Appraisal and Future of Crop Insurance Schemes in India with Special Reference of NAIS

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Abstract

Indian agriculture is blend of many risk and uncertainties. In case of crop, loss or failure farmers are facing evils of financial resources and technological efforts. Crop insurance is an effective device for Indian farmers. However, crop insurance is not popular as required in Indian farmers. Researcher is attempts some facts of present crop insurance schemes of India. Agriculture Insurance Company of India (AIC) is in key role due to govt. subsided schemes/plans. Privatization leads it to competitive market with innovative ideas and plans. Author depend on some research paper projects and literature surveyed to make out crop insurance plans in India to provides a agenda for designing a crop insurance scheme based on the premise that insurance is a cost effective risk management technique. The paper also provides some innovative ideas and thinking toward both improving the existing crop insurance scheme and lift up the interest of insurer and farming community.

Keywords:

Basic Risk, Index Based Plans, Subsidy, Private Sector Insurer.

Introduction

Indian agriculture is subject to many risks and uncertainties. Hitherto, agriculture is more important sector of Indian economy. According to the report of Deutsche Gesellschaft fürInternationale

Zusammenarbeit (Singh, Raghvendra,2013) about 52% of the total workforce is still employed by the farm sector, which is evidence that almost more than half of the Indian population dependant on agriculture for their livelihood (NSS 66th Round). Vast majority of these people is poor vulnerable section of society. Solely the traditional yardsticks of economic contribution cannot judge the significance of agriculture to the Indian state.

Agriculture production is flexible and changes with the climate conditions. Labors of farmer have link with the price of yield etc. Risk oriented agriculture system and lower pricing of crop yield limits farmer to innovative ideas and investment. In present, Condition of

farmers continues to be unstable due to natural calamities and price fluctuations (Sinha,2006). Crop insurance as a new mechanism of assured yield and lower financial risk in agriculture create sustainability of farmers. Crop insurance is not only beneficial to farmer it also an advantage to banking system for timely payment of loan. Crop insurance can assist farmers in accessing new opportunities by improving their ability to borrow either money or in-kind of credits. In doing so, farm households may potentially experience safer and possibly higher yield, because successive crop cycles follow effortlessly from one to the next. Crop insurance also helps enhance the viability of agriculture lending through risk mitigation and hence is vital for banks. (Verma, 2010)

However, functioning of crop insurance in India is under the proper vision of Central and State govt. Govt. of India has formed a new company Agriculture Insurance Company of India (AIC) for betterment. The privatization has expanded the place for innovative ideas and product diversification for crop insurance with the entry of numerous private firms who are driving without govt. subsidy with profit making concept. Under this phenomenon, emerge the need of Public Private Partnership (PPP) model for innovative product in reasonable premium with lower loss to govt. as subsidy.

Crop Insurance – Emergence and Concept

India is primarily an agrarian economy because two-third of India's population depends on farming. Despite all these, India is lags behind in terms of crop production as proportion of the global production of food grains and other industrial raw material. The one of the major reasons is its vulnerability to seasonal adversities and natural risk. Income of farmers in India is frequently affected by natural disasters such as droughts, floods, cyclones, Tsunami, hailstorms, landslides and earthquakes. Vulnerability of farming to these disasters is compounded by the outbreak of epidemics and man-made disasters such as fire, sale of spurious and immature seeds, chemical fertilizers and pesticides, price crashes etc (Raju and Chand,2008). Indian economy is a developing economy, which faces more challenges from the global market regarding the stability of pricing of farm products. Pricing of farm product depend at demand and supply of the product in global market. However, it facing the challenges of timely supplies due to lack of proper infrastructural facilities.

