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CROP INSURANCE: PERFORMANCE OF WBCIS IN INDIA

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ABSTRACT

Weather index based crop insurance scheme aims at providing insurance protection to all farmers against adverse weather conditions which affects crop yield. The present study is taken up to analyze the performance of WBCIS in India since 2007 kharif season to 2014 kharif season. For this secondary data is used which is available with agricultural insurance company and department of agriculture and cooperation, Directorate of Economics & Statistics, Government of India. The study revealed that there is a need for coverage of crop insurance to all small and marginal farmers immediately, still majority of the farmers who are covered by this scheme also in need for education about crop insurance schemes, non loanee farmers are completely neglected by banks, insurance providers and by the government, there is a need for setting up of more automated weather stations to get accurate weather data so that problem of basis risk can solved. Finally, the study says with proper insurance education to farmers, improved inputs, weather infrastructure in the country, scientific data management, improvising in the product delivery system and complete involvement of service providers, banking sector together can save farming community from risks in agriculture

KEYWORDS: *Crop Insurance, Production Risks, WBCIS, India*

INTRODUCTION

Agricultural production and farm incomes in India are frequently affected by natural disasters such as drought, floods, cyclone, storm, landslide, earthquake etc. Susceptibility of agriculture to these disasters is compounded by the outbreak of epidemics and man-made disasters such as fire, sale of spurious seeds, fertilizers and pesticides, price crashes, etc. All these events severely affect farmers through loss in production and farm income, and are beyond the control of farmers. With growing Commercialization of agriculture, the magnitude of loss due to unfavorable eventualities is increasing. In recent times, mechanisms like contract farming and futures trading have been established which are expected to provide some insurance against price fluctuations directly or indirectly. But, agricultural insurance is considered an important mechanism to effectively address the risks to output and income resulting from various natural and manmade events 1.

1. National Centre for Agricultural Economics and Policy Research (NCAEP), Policy Brief on 'Problems and Progress in Agricultural Insurance in India' by S.S. Raju and Ramesh Chand, 2009, p.1-2

THE STATEMENT OF THE PROBLEM

The Weather index based crop insurance scheme (WBCIS) is a way of providing protection against correlated risks such as extreme weather events. It has also been used to protect against poorer than expected yields associated with the climatic conditions. WBCIS was introduced form 2007 kharif season in India and is continuing in the present national crop insurance scheme also. Now it is the need of the hour to evaluate the performance of WBCIS in Indian agricultural sector. This paper is an attempt to make analysis of performance of WBCIS in India.

THE IMPORTANCE OF THE STUDY

The present study is much important for small and marginal farmers who constitute more than 50 percent of farming community in India (AGRICULTURAL STATISTICS AT a GLANCE 2014. Government of India, Ministry of Agriculture Department of Agriculture & Cooperation Directorate of Economics & Statistics). '**Marginal Farmer**' means a **farmer** cultivating (as owner or tenant or share cropper) agricultural land up to 1 hectare (2.5 acres). '**Small Farmer**' means a **farmer** cultivating (as owner or tenant or share cropper) agricultural land of more than 1 hectare and up to 2 hectares (5 acres). These farmers are not having enlightened knowledge about crop insurance schemes still today. So this study helps the farmers to protect themselves against weather risks in agriculture. The study also helps administrators, insurance providers in reaching the insurance net to the needy farmers.

OBJECTIVES OF THE STUDY

- To study the growth and development of WBCIS in India.
- To examine features, benefits, trend and performance of WBCIS in Indian context
- To come out with possible solutions in the form of suggestions for unsolved problems in WBCIS

SCOPE AND LIMITATIONS OF THE STUDY

The present study is confined to WBCIS in India from 2007-08 Kharif season to 2014 kharif season. The scope of the study is limited to WBCIS and its growth, performance. The study is depending mainly on secondary data.

METHODOLOGY

The present study has been made based on secondary data available with insurance service providing companies for the seasons form 2007-08 to 2014 kharif seasons. In addition to this, analysis is supported with discussions and observations made by the professional experts and service providers in this field.

