insurance, potato insurance, bio-fuel plant/tree insurance, pulpwood tree insurance and cardamom plant insurance.

The significance of the livestock and fisheries sector cannot be ignored too. The livestock and fisheries sector contributed over 4.07 per cent of total GDP during 2008-09 and about 29.70 per cent value of output from total agriculture and allied activities (*Economic Survey, 2010-11*). The 18th Livestock Census (2007) revealed that total livestock population was 529.7 million and total poultry birds were 648.8 million. Thus a centrally sponsored scheme of Livestock Insurance is being implemented in all the states. The main objective of the scheme is to provide protection to the farmers and cattle rearers against loss of their animals due to death and to make people understand about the benefits of livestock insurance. It primarily consists of cattle insurance, implemented by four general insurance companies in India namely, National Insurance Co. Ltd., New India Assurance Co. Ltd., Oriental Insurance Co. Ltd. and United Insurance Co. Ltd. It is a centrally sponsored scheme, which was implemented on pilot basis during 2005-06 and 2006-07 of the 10th Five Year Plan and 2007-08 of the 11th Five Year Plan in 100 selected districts. The scheme has now been extended to 300 districts covering all the states and insured more than 20 lakh animals from 2006-07 to 2009-10 (Government of India, 2011).

The AICL is also planning to introduce tea insurance, poppy insurance, basmati rice insurance, aromatic and medical plant insurance in order to provide security to these sectors too. The private sector has also entered in the field of agricultural insurance with insurance products based on weather parameters. In the private sector two major companies have been primarily operating namely, the ICICI Lombard General Insurance Co. and the IFFCO Tokio General Insurance Company. However, their contributions in agricultural insurance are still not much insignificant. In spite of such broad efforts the schemes could only be implemented in a limited way. Most of the government sponsored crop insurance schemes suffered loss as the schemes had a high claim ratio; it indicated that the claim paid was much more than the amount of premium collected. Complications involved with the schemes kept it beyond the reach of farmers and these schemes remained dependent upon the institutional credit system. This has been discussed in more details in the next section. Table 1 shows the performance of different crop insurance schemes in India.

TABLE 1. PERFORMANCE OF DIFFERENT CROP INSURANCE SCHEMES IN INDIA, 1972-2010

Schemes (1)	Year (2)	Features (3)	Premium (4)	Claim (5)	Claim ratio (Col.5/Col.4) (6)
First Individual Approach	1972-78	Voluntary, implemented in 6 states	4,54,000	37,88,000	8.34
Pilot Crop Insurance Scheme	1979-84	Only for loanee farmers, voluntary, implemented in 13 states	1,96,95,000	1,57,05,000	0.79
Comprehensive Crop Insurance Scheme	1985-99	Compulsory for loanee farmers, implemented in 16 states and 2 UTs	4,03,56,00,000	23,19,00,00,000	5.74
Experimental Crop Insurance Scheme	1997-98	For small and marginal non-loanee farmers, implemented in 5 states	2,84,00,000	37,80,00,000	16.88
National Agricultural Insurance Scheme	1999 and continues	Compulsory for loanee and voluntary for non-loanee farmers, implemented in all the states	55,84,00,00,000	2,04,37,00,00,000	3.66

Source: AICL- for details.