Agriculture, as an economic activity also has a risk element with it. Agricultural risk can cover through an insurance policy (Deshmukh, 2012). Therefore, Crop insurance is an effective tool to share the risk of Indian agriculture. Gurudev, (2010) highlighted Crop insurance as a means to protecting the cultivators against financial loss on account of anticipated crop-loss arising out of practically all natural factors beyond their control such as natural fire, weather, floods, pests, diseases etc . According to Reddy (1998), crop insurance is needful to the farmers & it provides financial support to the farmers in the event of crop failure & make them credit worthy for the next crop season. Crop insurance is one alternative to manage risk in yield loss by the farmers. These insurance provides coverage for both yield and price risks for a growing crop, the annual crop yield will exhibit significant instability due to the catastrophic nature of weather, as well as price changes. It decreases the dependents of farmer on the financial institutional and other source of finance in case of crop failure and other adverse condition. A better policy makes the farmers financial sound and well decision-maker by effective use of resources with time.

Crop insurance as one of the means of reducing the agricultural risks indemnifies the fatalities arising from catastrophic weather. Crop insurance brings in security and stability in farm income. Crop insurance protects farmer's investment in crop production and thus improves their risk bearing capacity to take innovative and higher productive crop. It facilitates adoption of improved technologies and encourages higher investment resulting in higher agricultural production. Further, it minimizes the crop losses that occur due to uncontrollable natural factors, over space and time and induce farmers to more investments in agriculture. This enables households to avoid selling livelihood assets or drawing on savings of previous period. Insurance can assist farmers in accessing new opportunities by improving their ability to borrow either money or in-kind credits. In doing so, farm households may potentially experience safer and possibly higher returns.

Crop Insurance Plans in India – Origin and Nature

A beginning in crop insurance was made in 1972 by implementing an experimental scheme for Hybrid-4 cotton in a few districts of Gujarat state. This scheme continued till 1979 and was phased out, schemes based on individual approach are not feasible and economically (Jain, 2004). Comprehensive Crop Insurance Scheme (CCIS) for major crops was introduced in 1985, that was replaced by National Agricultural Insurance Scheme (NAIS) with effect from 1999-2000. Agriculture Insurance Company of India Limited (AIC) has been formed by the Government of India to serve the needs of farmers better and to move towards a sustainable actuarial regime (Reddy, 2004). The government of India (GOI) has historically focused on crop insurance as a planned mechanism to mitigate the risks of natural perils on farm production.(verma, 2010)

CCIS was coverage was limited to loanee farmers with prescribed limits; NAIS widened the coverage by envisaging voluntary participation of non-loanee farmers. The limit of the sum insured was increased to the value of 150% of average yield against payment of an actuarial based

premium. Pilot Scheme on Seed Crop Insurance (PSSCI) was introduces in 1999 for the better quality of seeds for farmers as well as other intermediaries of seed providers. PSSCI was opting as experimental scheme for qualitative seeds, it wipe out in 2001 after two years of experiment. Weather Index Insurance was a dual measures plan, which depends on index of weather and yield of farmer. Weather insurance scheme is based on index of average rainfall of previous 5 to 10 year.

In early, private sector insurer has not seen interest in crop insurance due to Govt. financial assistant (subsidy) to public sector insurer. However, private sector companies has pierce into crop insurance plan with the innovative ideas to compete subsidize public sector insurer. With idea of index based insurance plan ICICI Lombard pioneered weather insurance space by launching rainfall insurance scheme in 2003 in Andhra Pradesh (Venkatesh, 2008). ICICI Lombard open the new horizon to the AIC and other Indian crop insurer to access the mass as well as possibility of innovative plans in crop insurance to farmers of India.

