CHAPTER – I

INTRODUCTION

1.1 INTRODUCTION

Decision-making takes place in an environment of imperfect knowledge of the future - **uncertainty** - and is associated with **risk** which is normally defined as "Uncertainty of outcomes" resulting in losses negatively affecting the welfare of an individual. To take a risk is to expose oneself to a chance of injury or loss. For many decisions, risk is unimportant, since the scope of a possible loss is small and/or the probability of suffering that loss is judged to be low. However, in order to withstand adverse outcome and to avoid jeopardizing the existence of an enterprise as the base for income generation, risk has to be managed effectively, within the capacity of the individual, business or group through the process of identifying, assessing, and controlling risks arising from operational factors and making decisions that balance between risk costs and mission benefits.

Risk management is a structured approach to managing uncertainty through, risk assessment, developing strategies to manage it, and mitigation of risk using managerial resources. The strategies include transferring the risk to another party, avoiding the risk, reducing the negative effect of the risk, and accepting some or all of the consequences of a particular risk.

Risk management, the practice of appraising and controlling risk, has evolved as a discrete field of study and practice. The most significant form of risk management used in modern economy is insurance. **Insurance**, in law and economics, is a form of risk management primarily used to hedge against the risk of a contingent loss. Insurance can be defined as the equitable transfer of the risk of a loss, from one entity to another, in exchange for a premium.

In some senses, it can be said that risk management or insurance appears simultaneously with the appearance of human society. There are two types of economies in human societies: money economies (with markets, money, financial instruments and so on) and non-money or natural economies.

The second type is a more ancient form than the first. In such an economy and community insurance can be seen in the form of people helping each other. For example, if a house burns down, the members of the community help to build a new one. Should the same thing happen to one's neighbor, the other neighbors must help, otherwise, neighbors will not receive help in the future. This type of insurance has survived to the present day in some countries where modern money economy with its financial instruments is not widespread.

Turning to insurance in the modern sense (i.e., insurance in a modern money economy, in which insurance is a part of the financial sphere), early methods of transferring or distributing risk were practiced by Chinese and Babylonian traders as long ago as the 3rd and 2nd millennia BC, respectively. Chinese merchants traveling treacherous river rapids would redistribute their wares across many vessels to limit the loss due to any single vessel's capsizing. The Babylonians developed a system which was recorded in the famous Code of Hammurabi, c. 1750 BC, and practiced by early Mediterranean sailing merchants. If a merchant received a loan to fund his shipment, he would pay the lender an additional sum in exchange for the lender's guarantee to cancel the loan should the shipment be stolen[1].

The Greeks and Romans introduced the origins of health and life insurance during 600 AD when they organized guilds called "benevolent societies" which cared for the families and paid funeral expenses of members upon death. Guilds in the 'Middle Ages' served a similar purpose. Before insurance was established in the late 17th century, "friendly societies" existed in England, in which people donated money to create a general fund that could be used for emergencies[2].

Separate insurance contracts were invented in Genoa in the 14th century, as were insurance pools backed by pledges of landed estates. These new insurance contracts allowed insurance to be separated from investment, a separation of roles that first proved useful in marine insurance. Insurance became far more sophisticated in post-Renaissance Europe, and specialized varieties developed afterwards.

Towards the end of the seventeenth century, London's growing importance as a centre for trade increased demand for marine insurance. In the late 1680s, Mr. Edward Lloyd opened a coffee house that became a popular haunt of ship owners, merchants, and ships' captains, and thereby a reliable source of the latest shipping news. It became the meeting place for parties wishing to insure cargos and ships, and those willing to underwrite such ventures. Today, Lloyd's of London remains the leading market (note that it is not an insurance company) for marine and other specialist types of insurance, but it works rather differently than the more familiar kinds of insurance[3].

Insurance as we know it today can be traced to the Great Fire of London, which in 1666 devoured 13,200 houses. In the aftermath of this disaster, Nicholas Barbon opened an office to insure buildings. In 1680, he established England's first fire insurance company, "The Fire Office," to insure brick and frame homes[4].

The first insurance company in the United States underwrote fire insurance and was formed in Charles Town (modern-day Charleston) of South Carolina in 1732. Benjamin Franklin helped to popularize and make standard the practice of insurance, particularly against fire in the form of perpetual insurance. In 1752, he founded the Philadelphia Contribution ship for the Insurance of Houses from Loss by Fire. Franklin's company was the first to make contributions towards fire prevention[5].