IV

PERFORMANCE OF THE NATIONAL AGRICULTURAL INSURANCE SCHEME (NAIS) IN INDIA

During the period of its operation since 1999 the NAIS has been characterised by low rate of participation and high claim ratio. Table 2 shows the performance of the NAIS from the period of *rabi* 1999-2000. During this period the claim paid was more than three times of total premium collected (as aggregate claim ratio for the period 3.66), indicating loss of operation of the scheme, with highest claim ratio in Tamil Nadu (7.28), Bihar (7.71) and Jharkhand (8.45). This loss could also be understood from the difference between 'claim to sum insured' and 'premium to sum insured' ratio. In Tamil Nadu the difference was 14.55, in Bihar it was 16.56 and in Jharkhand it was 18.81. While the aggregate 'claim to sum insured' for the period was 10.93, the 'premium to sum insured' was only 2.99. This indicated that there was a loss of 7.94 per cent of the insured value of output. Similar performance trends could also be observed for the states like Mizoram and Manipur, where NAIS has been newly implemented in 2009-10. In both the states loss of operation could be observed with only a marginal number of farmers covered. In Mizoram where 'premium to sum insured' was 2.59, 'claim to sum insured' was 48.28 indicating loss of 45.69 percent. Similarly, in Manipur also there was a loss of 4.18 per cent.

TABLE 2. PERFORMANCE OF THE NAIS IN INDIA FROM 1999-2000 TO 2009-10

State/Union Territory	Per cent of farmers covered to total farmers	Per cent of claim to total claim disbursed	Claim ratio*	Beneficiary ratio*	Premium to sum insured (per cent)	Claim to sum insured (per cent)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Andhra Pradesh	14.04	16.30	3.14	23.31	2.89	9.08
Assam	0.12	0.04	1.29	18.23	2.69	3.46
Andaman and Nicobar Islands	0.00	0.00	0.15	5.90	2.00	0.30
Bihar	3.02	8.33	7.71	37.77	2.47	19.03
Chhattisgarh	4.20	1.80	2.64	23.95	2.57	6.77
Goa	0.00	0.00	0.57	10.03	2.10	1.20
Gujarat	6.40	18.82	4.40	36.17	4.05	17.84
Haryana	0.37	0.17	1.70	20.14	3.02	5.14
Himachal Pradesh	0.13	0.08	4.25	48.60	2.08	8.85
Jammu & Kashmir	0.02	0.00	1.08	7.41	1.94	2.09
Jharkhand	3.20	2.31	8.45	36.73	2.52	21.33
Karnataka	6.49	7.78	4.26	42.33	3.14	13.40
Kerala	0.22	0.11	2.00	18.52	2.16	4.31
Madhya Pradesh	11.89	4.98	1.60	19.69	2.92	4.67
Maharashtra	16.23	9.10	3.21	33.35	3.86	12.40
Manipur	0.01	0.01	2.67	100.00	2.49	6.67
Meghalaya	0.01	0.00	0.21	8.70	5.88	1.23
Mizoram	0.00	0.00	18.67	98.35	2.59	48.28
Orissa	6.50	2.66	1.97	17.03	2.48	4.90
Puducherry	0.02	0.01	2.00	17.86	1.61	3.23
Rajasthan	9.49	12.83	5.72	34.54	2.83	16.18
Sikkim	0.00	0.00	0.52	4.30	1.25	0.65
Tamilnadu	2.10	6.13	7.28	40.20	2.31	16.86
Tripura	0.01	0.00	0.97	18.75	3.00	2.92
Uttar Pradesh	10.23	4.20	2.21	23.32	2.04	4.50
Uttarakhand	0.15	0.14	3.22	37.87	2.02	6.50
West Bengal	5.13	4.18	2.89	23.74	4.01	11.59
Total	100.00	100.00	3.66	28.52	2.99	10.93

Calculation based on data from AICL.

*1. Claim Ratio- Claims paid expressed in terms of Premium received. Claim ratio higher than one indicate inadequate premium rate.