Major Crop Insurance Plans in India

Name of Plan (Scheme)	Duration of Plan	Sum of Assured	Premium for Plan	Subsidy on Plan
First Individual Approach Scheme	1972-1978	N.A.	N.A.	N.A.
Pilot Crop Insurance Scheme (PCIS)	1979-1984	100-150 per cent of the crop loan	5 to 10% of the sum insured	50% shared equally between the state and central governments
Comprehensive Crop Insurance Scheme (CCIS)	1985-99	Institutions loan 100% (maximum of Rs.10,000/- per farmer).	2% for cereals and millets and % for pulses and oilseeds	50% subsidized equally by the Central and State Governments
National Agricultural Insurance Scheme (NAIS)	1999	Equal to 150% of district average yield on Minimum Support Price (MSP)	1.5 percent to 3.5 percent of sum assured for food crops	50% subsidized equally by the Central and State Governments
Pilot Scheme on Seed Crop Insurance (PSSCI)	1999-2001	3/5 year index value of Seed on last season Procurement Price by National Seed Corporation (NSC)	3% to 5% On crop variety.	N.A.
Weather Index Insurance	2007	sum of Rs 50,000; Rs. 25,000 for weather insurance and the remaining Rs 25,000 for yield index	weather index cover is 12% and yield index cover is 10%	70% and 50% Respectively

Source: Indian Council of Agricultural Research/PROJECT NO: 40013101
Retrieved from:
http://www.ncap.res.in/Agriculturalrisk%26insurance/_private/chapter4%2520pdf/4.1.pdf/4.1.3.pdf

Insurance Plans – Operation and Success

Crop insurance program started in 1972 on H-4 cotton in Gujarat, which was extended later to a few other crops and states it cover mere farmers. To minimize the risk of financial losses to insurer in year 1979 launch a new scheme PCIS, cover industrial and food crops in 13 states. Both early schemes cover only loan facility of farmers, with need of time and cover the more farmer insurer opt a new scheme Comprehensive Crop Insurance Scheme – CCIS (1985–1999) which cover loanee and non-loanee all farmers of 16 states and 2 Union Territories with offering of 100% indemnity to farmers. Index based crop insurance (NAIS) opted on 1999 to make crop insurance more effective and sound to calculate the risk of the farmer. NAIS works on yield index, to cover the weather and minimize risks of farmers regarding rainfall insurer launch new plan WIS in 2007. WIS is working on weather index (Rainfall) as well as on yield index and cover maximum Rs 50,000 risk of farmer (Rao, 2011).

Major Crop Insurance Plans Operation

Name of Plan (Scheme)	Duration of Plan	Area of Coverage	Benefited Farmers (No.)	Premium Collected (Rs)	Indemnity paid (Rs)
Individual Approach Scheme	1972-1978	H-4 cotton in Gujarat	3,110	4.54 lakhs	37.90 lakhs
Pilot Crop Insurance Scheme (PCIS)	1979-1984	cereals, millets, pulses, oilseeds, cotton &potato (13 States)	6,27.000	197 lakhs	157 lakhs.
Comprehensive Crop Insurance Scheme (CCIS)	1985-99	cereals, millets, pulses, oilseeds, cotton and potato (16 states & 2U.Ts)	763 lakh	403.56 crore	2,319 crore.
National Agricultural Insurance Scheme (NAIS)	1999 onward	35 types of crops Kharif season and 30 during the Rabi season.	20.76* crore	291000* crore	28683* crore
Weather Index Insurance	2007 onward	40 different crop 13 States-Kharif 14 States-Rabi	35.48** lakh 37.06 **lakh	726** crore. 606** crore.	540** crore 502** crore.

Source: Indian Council of Agricultural Research and Annual Report of AIC

* Till Rabi 2012-13,

** Till 2012-13

National Agriculture Insurance Scheme (NAIS)

The scheme provides comprehensive risk insurance against yield losses due to non-preventable risks like natural fire or lightening, storm, hailstorm, cyclone, typhoon, Tsunami, flood and landslide, drought, dry spells, pests, diseases of crop. However, losses arising out of manmade i.e. war, malicious damage and nuclear exploitation risks shall be excluded (Singh, 2010). The NAIS is based on an "area yield" indexed approach: if the observed seasonal area yield per hectare of the insured crop for the defined insurance unit falls below a specific threshold yield, than all insured farmers in the defined area will receive the same claim payment (per unit of sum insured). Under NAIS unit size is chosen by the state and is often chosen to be a sub district (Mahul, 2013). Under this scheme, sum of insured for loanee farmer is equal to loan amount plus insurance charges and it is extendable to threshold yield. For non-loanee farmers the coverage at normal rates of premium is available up to the value of threshold yield (at MSP or market price). All farmers (loanee and non-loanee) can obtain additional coverage up to 150 per cent of value of average yield of the notified area by payment of premium at actuarial rates.