In India, insurance has a deep-rooted history. It finds mention in the writings of Manu (Manusmrithi), Yagnavalkya (Dharmasastra) and Kautilya (Arthasastra). The writings talk in terms of pooling of resources that could be re-distributed in times of calamities such as fire, floods, epidemics and famine.. This was probably a pre-cursor to modern day insurance. Ancient Indian history has preserved the earliest traces of insurance in the form of marine trade loans and carriers' contracts. The joint family system, peculiar to India, was a method of social insurance of every member of the family on his life.

Insurance in India has evolved over the period of time drawing heavily from other countries especially from England. 1818 saw the advent of life insurance business in India with the establishment of the Oriental Life Insurance Company in Calcutta. This Company however failed in 1834. In 1829, the Madras Equitable had begun transacting life insurance business in the Madras Presidency[6]. 1870 saw the enactment of the British Insurance Act and in the last three decades of the nineteenth century, the Bombay Mutual (1871), Oriental (1874) and Empire of India (1897) were started in the Bombay Residency. However, this era was dominated by foreign insurance offices which did good business in India, namely Albert Life Assurance, Royal Insurance, Liverpool and London Globe Insurance. The Indian offices were up for hard competitions from the foreign companies[7].

In 1914, the Government of India started publishing returns of Insurance Companies in India. The Indian Life Assurance Companies Act, 1912 was the first statutory measure to regulate life business. In 1928, the Indian Insurance Companies Act was enacted to enable the Govt. to collect statistical information about both life and non-life business transacted in India by Indian and foreign insurers including provident insurance societies. In 1938, with a view to protecting the interest of the Insurance public, the earlier legislation was consolidated and amended by the Insurance Act, 1938 with comprehensive provisions for effective control over the activities of insurers.

The Insurance Amendment Act of 1950 abolished Principal Agencies. However, there were a large number of insurance companies and the level of competition was also high. Further, there were allegations of unfair trade practices. The Government of India, therefore, started to think for nationalizing the insurance business of our country.

An Ordinance was issued on 19th January, 1956 nationalizing the Life Insurance sector and Life Insurance Corporation came into existence in the same year. The LIC absorbed 154 Indian, 16 non-Indian insurers as also 75 provident societies—245 Indian and foreign insurers in all. The LIC had monopoly till the late 90s when the Insurance sector was reopened to the private sector[8].

The history of **general insurance** dates back to the Industrial Revolution in the west and the consequent growth of sea-faring trade and commerce in the 17th century. It came to India as a legacy of British occupation. General Insurance in India has its roots in the establishment of Triton Insurance Company Ltd., in the year 1850 in Calcutta by the British. In 1907, the Indian Mercantile Insurance Ltd was set up. This was the first company to transact all classes of general insurance business[9].

The year 1957 observed the formation of the General Insurance Council, a wing of the Insurance Association of India. The General Insurance Council framed a code of conduct for ensuring fair conduct and sound business practices.

In 1968, the Insurance Act was amended to regulate investments and set minimum solvency margins. The Tariff Advisory Committee was also set up at that time.

In 1972 with the passing of the General Insurance Business (Nationalization) Act, general insurance business was nationalized with effect from 1st January, 1973. 107 insurers were amalgamated and grouped into four companies, viz., National Insurance Company Ltd., the New India Assurance Company Ltd., the Oriental Insurance Company Ltd and the United India Insurance Company Ltd. The General Insurance Corporation of India was incorporated as a statutory corporation in 1971 and it commenced its business on January 1st 1973 as holding company of its four subsidiary companies controlling from the four parts of the country. The National Insurance Company Ltd had its headquarter at the then Calcutta (now Kolkata), Mumbai (the then Bombay) was the control centre of New India Assurance Company Ltd, the Oriental Insurance Company had its head office in Delhi and the then Madras (now Chennai) was the center of operation of United India Insurance Company Ltd. The four subsidiary companies had all sort general insurance businesses except the Aviation Insurance and Agriculture Insurance activities which were directly governed by the General Insurance Corporation of India it self[10].