REVIEW OF LITERATURE

KN Rao (2011) in their study observed that the performance of agricultural sector has a crucial impact on the livelihood of the people dependent on the sector also on the growth prospects of other sectors and the economy as a whole. But agricultural sector faces many risks such as financial, institutional, and personal and most important the production risk. The study mainly focused on crop insurance schemes in India, its evolution and journey, weather index insurance product, its Indian experiences, its challenges and potential solutions. Finally, in concluding remarks, says that insurance provides have to offer a technically sound product that should be simple and easy accessible to farmers. Farmers must be able to understand the program in order to calculate claims and expect realistic payouts. Ultimately, the success of weather risk insurance programs in India will depend on effective product design, minimization of basis risks, adoption of reliable and sustainable pricing, serving of adequate product and timely payouts.

Reshma Nair et al (2010 Aug) suggests that the enormous dependency of crop production on weather highlights the pressing need for an effective mechanism to cope with weather related production risks faced by farmers. This paper mainly focused on the recent developments in the weather insurance market and evaluates the performance of the weather based crop insurance schemes; the study revealed the much larger spread of benefits under the latter, thus significantly reducing prominent drawback of the decades-old area yield scheme. At the concluding remarks, the article points out that there are major issues and constraints associated with weather index products that need to be successfully addressed and to establish weather stations as much as possible.

Xavier Gine, LEV Menand , Robert Townsend and James Vickery (Oct 2010) suggested that there is urgent need to understand about how exactly rural households responds to an event like severe drought, how large the welfare consequences are and how those costs are distributed amongst households. Study by them observed that rainfall insurance and other index insurance products present a promising way to insure a key source

of idiosyncratic risk faced by rural households in rain-sensitive areas.

Calumg Turvey, Cornell university et al (2010) observed in their study that, farmers willingness to buy weather insurance in rural china shows positive results but with proper support from government is a must for farmers. As subsidy support increases by the government to a maximum extent farmer's willingness to participate in this insurance scheme also increases as per the survey conducted when large scale adoption becomes possible it is highly beneficial for farmers.

John hoddinott (2009) opined that risk is a pervasive feature of life in poor rural areas of developing countries. His study outlines a conceptual framework for understanding the nature of risks faced by poor rural households and their consequences turning to a more detailed discussion of these risks. Finally, in concluding remarks, says that lack of insurance and social protection limits poor households' ability to move out of poverty, creates the potentials for transitory events to have irreversible effects, and exposes the poor to life threatening consequences.

SS.Raju and Ramesh Chand (2008) orgues that agricultural insurance is one method by which farmers can stabilize farm income and investment and guard against disastrous effect of losses due to natural hazards or low market prices. Their study looks at the genesis of agricultural insurance in India examines various agricultural insurance schemes launched in the country from time to time and the coverage provided by them. Major issues and problems faced in implementing agricultural insurance in the country are discusses in detail

Barrett, and Barnett et al (2007) are of the opinion that climate contributes to poverty both directly, through actual losses from climate shocks, and indirectly, through responses to the threat of crises. The direct impact occurs when, for example, a drought destroys a smallholder farmer's crops. Not only will he and his family go hungry, but if they own plough animals they will be forced to sell or consume them in order to survive. When the rains return they will be significantly worse off than before because they can no longer farm effectively. These impacts can last for years in the form of diminished productive capacity and weakened livelihoods.

From the above review of literature it is evident that there is a need for the present study in the changing environment of crop insurance.

HISTORY OF CROP INSURANCE IN INDIA

Background and early attempts at Crop Insurance:-

Crop insurance as a concept for risk management in agriculture has emerged in India since the turn of the twentieth century. From concept to implementation, it has evolved sporadically but continuously through the century and is still evolving in terms of scope, methodologies and practices.