2. Beneficiary Ratio- It expresses the number of farmers benefited to the total number of farmers covered.

Among the 1,586 lakh farmers covered in India the maximum farmers were from Maharashtra (16.23 per cent), Andhra Pradesh (14.04 per cent) and Madhya Pradesh (11.89 per cent), followed by Uttar Pradesh (10.23 per cent) and Rajasthan (9.49 per cent). Thus, few states accounted for around 50 per cent of the total farmers covered. Again, in terms of maximum claims received out of total claims disbursed, Gujarat (18.82 per cent), Andhra Pradesh (16.30 per cent), Rajasthan (12.83 per cent), Maharashtra (9.10 per cent), and Bihar (8.33 per cent) received more than 50 percent of the total country's claim. For all these states more or less double claim was paid for every rupee of premium collected and maximum was paid in Rajasthan (5.72). The fact is also established by the beneficiary ratio as Rajasthan received maximum benefit of 34.54 per cent among these few states. The states like Gujarat, Karnataka, Orissa and West Bengal could be considered as mediocre performers of the NAIS

with the coverage of more than 5 per cent; high claim ratio greater than four for Gujarat and Karnataka and around two for Orissa and West Bengal.

In the year 2009-10, the scenario did not change much; Jharkhand, Chhattisgarh, Madhya Pradesh and Rajasthan had maximum area coverage with Rajasthan, Jharkhand, Gujarat, Himachal Pradesh and Karnataka receiving maximum benefit (see Table 3).

TABLE 3. PERFORMANCE OF THE NAIS IN 2009-10

States/Union Territories (1)	Area covered as per cent of GCA (2)	Beneficiary ratio (3)	Claim ratio (4)
Andhra Pradesh*	28.15	11.87	1.32
Assam	1.38	23.08	1.46
Andaman and Nicobar islands	2.92	0.00	0.00
Bihar	9.66	0.00	0.00
Chhattisgarh	34.21	40.22	4.18
Goa	0.39	1.69	1.33
Gujarat	20.84	55.64	7.56
Haryana	1.26	7.27	0.42
Himachal Pradesh	2.98	48.89	3.89
Jammu and Kashmir	0.55	0.00	0.00
Jharkhand	37.11	71.60	11.16
Karnataka	13.64	47.11	4.36
Kerala	1.91	5.13	0.30
Madhya Pradesh	33.18	7.98	0.57
Maharashtra	12.19	41.77	3.65
Manipur*	4.69	100.00	2.67
Meghalaya	1.82	15.90	0.18
Mizoram*	0.14	98.35	19.36
Orissa	18.86	9.97	1.18
Puducherry	12.16	4.20	0.15
Rajasthan	28.94	72.63	11.94
Sikkim	0.07	0.00	0.00
Tamil Nadu	19.02	18.68	2.05
Tripura	0.23	1.53	0.02
Uttar Pradesh	15.01	19.00	1.84
Uttarakhand	6.03	39.78	2.17
West Bengal	5.62	13.68	0.43

Calculation based on data from AICL and Agricultural Census 2001.

*No data available for *rabi* 2009-10.

West Bengal is a major agricultural state where maximum number of farmers are small and marginal with erratic income. In the context of the performance of the NAIS, it has been observed that West Bengal lies somewhere in the middle. In connection with a research work, a field visit was conducted in selected villages of South 24 Parganas district of the state in January 2010, where it was observed that though agriculture was the main occupation for most of the people of the villages, but the farmers were also engaged themselves in other jobs too for maintaining their livelihood. The poor, small and marginal farmers also had to borrow every year to carry out their agricultural activities. It was observed that about 74 per cent of the

total respondent farmers took loans from different sources. The majority of the cultivators (66 per cent) took loan from the co-operative banks and 25 per cent of the respondents took loan from different self-help groups (SHGs). Moreover, most of them had to depend on such borrowings every year to carry out their agricultural activities. Only about 60 per cent of the borrower farmers knew about the NAIS as it was compulsory for them, but most of them considered it to be unnecessary and considered it as a burden. The level of awareness was low in the case of non-borrowers though the scheme was also available for them. More than 31 per cent of the farmers who were covered under the NAIS did not know about the scheme and considered it to be a new and interesting thing.

It is clear from our study and field experience that, though the NAIS has been operating in India for a decade, it could not cover the risk in agriculture entirely as farmers' suicide⁷ is still rampant in many parts of India. The majority of the beneficiaries belonged to a few states only and the outcomes were limited as well.