This millennium has noted the completion of full circle of journey of insurance in India extending to nearly 200 years. The process of re-opening of the sector had begun in the early 1990s and during the last two decades it has been opened up substantially. In 1993, the Government set up a committee under the chairmanship of Late R. N. Malhotra, former Governor of RBI, to propose recommendations for reforms in the insurance sector of the country[11]. The objective was to complement the reforms initiated in the financial sector. The committee submitted its report in January 1994 wherein, among other things, it recommended the participation of private players in the insurance sector. They stated that foreign companies are to be allowed to enter by floating Indian companies, preferably a joint venture with Indian partners.

Following the recommendations of the Malhotra Committee report, in 1999, the Insurance Regulatory and Development Authority (IRDA) was constituted as an autonomous body to regulate and develop the insurance industry. The IRDA was incorporated as a statutory body in April, 2000. The key objectives of the IRDA were to promote competition so as to enhance customer satisfaction through increased consumer choice and lower premiums, while ensuring the financial security of the insurance market.

The IRDA opened up the insurance market in August 2000 with the invitation of application for registrations. Foreign companies were allowed ownership up to the maximum of 26%. The Authority has the power to frame regulations under Section 114A of the Insurance Act, 1938 and from the year 2000 onwards IRDA has framed various regulations ranging from registration of companies for carrying on insurance business to protection of policyholders' interests.

In December, 2000, the subsidiaries of the General Insurance Corporation of India were restructured as independent companies and at the same time GIC was converted into a national re-insurer. Parliament passed a bill de-linking the four subsidiaries from GIC in July, 2002[12].

The insurance sector is a colossal one and is growing at a speedy rate of 15-20%. Together with banking services, insurance services add about 7% to the country's GDP. A well-developed and evolved insurance sector is a boon for economic development as it provides long- term funds for infrastructure development at the same time strengthening the risk taking ability of the country[13].

Insurance companies may be classified into two groups: Life insurance companies, which sell life insurance, annuities and pensions products and Non-life or general insurance companies, which sell other types of insurance. In most countries, life and non-life insurers are subject to different regulatory regimes and different tax and accounting rules. The main reason for the distinction between the two types of company is that life, annuity, and pension business is very long-term in nature — coverage for life assurance or a pension can cover risks over many decades. By contrast, non-life insurance usually covers a shorter period, such as one year.

Amongst the different general insurance Agricultural insurance is reemerging as a topic of interest to farmers, policy makers, insurance companies, and development finance institutions.

The renewed interest stems from a confluence of factors: a number of economically costly natural disasters in recent years; the need to improve agricultural competitiveness in light of ongoing agricultural trade liberalization and integration movements that will expose regional farmers to a greater extent to an array of modern agricultural risk management instruments. Agriculture Insurance can play a pivotal role in food security as well as sustainable economic development of a developing country.

Agricultural insurance is an industry that is still in its teething stages in this country. The study purports to analyse and assess the growth, development as well as the future of the Agriculture Insurance business with special reference to India.

1.2 STATEMENT OF THE PROBLEM

Agriculture in developing nations is characterized by small holdings, ill-structured institutional credit, unpredictable market fluctuations and feeble extension systems in addition to natural disasters like cyclones, floods, drought, hailstorms etc. besides frequent pest out-breaks. However, majority of developing economies in the world are invariably depended on agricultural production where our country is not an exception.

Agriculture is an important sector in India, not only because it offers direct livelihood to roughly two thirds of the workforce in the country but also because it is a provider of food, clothing, fodder and other basic necessities of life for the entire population. It also provides vital raw material for other industries. Agriculture, therefore, is and will continue to be central to all strategies for planned socio-economic development of the country. Rapid growth of agriculture is essential not only to achieve self-reliance at national level but also for household food security and to tackle the problems of poverty, unemployment and environmental degradation.

The fluctuations in agriculture impinge on other sectors of the economy due to its forward and backward linkages. Failure of agricultural sector creates a vicious circle - the prices of the commodities go up causing an upward trend in inflation and the NPAs of the banking sector bundle up owing to non-payment of loans. From a social point of view, the farmers' problem becomes a community problem that affects the welfare of everyone. To overcome this, the concept of risk management in agriculture has come in.