The threshold yield (TY) or guaranteed yield for a crop in an insurance unit is the moving average based on past three years average yield in case of Rice and Wheat and five years average yield in case of other crops, multiplied by the level of insurance indemnity. TY have three levels of indemnity, viz., 60, 80 and 90 per cent corresponding to low, medium and high risk areas would be available for all crops (cereals, millets, pulses and oilseeds and annual commercial and horticultural crops) based on coefficient of variation (C.V.) in yield of past 10 years' data.

Indemnity under NAIS calculated by following formula:

$$\frac{\text{Shortfall in yield}}{\text{Threshold Yield}} \times \text{sum insured of farmers} \quad (1)$$

(Shortfall in yield = Threshold yield – Actual yield for the defined area)

Threshold Yield:

Indemnity level × Probable yield (2)

Probable Yield

Probable Yield = $\frac{\text{3years moving average actual yield for wheat and rice}}{\text{5 year moving average actual yield for other crop}}$ (3)

Indemnity level is typically uniform for a particular crop, and it based on the previous 10 years coefficient of variation of actual yields (CV):

Indemnity level = 60% if CV is more than 30%
80% if CV is between 15 to 30%
90% if CV less than 15% (4)

Weather Index Insurance (WII)

Weather conditions are beyond the control of farmers and as such, crop insurance is a catalytic tool to manage the production risk of crop (soni, 2013). Weather conditions such as rainfall, high temperature are not in control of human being. To provide an alternative in such conditions during the year 2003-04 the private sector came out with some insurance products in agriculture based on weather index. Index is based on vagaries of weather like excess or deficit rainfall, temperature and humidity. One such product namely, Rainfall Insurance was introduced by ICICI-Lombard General Insurance Company. Afterward, this move was followed by some other companies like IFFCO-Tokio General Insurance Company and by public sector Agricultural Insurance Company of India (AIC).

Use of indexed based contracts such as rainfall contracts where in farmers would be compensated if the rainfall in an area would go below set parameters, with unreliable levels of payment depending upon the parameters of rainfall (Verma, 2010). Pal and Mondal (2010) studied the approaches and challenges for agriculture insurance in India. They advocated peril-indexed insurance and options as a risk management technique aimed at stabilizing the revenue and yield of farmers, which is highly dependent on Indian weather conditions and *mansoon.*

Negative aspect of Crop Insurance

In initial vision of insurer for crop insurance is somewhere lost its importance between the farmers due to its mechanism. First two plans of crop insurance focuses only the loanee farmer for the repayment of loan insists of farmers' crop. Crop insurance plans are not attracting farmers due to lower feasibility with their need of financial assistance on time. Some of its crucial aspects like payment on time, actuarial practice and control mechanism push towards back front. Designing and delivery mechanism of insurance plan is not effective to convince farmer with its message and importance to them as an effective tool of hedging. The crop insurance schemes suffer from several problems, which are endemic to the nature of the product premium of plan. These include problems of timely and reliable yield measurement, actuaries of claims payments, insufficient risk sharing by the implementing agency and the exclusive reliance on rural financial institutions to deliver the product. Given these problems, the private sector is unlikely to offer yield insurance, even in partnership with the government.