V

PERFORMANCE OF THE NAIS IN SELECTED STATES (2005-06 TO 2009-10)

On the basis of the overall performance of the NAIS starting from 1999 if we rank the states on the basis percentage of farmers covered and claim disbursed it is seen that Maharashtra, Madhya Pradesh, Rajasthan, Uttar Pradesh, Andhra Pradesh and Gujarat would be among the better performing states (Table 4). In this section we discuss the performance of the relatively better performing states in the last few years from 2005-06 to 2009-10.

TABLE 4. RANKING OF STATES ON THE BASIS OF THEIR PERFORMANCE (1999-2010)

Percentage of farmers covered (1)	Claim disbursed (2)
Maharashtra	Gujarat
Andhra Pradesh	Andhra Pradesh
Madhya Pradesh	Rajasthan
Uttar Pradesh	Maharashtra
Rajasthan	Bihar

In Uttar Pradesh from 2005-06 to 2009-10, there has been an increase in the coverage area under the NAIS as percentage of gross cropped area (GCA) from 6.32 per cent in 2005-06 to 15.01 per cent in 2009-10. In none of the above mentioned states there has been substantial increase in the coverage area. Moreover the coverage area under the NAIS has decreased in Madhya Pradesh, Rajasthan and Gujarat.

The average beneficiary ratio⁸ in these five years was maximum for Rajasthan (35.87 per cent) and Maharashtra (30.35 per cent) followed by Gujarat (29.93 per cent), Uttar Pradesh (22.98 per cent) and Andhra Pradesh (19.43 per cent). The average claim ratio was the highest for Rajasthan (5.17 per cent) and Gujarat (4.14

per cent) indicating inadequate premium. Thus, in states like Rajasthan and Gujarat where the average beneficiary ratio has been high; there has been an insignificant increase or even a decrease in the coverage area. This shows a non-preference of the scheme among the farmers. However, a positive aspect about these states is that in all these states the difference between 'claim to sum insured' and 'premium to sum insured' ratio was negligible apart from Andhra Pradesh where the difference is 5.63 on an average for these five years (Table 5).

TABLE 5. PERFORMANCE OF THE NAIS IN SELECTED STATES OF INDIA (2005-06 TO 2009-10)

States (1)	Year (2)	Beneficiary ratio (3)	Claim ratio (4)	Area covered as per cent of GCA (5)	Premium to sum insured (6)	Claim to sum insured (7)
Maharashtra	2005-06	10.61	0.66	11.57	0.04	0.03
	2006-07	37.05	3.68	7.15	0.05	0.17
	2007-08	13.11	2.64	6.98	0.04	0.10
	2008-09	49.20	6.33	12.44	0.04	0.28
	2009-10	41.77	3.65	12.19	0.04	0.15
Madhya Pradesh	2005-06	5.88	0.28	34.19	0.03	0.01
	2006-07	11.94	0.80	25.37	0.03	0.02
	2007-08	26.55	3.52	31.88	0.03	0.10
	2008-09	11.48	0.94	24.38	0.03	0.03
	2009-10	7.98	0.57	33.18	0.03	0.02
Rajasthan	2005-06	33.20	4.48	29.21	0.03	0.12
	2006-07	25.42	3.43	30.05	0.03	0.09
	2007-08	17.99	2.24	27.96	0.03	0.06
	2008-09	30.09	3.77	22.88	0.03	0.11
	2009-10	72.63	11.94	28.94	0.03	0.36
Uttar Pradesh	2005-06	30.44	2.39	6.32	0.02	0.05
	2006-07	28.03	2.54	9.52	0.02	0.06
	2007-08	26.73	3.33	11.07	0.02	0.07
	2008-09	10.54	0.90	9.96	0.02	0.02
	2009-10	19.00	1.84	15.01	0.02	0.04
Andhra Pradesh	2005-06	29.96	4.71	27.27	2.82	13.30
	2006-07	1.07	0.08	28.89	2.96	0.23
	2007-08	37.61	6.40	27.18	3.05	19.49
	2008-09	16.64	2.09	26.34	3.04	6.34
	2009-10	11.87	1.32	28.15	2.02	2.67
Gujarat	2005-06	1.63	0.09	25.73	0.04	0.00
	2006-07	15.71	7.06	19.16	0.04	0.27
	2007-08	4.41	0.29	17.93	0.04	0.01
	2008-09	36.27	5.69	18.24	0.04	0.20
	2009-10	55.64	7.56	20.84	0.03	0.26