Prevalence of risk in agriculture has become a rule rather than an exception. In this regard farmers, rural institutions and money lenders have over generations developed several informal risk mitigation mechanisms such as crop diversification, intercropping, diversification of income source, buffer stock accumulation of crops or liquid assets, crop and labour sharing etc[14].

At the same time, formal risk mitigation mechanisms such as agricultural extension systems, pest prediction & management systems, formal credit lending systems, future contracts and **agricultural insurance** were evolved with support from both public and private sectors. Among the formal mechanisms, agricultural insurance is recognized to be the basic instrument for maintaining stability in farm income through promoting technology, encouraging investment and increasing credit flow in the agricultural sector. It contributes to self-reliance and self-respect among the farmers since in cases of crop loss they can claim compensation as a matter of right.

The idea of agricultural insurance emerged in India during the early part of the twentieth century[15]. There were some attempts prior to independence by princely states like Mysore, Dewas, Baroda, Madras etc to introduce crop insurance[16]. Agricultural insurance received more attention after India's independence in 1947. The first aspect that was examined related to the modalities of crop insurance. The issue under consideration was about whether the crop insurance should be offered under an 'individual approach' or on 'homogenous area approach'.

A beginning in crop insurance in India was made in 1972 by implementing an experimental scheme for Hybrid-4 cotton in a few districts of Gujarat state. This scheme followed the 'individual approach' and uniform guaranteed yield was offered to selected farmers. This scheme was continued up to 1978-79 covering 3110 farmers for a premium of Rs. 4.54 lakh against claims of Rs. 37.88 Lakh[17].

In the background of above experience, a pilot crop insurance scheme (PCIS) was introduced based on 'area approach' in the year 1979 in the states of West Bengal, Gujarat and Tamilnadu to cover the risks of the farmers. This scheme offers insurance, where the risks covered include: loss of production due to insect infestations, plant disease, excessive rain, flood, and cyclone etc., this insurance scheme was based on the crop loan.

This scheme was limited to the loanee farmers on voluntary basis with a premium subsidy of 50 per cent for small/marginal farmers. This pilot scheme was implemented till 1984- 85 covering 6.22 lakh farmers for a premium of Rs. 195.01 lakh against claims of Rs. 155.68 lakh[18]. The area approach attracted criticisms from various quarters.

Overcoming the criticisms of the PCIS, the Comprehensive Crop Insurance Scheme (CCIS) was introduced based on 'homogenous area approach' with effect from 1st April, 1985 during the Kharif season and managed by the General Insurance Company. Interestingly, this scheme was made compulsory to all the loanee farmers of rural financial institutions while it was voluntary to non-loanee farmers and was implemented only in 19 States and three Union Territories. This scheme linked insurance with credit wherein the amount insured is equal to the crop loan disbursed, subject to a maximum of Rs 10 000 per farmer. This scheme had covered 7.62 lakh farmers for a premium of Rs. 403.56 crore against claims of Rs. 2303.45 crore till kharif 1999[19].

Satpathy (2005)[20] suggests that the CCIS failed in its basic objective of underwriting the farmer's losses. The scheme was criticized for:

1. Being financially non-viable,
2. Predominantly covering rain-fed crops,
3. Excluding important commercial and horticultural crops,
4. Covering only loanee farmers, and
5. Having deficiencies in the system of assessment of guaranteed yield.

Due to the weaknesses of CCIS, NAIS (National Agriculture Insurance Scheme) was introduced in the country from the Rabi season of 1999–2000. At the moment, this scheme is available to all states/ union territories.

NAIS covers food crops, horticultural crops, oilseed crops, and commercial crops. All farmers, loanee and non-loanee, are eligible for insurance. All yield losses occurring due to natural, non-preventable risks are covered. Premium rates vary from 1.5% to 3.5% for food-grain crops and oilseed crops on actuarial basis for annual commercial/ horticultural crops. Small and marginal farmers will be entitled for a premium subsidy of 50%, which is to be phased out over five years. Thus, NAIS provides greater coverage than CCIS in terms of number of farmers (i.e. non-loanee farmers brought under coverage); crops (annual commercial/ horticultural crops included), and risk (i.e. up to the value of threshold yield)[21].

The premiums structure in the scheme has been rationalized to achieve some financial viability. The implementing States will now have greater stake in the financial liabilities. In other words, sharing of financial liabilities between the Central and State Government is 1: 1 instead of 2: 1. Farmers, under the new scheme, have the option of coverage of higher risk (in terms of sum insured) by paying a higher premium rate[22].