Crop insurance is facing tribulations of poor interest of farmer as well as adverse selection and section by bankers to achieve targets. Adverse selection of policy, selling of insurance plan, pushes the insurer toward the net loss. New plans are not effective due to unit and common element of indemnity to all policies and for all blocks. These plans are not attract all farmers due to moderate average of yield for indemnity due to weather conditions and rainfall gap in units. Index based plans are offering indemnity on basis of average area yield, which is different from the individual yield. There is wide variation in soil fertility, farming conditions and rainfall within such blocks, and so the average disguises a large range of crop output. Some farmers may lose their entire crop even when the average for the block is normal.

It is widely believed that the India, which exists on paper, is severely different from what seems in reality. Such a formation, though unfortunately true, is an outcome of the weak institutional structure in India that severely undermines the ability to reap any significant dividends from a thoughtful policy, strategy or scheme. Furthermore,

the complex bureaucratic system entrusted with the design and execution of policy has been seem to plague by perceptual biases, and a distorted view of realities. Subsidy to public sector insurer is the bigger challenge to the private sector insurer to cross the threshold in the crop insurance. Subsidies to the public insurer makes financial burden on the Govt. as well as it abridge the opportunity the private sector insurer in crop insurance. Huge losses of insurer shorten the space of research and development for new market with innovative ideas and product. Govt. of India form a new company Agricultural Insurance Company of India (AIC) for the actuarial regime in crop insurance insist of a scheming and planning institution (body) for crop insurance.

Suggestions and Remedies

Technology in agriculture has emerged have to crop insurance in Indian agriculture. Crop insurance mechanism is having to structural change, and there is emerge calls for reviewing the existing crop insurance model. AIC was formed by the Indian Govt. to handle the crop insurance related aspects and disputes but it is not seem possible without strict regulation for it. In country where more than half people depend on agriculture as their livelihood, which must have a strict regulation for the crop insurance as life insurance. It also needs to make the regulation regarding premium, settlement of crop indemnity, and timely payment to the farmer. Indian crop insurance is not focusing at qualitative crop in time of industrialization and globalization. To provide qualitative food grains and raw material there is need of higher investment, for that purpose crop insurance should required to launch new scheme for the quality of crop product based on advance index of crop quality.

Major policies of crop insurance such as NAIS and WII are required to change its indemnity calculation pattern that based on unit or area. Present mechanism of indemnity calculation based on previous average yield of unit or area. Advantages of green revolution and technology have not any place in the claim settlement. To attract the new customer there is immediate need of an ideal claim settlement mechanism, which depend on individual basis (Panchyat/Village), as well as advance not have one size fit effects. Payment of indemnity on time is not only making farmers financially sound, it makes insurer also. Insured farmer become the role model and it widen the market for crop insurance in society.

Interest of both parties of crop insurance, insurer and farmer, is low for the crop insurance due to gap between vision and mission of paper work (policy) of govt. of India. To enhance the interest of farming community oblige some new plans with innovative ideas for crop insurance in Private Public Partnership (PPP) Model. To secure the participation of private sector insurer, govt. should provide them subsidy as public sector insurer. Financial burden is another challenge to govt. for minimize financial burden on govt. there is could do with participation of Banker to insure all their credits to farmers.

Conclusion

Agricultural Insurance market has shown a marvelous potential. However, in past forty years of its inception it could not gain strong hold in the India on its ground. The major hurdle in this seems to be the categorization of the farmers based on loan sanction, where large piece of non-loanee farmers is left behind. This needs attention of farmer for proper training and counseling to apply for the crop insurance and the risk mitigation techniques. Consideration of many experiments in this regards have borne fruits and proved to be replicable yet there are certain constraints such as interest of farmer , government policies regarding subsidy, improper infrastructure which inhibit the implementation of the same.

Formation of AIC is charitable a new hope to exhausted Indian crop insurance. However, AIC is not become milestone in crop insurance with out-dated and ineffective plans & schemes. Public sector subsidized products become burden for govt. and barrier for the private sector insurer. After all, crop insurance become a new financial burden (subsidy for insurance) be adamant of its vision reduce crop failure burden to govt.

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