Source: Calculation based on data from AICL.

Thus, it is clear that though the NAIS has been operating in India for quite some time, it has not been able to cover the risk in agriculture entirely. The majority of the beneficiaries belonged to a few states only and the outcomes were limited. Even among the better performing states the total area coverage was not even 50 per cent of gross cropped area (GCA). However, high claim ratio and high beneficiary ratio in these states indicate that the scheme could be definitely beneficial to the farmers if

they are covered adequately. According to Swaminathan (2007), crop insurance is one of the efficient tools to increase agricultural production, but credit and insurance reforms, credit linked to insurance were not successful. Hardly 4 per cent of the 15 million farmers have taken crop insurance⁹. Similarly, Raju and Chand (2007, 2008a,b, 2009) also studied the features and performance of the National Agricultural Insurance Scheme (NAIS) and found that its coverage in terms of crop area, number of farmers and value of agricultural output were very low. The authors pointed out several limitations of the scheme which were responsible for its narrow coverage and suggested that renewed efforts are required from the government to design appropriate mechanisms and in providing financial support for agricultural insurance.

VI

LIMITATIONS OF THE NAIS

The NAIS is the only agricultural insurance scheme operating in India on a large scale and providing the maximum benefit. However, it has certain limitations due to which it was not able to provide the desired results. Some of the limitations were pointed out by *The Joint Group Report (2004)* by Department of Agriculture and Cooperation, which are given below:

1. Threshold yield on which indemnities are calculated is moving average yield of preceding three years for rice and wheat and five years for other crops, multiplied by the level of indemnity. It does not provide adequate protection to the farmers.
2. Indemnity limit (i.e., the limit applied on the average yield to produce threshold yield) is 90 per cent, 80 per cent and 60 per cent corresponding to low risk, medium risk and high-risk areas. The indemnity level of 60 per cent cannot adequately cover the risk of small and medium adversities.
3. The scheme covers risk only from sowing to harvesting. There are certain pre-sowing and post-harvesting risks that should also be taken into consideration.
4. There are problems of adverse selection. In *kharif* season farmers already get some indications of the monsoon before taking up the policy causing this problem.
5. There is delay in the settlement of claims as the claim processing starts only after the harvest of the crop. There is a time gap of 8-10 months between occurrence of loss and claim payment. Thus the farmers do not receive benefit on time.
6. The scheme is voluntary for non-loanee farmers with inadequate marketing. There is an evidence of lack of awareness among the farmers.

Considering the limitations of the NAIS a Pilot Modified NAIS (MNAIS) has been implemented in 50 districts from *rabi* 2010-11. The major changes in the scheme are highlighted below:

1. Unit area of insurance reduced to village Panchayat level for major crops.
2. Indemnity for prevented/sowing/planting risk and for post-harvest losses due to cyclone included.
3. Payment up to 25 per cent advance of likely claims as immediate relief.
4. Minimum indemnity level rose to 70 per cent instead of 60 per cent.
5. Actuarial premium with subsidy in premium at different rates, i.e., 40 per cent to 75 per cent depending upon the slab, provided to the farmers.
6. Private sector insurers such as ICICI Lombard, IFFCO- Tokio and Cholamandalam- MS provided with adequate infrastructure.