Initially the National Agriculture Insurance Scheme (NAIS) was implemented by General Insurance Corporation (GIC) but the Crop insurance seemed to benefit only the big farmers. Hence the government contemplated on a new statutory entity, which would carry the crop insurance benefits to the majority of the farming population, especially to the small and medium farmers. This gave birth to the Agricultural Insurance Company (AIC), which took over the crop insurance portfolio from the General Insurance Company.

Agriculture Insurance Company of India Limited (AIC) was incorporated on 20th December 2002 as per the direction of the government for a focused development of agriculture insurance program in the country. The main objective of AIC is to protect and secure financial support in the event of damage to crops, agriculture and allied subjects and to develop insurance products in the best interest of farming community[23].

Besides NAIS, the AIC has formulated certain new innovative products like 'Farm Income Insurance Scheme' and 'Varsha Bima Yojana', which are being implemented in selected pockets on a pilot basis.

With the passing of Insurance Regulatory and Development Authority (IRDA) Act 1999 Indian insurance sector opened to a healthy competition by entry of new private players into insurance business hitherto the area of public sector. To the extent of private agricultural insurance in India is concerned, there has been very insignificant development and only two private insurance companies viz., ICICI-Lombard and IFFCO-Tokio have entered in the arena of agricultural insurance in India[24].

Agriculture in India is at crossroads today. On one hand, new opportunities and possibilities are emerging, and on the other hand, there has been deceleration of growth in recent years. The green revolution transformed the agriculture sector and there was tremendous growth till the 1980s and early 1990s. Then there was stagnation in agricultural growth for about a decade[25].

The features of the current agrarian crisis are briefly elaborated as follows. Firstly, there has been a decline in the trend growth rate of production as well as productivity for almost all crops from the mid-nineties. Secondly, there has been an excessive dependence of a large section of the population on agriculture. This also indicates that rural non-farm employment opportunities are limited. Thirdly, with declining size-class of holding and an increasing preponderance of marginal holdings along with poor returns from cultivation indicates that income for farm households is very low. Fourthly, with changing technology and market conditions the farmer is increasingly being exposed to the uncertainties of the product as well as factor markets. Last, but not the least, supply of credit from formal sources to the agricultural sector is inadequate leading to greater reliance on informal sources at higher interest burden[26].

The most common consequence of the above agrarian crisis is indebtedness. Indebtedness leads to economic downfall and a fall in economic position can also lead greater reliance on credit, and thereby increasing the debt burden and frustrations of the farmers.

One manifestation of this has been the increasing incidence of farmers' suicides. Farmers' distress and cases of suicides were reported form many parts of the country. During 2001-05, 86,922 farmers' committed suicides, of which, 86 per cent were males. The suicide mortality rate (SMR, suicide death for 100,000 persons) for male farmers in India increased from 12.3 in 1996 to 18.2 in 2005[27].

Under these aggravated conditions, agricultural crop insurance possesses immense potential to overcome many agrarian crises. Crop Insurance absorbs the shock of crop failure by providing cushion wherein farmer is assured of minimum protection against various natural calamities. Moreover, crop insurance provides right to seek compensation rather than requesting for gratis from the government in the event of crop failures. Thus, crop insurance will help to maintain the dignity of the farmer. Even in the years of crop failures, crop insurance assures farmers a decent living from their own efforts and not by charity.

Being an agrarian economy, there are immense opportunities in agricultural/rural insurance in India. The new areas like weather insurance, rainfall insurance and cyclone insurance provide scope even for new private insurers and reinsures to exploit the opportunities in the niche areas.

Despite the advent of a series of crop insurance schemes and assistance of the government the agricultural insurance have not yet reached the masses effectively. Crop insurance in India accounts for less than 2% of income generated from agriculture in a year. The total insured crop area is only about 10% of the overall area under food grains[28].

The problems of coverage, delayed payments, assessment of losses which is difficult owing to its subjectivity in nature, awareness, understanding and viability the schemes are not practically feasible owing to the high premium rates. The fragmented nature of Indian farm holdings, lack of base data and mixed voluntary and compulsory nature of the crop insurance scheme offered till now were some of the vital reasons for the failure of the scheme. Nevertheless, in absolute terms, crop insurance's role in agriculture is miniscule compared to agriculture's significance to the country[29].