As far back as 1915 in the pre-independence era, Shri J.S. Chakravarthi of Mysore State had proposed a rain insurance scheme for the farmers with view to insuring them against drought. His scheme was based on, what is referred to today as the area approach. He published a number of papers in the Mysore Economic Journal enunciating the concept of Rainfall Insurance. In 1920 Shri Chakravarthi published a book titled "Agricultural Insurance: Practical Scheme suited to Indian Conditions"**3** (Reshmy Nair, (2014) crop insurance – is it far removed from reality? The Hindu Survey of Indian agriculture 2014, 36-39)

Later after getting the independence the GOI seriously thought of introducing crop insurance scheme in the form of first individual approach which operated from 1972-1978. Then it waws replaced with pilot crop insurance scheme (PCIS) 1979-1984. After this in 1985 with several experiments conducted GOI implements compressive crop insurance scheme (CCIS) which operated till 1999. And in 1999 with a aim to increase the coverage of farmers national agriclural insurance scheme (NAIS) was introduced. This NAIS was in force till Karif 2013 and to improve the further friendly, a proposal on modified NAIS was prepared and was approved by GOI for implementation on pilot basis in 50 districts from Rabi 2010-11 seasons. With the objective to bring more farmers under the fold of crop insurance, a pilot weather index based crop insurance scheme (WBCIS) was launched in 2007. The WBCIS scheme was implemented in 18 states from 2007-08 onwards. Now under national crop insurance programme WBCIS is a regular crop insurance scheme since 2013-14.

WEATHER BASED CROP INSURANCE SCHEME (WBCIS)

Weather based Crop Insurance Scheme (WBCIS) is a unique Weather based Insurance Product designed to provide insurance protection against losses in crop yield

resulting from adverse weather incidences. It provides payout against adverse rainfall incidence (both deficit & excess) during Kharif and adverse incidence in weather parameters like frost, heat, relative humidity, un-seasonal rainfall etc. during Rabi. It is not Yield guarantee insurance.

With the objective to bring more farmers under the fold of Crop Insurance, a Pilot Weather Based Crop Insurance Scheme (WBCIS) was launched in 2007. Apart from Agriculture Insurance Company of India, some private companies have also been allowed to implement the Scheme. The WBCIS is intended to provide insurance protection to the farmers against adverse weather incidences, such as deficit and excess rainfall, high or low temperature, humidity etc. which are deemed to impact adversely the crop production. It has the advantage to settle the claims within shortest possible time. The WBCIS is based on actuarial rates of premium but to make the Scheme attractive, premium actually charged from farmers has been restricted at par with NAIS. The WBCIS was implemented in 18 States and 469.38 lakh farmers were covered for a premium of Rs.7,51,920 lakh against the claims of Rs. 52,860 lakh under the Scheme from 2007-08 to 2012-13. The total area insured was 632.01 lakh hectares during the same period.(AIC website 2013)

Features of WBCIS:-

1. Parametric weather related risks like rainfall, frost, heat (temperature), humidity etc.) are covered. However, these parametric weather parameters appear to account for majority of crop losses
2. Technical challenges in designing weather indices and also correlating weather indices with yield losses Needs up to 25 years' historical weather data
3. Basis risk with regard to weather could be high for rainfall and moderate for others like frost, heat, humidity etc.
4. Objectivity and transparency are relatively high.

Coverage:-

All Cultivators (including sharecroppers and tenant cultivators) growing the crop insurable under the scheme) in any RUA in the Pilot areas shall be eligible for coverage. However, 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'.

Benefits of WBCIS:-

1. Trigger events like adverse weather (rainfall, temperature, relative humidity etc.) can be independently verified & measured.
2. It allows for speedy settlement of claims, say within 45 days from the end of the insurance period.
3. All cultivators - irrespective of Loanee or Non-Loanee; Small / Marginal or Others; Owners or Tenants / Sharecroppers can buy Weather Based Crop Insurance Scheme (WBCIS).
4. The Government is providing Subsidy in Premium and hence, the premium payable by the cultivator is affordable.
5. It provides transparent, fully objective, efficient & direct payouts for adverse weather incidences and thus, an effective risk mitigation tool against weather risks.
6. The insured is not required to submit claim form or other documents as proof for his/ her loss. The claim payout is automatically calculated on the basis of weather data collected from the Reference Weather Station at the Tehsil / Block level.
7. Since the weather data decides the compensation, the insured retains the incentive for putting in extra effort for getting better yield of his / her crop.