VII

SUMMARY AND CONCLUDING REMARKS

Several experiments were undertaken in the area of agricultural insurance in India. The most widely implemented scheme is the NAIS. The scheme was modified over time in order to improve its performance and reach. In spite of such efforts it is difficult to say that the objectives were achieved and often not been well accepted by the farmers. Even the better performing states were not covered sufficiently. It appeared that there is a gap between the insurance providers and receivers. The unsatisfactory results of the crop insurance schemes in India resulted in the innovation and initiation of some other alternative schemes. Such innovations have widened the scope of multi-peril crop insurance schemes which were found to be dependent on the institutional credit system. Apart from this, an initiative has been taken by the AICL to modify the existing NAIS based on the recommendations given by the *Joint Group Report (2004)*. However over time it will be understood whether such an effort is more effective to outreach the victims.

It is hoped that the new efforts will improve the base of agricultural insurance in India. But for that more steps are required to be taken. Among these, increasing farmer's awareness is most essential. Moreover, the scheme should not be forced on the poor farmers compulsorily with crop loan; instead it should be communicated to all explaining about its benefits. Media and different institutions such as Self Help Groups or non-government organisations that work at ground level could be involved. This may in turn also help in increasing voluntary participation from the farmers and thereby reduce the cost of insuring. The schemes are required to be simplified, made more flexible and easily understandable so that the farmers get attracted towards the schemes. Moreover, India is a country with varied geographical

features with different kinds of risks affecting different parts of the country. To cope with such varied risks the insurance schemes need to be more regionalised, instead of a single scheme operating throughout the country.

To conclude, agricultural insurance in India is still in an experimental and developmental phase. Agricultural insurance should definitely help in protecting the farmers against the varied risks involved in agriculture and thereby improve the agricultural situation in India. New innovations of various methods of agricultural insurance to outreach the calamity affected cultivators might help to overcome some of the major gaps in agricultural credit market in India.

NOTES

1. Homogeneous area approach – In the absence of reliable data of individual farmers a homogeneous area comprising of villages that are homogeneous area comprising of villages that are homogeneous from the point of view of crop production and whose annual variability of crop production would be similar, would form the basic unit instead of individual farmers

2. Individual approach – It seeks to indemnify the farmers to the full extent of losses by individually assessing the damage, losses and the premium to be paid by him is determined with reference to his own past yield and loss experience.

3. Agriculture Insurance Company of India Ltd is the largest agri-insurance company in India providing insurance cover to millions of framers in the country. Popularly known as AIC. Agriculture Insurance Company of India Ltd is directly controlled by the Ministry of Finance, Government of India. AIC is promoted by General Insurance Corporation of India, National Bank of Agriculture and Rural Development (NABARD), United India Insurance Company Limited, National Insurance Company Limited, Oriental Insurance Company Limited and The New India Assurance Company Limited.

4. Threshold yield- It is the average yield multiplied by the indemnity limits, where indemnity limits guarantees significant average yield as the insured is expected to bear some losses himself. Indemnity limits available for NAIS are 60 per cent, 80 per cent and 90 per cent.

5. Claims under NAIS will be settled only on the basis of yield data furnished by Bureau of Applied Economics and Statistics and crop Insurance arrived at through regular crop estimation surveys for production estimates (i.e., planned crop cutting experiments) and not on any other basis.

6. Actuarial premium rate- commercial premium rate worked out considering probabilities and extent of occurrence of events etc. It requires a huge database over sufficient period of time to anticipate likelihood of future events with a degree of certainty.

7. Many Indian farmers committed suicide after being pushed into debt through crop failures. The reason are many. The details are available in webpages:<http://www.greenmuze.com/climate/heat/1036-mass-farmer-suicide-in-india.html>, <http://agrariancrisis.in/2010/03>.

8. Average Beneficiary ratio and average claim ratio has been calculated on the basis of five years average from 2005-06 to 2009-10.

9. (<http://www.rediff.com/money/2007/jun/07sld1.htm>)

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