It is also acknowledged that the lack of an actuarial pricing and the subsidy on the premium by the government (the State involved and Centre) have eroded the capacity of the scheme to become commercially sustainable both in terms of being remunerative and professionally administered. As a result of that, though crop insurance has been identified as a critical component of food security, it was not worked out to be an effective, sustainable and comprehensive solution.

Government of India has started to consider the crop insurance issue very seriously as well as professionally. The spinning off of the government's crop insurance initiative into a separate company was the first step in this direction in the year 2003. The next step would be to move the crop insurance programme onto a sound commercial insurance basis by adopting actuarially determined premium rates and by switching government financial support from settlement of excess claims to the provision of up-front premium subsides. This will mean, for the first time, AICI will have to reorganize the existing approaches and need to put in place a formal risk management and risk transfer (reinsurance) strategy for different crop insurance programmes.

Till now there has been a very little effort or no effort on the part of the government or on the part of academics to measure and evaluate the role of the Agriculture Insurance in India in general and assessing the accountability and performance of risk management and measurement in particular.

1.3 SIGNIFICANCE AND RELEVANCE OF THE STUDY

Agriculture is a way of life, a tradition, which for centuries has shaped the thought, the outlook, the culture and the economic life of the people of India. The present study assumes relevance in the context of new economic liberalization and globalization policies of the Government of India and other international bodies especially World Bank and World Trade Organisations. Food security of the nation and the prosperity of the farming community has become a subject of discussion not zonly by the Government but also by the various national and international agencies. There has been a wide spread demand to restructure and strengthen the agricultural sector in such a way as to make agricultural insurance business profitable and self sustaining.

The Government of India in its budget 2008 – 2009 has given immense emphasis on the agricultural sector. Simultaneously, various efforts have been taken to increase the security as well as production efficiency of the small and marginal farmers. Special schemes have been launched to waive the debt burdens of the farmers.

In the above context, accountability of performance in agricultural insurance sector has assumed greater significance and the present study is, therefore, timely and can provide a framework for policy makers and administrators of agricultural insurance companies to improve their performances. Moreover, the study will help the policy makers to formulate future plans on desired lines and set an integrated risk management strategy for the growth and development of agricultural in India.

1.4 SCOPE OF THE STUDY

The scope of the study is limited to the performance evaluation of agricultural insurance in India. It is to be noted that the initiatives taken by the private sector companies in regard to crop insurance in India are very limited and insignificant. For the secondary data analysis the present study is compelled to restrict its analysis within the publicly owned agricultural insurance companies in India.

1.5 Objectives of the Study

This study proposes to analyse and assess the growth, development as well as the future of the Agriculture Insurance Sector in India. In the first part of the study, the fundamental objective would be to sketch the backdrop of Indian Agriculture Insurance sector in the global perspective. On the other hand, the second part of the study would concentrate on appraisal of the crop insurance schemes by examining Portfolio Risk Management of agriculture insurance in India with a view to assess the risk exposure of the existing crop insurance schemes in India and also to develop a sound risk retention and risk transfer strategy for the insurance company based on reinsurance and/or alternative risk transfer mechanisms. Finally, on the above analysis, the study proposes to build and design a suitable stochastic financial model(s) to simulate the portfolio of the selected company under different scenarios so that it may become commercially sustainable both in terms of being remunerative and professionally administered under the era of globalization. The broad objectives of the proposed study are highlighted below:

- Review the degree of changes in the agricultural insurance scenario in India since the inception of Comprehensive Crop Insurance Scheme from the year 1985.

- Review the effect of liberalization on Indian agricultural insurance sector by examining the role of private insurers and also to design a public-private participation model in agricultural insurance in India.

- Analysis of performance crop insurance schemes by states/crops to appraise the degrees of correlation among the states/crops

- Underwriting profitability and financial analysis of the Insurance business in India by Portfolio Risk Assessment with a view to develop a Portfolio Risk Management Tool for the Agricultural Insurance Companies of India Ltd.

- Review the impact of reinsurance on the overall risk exposure and develop a future risk transfer strategy for the Agricultural Insurance Companies of India Ltd.