Limitations of WBCIS:-

Weather Insurance is a new concept. High level of transparency was / is maintained throughout. After every period of insurance some improvements were made based on feedback received and also on internal research and experience. Limitations are many like - distance of the farm from the weather station, non-coverage of perils other than weather, wider sowing / planting window of the crop, differences in soil types & management practices, shift in climatic & weather patterns, etc. leading to weak correlation between the yield and the weather indices.

Premium rates under WBCIS chart

FOOD CROPS & OILSEEDS		
SEASON	**CROPS**	**PREMIUM PAYABLE BY INSURED**
KHARIF	Bajra & Oilseeds	3.5% or Actuarial rate, whichever is less
	Other crops (Cereals, Pulses, & other Millets)	2.5% or Actuarial rate, whichever is less
RABI	Wheat	1.5% or Actuarial rate, whichever is less
	Other crops (other Cereals, Pulses, Millets, & Oilseeds)	2.0% or Actuarial rate, whichever is less

ANNUAL COMMERCIAL/HORTICULTURAL CROPS		
SL.	**PREMIUM SLAB**	**SUBSIDY TO FARMERS**
1	Upto 2%	No Subsidy
2	>2 – 5%	25%, subject to minimum net Premium of 2.00%
3	>5 – 8%	40%, subject to minimum net Premium of 3.75%
4	>8%	50%, subject to minimum net Premium of 4.80% and maximum net premium of 6%

Source: AIC

ANALYSIS AND INTERPRETATION

In this paper attempt has been made to analyses the performance of WBCIS in India since 2007 till 2014 Kharif season.

Table: 1. Final:-State-wise Weather-based Crop Insurance Scheme (WBCIS) (Cumulative up to Kharif 2014) (Rs in lakh)

Sl. No.	States/UT	Farmers insured (no)	Area insured (Ha)	Sum insured	Farmers Premium	Gross premium	Claims payable	Claims paid	Farmers benefited (no)
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1.	Andhra Pradesh	2880796	4696118	1181202.42	45288.49	17823.45	87502.98	87456.15	2016440
2.	Assam	21651	11338	6921.58	348.67	696.44	6.92	6.36 68	68
3.	Bihar	12877373	13105023	3041062.11	86802.32	265616.85	152820.16	100614.47	7679325
4.	Chhattisgarh	312875	557948	108184.12	2086.71	8573.67	9230.57	9230.57	185522
5.	Gujarat	497661	413126	22394.75	251.80	2239.48	857.35	857.35	170576
6.	Haryana	359343	601957	189823.74	3693.45	16764.59	6178.20	14435.44 201135	201135
7.	Himachal Pradesh	153275	153275 1016159	65085.55	3747.75	7495.48	5594.15	4568.24	92175
8.	Jharkhand	521496	502608	105797.47	3596.29	9766.33	4413.82	821.18	313476
9.	Karnataka	942265	1162743	205279.02	9765.80	23097.14	11869.99	11787.44	631623
10.	Kerala	116500	82667	25617.09	945.54	2637.70	1455.80	1444.40	59034
11.	Madhya Pradesh	1032262	1709397	385087.44	10583.63	35222.57	18140.47	16769.28	804398
12.	Maharashtra	1928690	1878757	453755.49	21527.08 1	51188.92	27455.70	27187.26	476129
13.	Orissa	315755	456504	117798.57	1414.07	5656.27	3210.35	3210.35	215814
14.	Punjab	67	338	47.58	1.20	4.79	0.67	0.67	50
15.	Rajasthan	36179884	49470358	4040932.22	124214.66	391811.17	231711.71	225303.62	18042120
16.	Tamil Nadu	131558	178623	31801.92	926.30	3040.74	1742.52	1700.36	57848
17.	Uttar Pradesh	654222	520203	147487.54	4879.51	17693.72	7356.90	2147.06	322346
18.	Uttarakhand	123120	205747	40108.94	2264.88	4495.71	4518.83	4490.64	58013
19.	West Bengal	106561	116844	18524.22	524.45	1803.12	1402.70	1319.84	61480
Total		**60194219**	**78435789**	**10540152.51**	**340523.59**	**1000950.15**	**575506.58**	**513350.70**	**31387572**

Source: Department of Agriculture and Cooperation, Credit Division.

Note: The statistics for kharif 2014 are provisional

The above table no. 1 provides state wise WBCIS statistics form kharif 2007 to kharif 2014 seasons. It can be observed in the table that number of farmers covered from all the states was 6, 01,94,219 of which Rajasthan state is the highest number of farmers covered 3, 61,79,884 lowest being the Punjab state. When we look at the area insured column it is totally 7, 84, 35,789 hectares of land has been insured under WBCIS. Again Rajasthan state is the highest and Punjab state is being the lowest. Sum insured all over India is totally 1, 05, 40,152.51 million so rupees. And highest being Rajasthan and next place is for Bihar state with 3041062.11 lakhs of rupees sum insured and next place is Andhra Pradesh state with 11, 81,202.42 lakhs of rupees. Gross premium all India total 10, 00, 950.15 of rupees Rajasthan, Bihar and Andhra Pradesh states being first second and third place respectively. Total claims amounting to rupees 5, 75,506.58 lakhs of rupees for all over India. Farmers benefitted out of WBCIS crop insurance is 3, 13, 87,572

Table no.2 WBCIS: Business statistics for Kharif seasons from Kharif 2007 To Kharif 2014 (all companies combined) (in lakhs rupees)

S. No.	season	Farmers Covered	Area insured (Ha)	Sum insured	Farmers Insured	Gross premium	Claims paid	Farmers benefited (no)
1	**Kharif 2007**	43790	50074.12	5301	141.75	703.08	524.12	35275
2	**Kharif 2008**	183481	221202.1	35110.24	961.11	3616.29	1605.24	108975
3	**Kharif 2009**	1161055	1530782	211570.4	6058.23	21210.9	15789.29	902866
4	**Kharif 2010**	4918950	7391329	568167.2	16831.8	59593.92	19189.48	1792384
5	**Kharif 2011**	6907509	9787896	1087179	33167.55	102973	42184.51	3597376
6	**Kharif 2012**	8008211	11124734	1287053	40798.46	129474.1	79237.09	6748834
7	**Kharif 2013**	8874160	11221477	1470041	46135.89	147834.7	104709.8	6656066
8	**Kharif 2014 (P)**	**8091963**	**9785958**	**1305368**	**67843.33**	**154474**	**117.39**	**6173**
	TOTAL	38189119	51113452	5969790.2	211938.1	619880	261751.7	19847949

Source: Agricultural Statistics at a Glance 2014 report, Government of India Ministry of Agriculture Department of Agriculture & Cooperation Directorate of Economics & Statistics Note: The statistics for kharif 2014 are provisional

Table no.2 gives the details regarding WBCIS coverage in all the kharif seasons since its inception form 2007 to 2014 kharif. The farmers' enrollment in this crop insurance scheme is continuously increasing every year starting to just 43790 farmers to highest in kharif 2013 season with 887160 farmers. The total sum insured area is 5969790 hectares of land till 2014. And area covered under this scheme is also increasing every year. During 2014 kharif season gross premium collection was the highest of all seasons and lowest being in kharif 2007 season. Claims were paid highest in kharif 2012 season. Important column in this table is number of farmers benefited actually; it is in kharif 2012 season the more number of farmers benefited out of this.

Table no.3 WBCIS: Business statistics for Rabi seasons from Rabi 2007-08 To Rabi 2012-13 (all companies combined)

S. No.	season	Farmers Covered	Area insured (Ha)	Sum insured	Farmers Insured	Gross premium	Claims paid	Farmers benefited (no)
1	Rabi 2007-08	634635	1018254	173890.2	4377.24	14132.08	10039.94	190610
2	Rabi 2008-09	191647	260907.9	53632.68	1122.52	4552.84	3342.32	120804
3	Rabi 2009-10	1201525	1891091	285798.9	5651.63	23552.67	18651.45	600336
4	Rabi 2010-11	4383504	5745534	863379.3	17619.62	69385.19	44236.5	2526669
5	Rabi 2011-12	4766023	5944748	985837.2	22117	82747.03	66578.71	2732016
6	Rabi 2012-13	5612709	7040962	1119404	26370.3	94051.99	79731.74	4054289
7	Rabi 2013-14	5215057	5420841	1088420	51327.16	92648.35	27413.1	1314899
8	TOTAL	**22005100**	**27322337**	**4570362.3**	**128585.47**	**381070.2**	**249993.8**	**11539623**

Source: Agricultural Statistics at a Glance 2014 report, Government of India Ministry of Agriculture Department of Agriculture & Cooperation Directorate of Economics & Statistics

The above table no.3 shows WBCIS business statistics for Rabi seasons from Rabi 2007-08 to Rabi 2013-14 for all companies taking together. From all seven rabi seasons totally 2, 20,05,100 farmers benefited all over India of which highest in 2012-13 Rabi season with 56,12,709 farmers and 635 lowest in 635 thousand farmers in 2007-08 rabi season. When we look at the sum of area insured it is 2, 73, 22,337 hectares of agricultural land all over India. Sum insured for all rabi seasons is 4570362.3 lakhs of rupees and for this 381070.2 lakhs of rupees gross premium and claims amounting to 249993.8 millions of rupee.

FINDINGS

1. Farming anywhere in the world is exposed to so many risks. Insurance is a tool to protect farmers against a small probability of a large unexpected loss. So, insurance coverage for agriculture sector must be made available by the government.
2. Weather index based crop insurance scheme is designed to provide insurance protection against losses in crop yield resulting from adverse weather incidences.
3. Though crop insurance schemes are in operating in India since 1972, total percentage of farmers covered under crop insurance net has not more
4. There has been a continuous increase in the farmers' enrollment to WBCIS all over India due to its farmer's friendly product design.
5. Payout takes less than 45 days in WBCIS when compared to other types of traditional crop insurance scheme.
6. There is low level of awareness about this product among farmers and it is due to lack of initiatives from banking sector and insurance providers.
7. As the WBCIS product is bundled with crop loans it is reaching more loanee farmers without its knowledge.
8. There is need for setting up of more and more automated weather stations in the country in order to improve the weather data base so that problem of basis risk can be avoided.

SUGGESTIONS

1. WBCIS can be a better climate risk management tool in the hands of farmers provided farmers needs more awareness in this regard.
2. The weather index based crop insurance scheme must be further improved in terms of more crops coverage and product design.
3. Banking sector must take initiatives to educate farmers prior insuring the farmers both loanee and non loanee farmers,

4. NGOs, private insurance providers must invest in insurance literacy programs in rural areas which in turn insurance companies will be benefited in the long run with increase in the farmers' enrollment to crop insurance schemes.
5. Problem of basis risk due lack adequate weather infrastructure needs to be addressed by setting up more and more number of AWSs in the country.
6. Farmers' enrollment must be increased by using all the means so that large farming community will be saved out of risks in agriculture.
7. There is need to improve the product delivery system of the crop insurance product by using new distribution channels.
8. The government must encourage research studies on weather insurance and its impact analysis on poverty, socio-economic developments and should provide financial assistance for such research projects.
9. The sum insured under WBCIS must be increased in order to meet the crop losses suffered by the farmers through its claims.

CONCLUSION

Mitigation of weather risks faced by Indian farmers is most challenging thing. For which WBCIS can be a better climate risk management tool in the hands of farmers to safeguard themselves due to so many weathers risks resulting in yield loss and financial loss. With proper insurance education to farmers, improved inputs, weather infrastructure in the country, scientific data management, improvising in the product delivery system and complete involvement of service providers, banking sector together can save farming community from risks in agriculture.

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