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1.6 Hypotheses of the Study

The present study proposes to analyse the growth and development of crop insurance in India. The study would also focus on appraisal of the crop insurance schemes by examining 'Portfolio Risk Management' of the Agriculture Insurance Company in India Ltd. Taking into account the objectives of the study, the following hypotheses are proposed to be tested during the course of the study:

1. There is considerable degree of changes in the agricultural insurance scenario in India since the inception of Comprehensive Crop Insurance Scheme from the year 1985.
2. The effect of liberalization on Indian agricultural insurance sector is positive.
3. The degrees of correlation among the states are positive.
4. The degrees of correlation among the crops are positive.
5. There is equal quantum of risk associated with the portfolio of each state.
6. There is equal quantum of risk associated with the portfolio of each crop.
7. There is a tremendous impact on risk transfer strategy (Reinsurance) on the overall risk exposure of the Agricultural Insurance Company of India Ltd.

1.7 Period of the Study

A period of 21 years from the Rabi session 1985 to Kharif session 2006 was set in the case of secondary data analysis of the government owned agricultural insurance companies in India. The total period of the study has been further classified into three distinctive phases. These are as under.

- Performance of Comprehensive Crop Insurance Scheme (CCIS) (1985 – 1999)
- Performance of National Agricultural Insurance Scheme (NAIS) (1999 – 2003)
- Performance of AICI administered NAIS (2003 – 2006)

In the case of private agricultural insurance companies in India analysis has been conducted for the period 2003 to 2006.

1.8 METHODOLOGY OF THE STUDY

The study has been conducted using a broad methodology framework which embraces both empirical - analytical formulations and normative deductive appraisals. The interpretations that have been derived in various parts of the study have been based on statistical analysis. Mean, Standard deviation, Coefficient of Variance, Min and Max values (of claims/premiums) will help to asses the performance of the Asset (premium) and Liability (claims) portfolios of the States/Crops. Standard Error (SE) of the estimate will measure the uncertainty about the accuracy of the predicted values of the dependent variable (here claims/premium). The coefficient of determination (r-squared) may be interpreted directly as the proportion of variance in the dependent variable that can be accounted for by the regression equation. The coefficient of variance is the degree to which a set of data points varies and it will be used to determine the variability in claim/premium data. Correlation is a measure of association between two variables which will be applied to measure the relationship between two states or crops. The significance (probability) of the correlation coefficient can be determined by the application of the t-statistic. Beta distribution will be used to calculate Probability of ruin and maximum claim ratio. Beside these statistical tests various ratios are proposed to be formulated and examined to make a comparative analysis of different variables. One of major part of the proposed research study will be to build and design a model by simulating different statistical tools with the help of computer based graphical user interfaces.

The proposed study covers intimate details of performance analysis of the agriculture insurance schemes initiated at the Government level from 1985 to 2006. The study will be based mainly on secondary data. The secondary sources in this respect include published financial statements, reports and bulletins of the State and Central Government, Ministry of Agriculture, World Bank, and Government agencies like RBI, IRDA, GIC and AICI. Pertinent information has also been collected from the websites of important organizations. Required data on crop insurance at the national level were collected from the office of the General Insurance Corporation (GIC) of India Ltd., Kolkata as well as from the office of Agricultural Insurance Company of India (AICI) Ltd., Kolkata.

1.9 ASSUMPTIONS OF THE STUDY

The following assumptions were made for the purpose of analysis of the study.

- The background designed for the purpose of the study represents the real picture of the agricultural insurance scenario of India.
- The sample size represents the population.
- The data furnished by the organisations are true and correct
- Consistency prevailed in the organisations during the course of data collection.
- The views of the different experts are unbiased.
- The study will yield dependence and more useful results.

1.10 LIMITATIONS OF THE STUDY

In this type of research work, only sample is practical due to three major factors, such as time, financial constraints and co-operative attitude from the respondents. In order to maintain business secrets the private sector companies have not provided their business results. Even in the cases of public sector organisations the reluctance on the part of the executives was very much apparent in regard to the presentation of factual information or in giving critique on the performance of their organisations.

It was also found that small and marginal farmers who are the prospective beneficiaries do not even aware on risk management or agricultural insurance. In most of the cases, the answers to the structured interview schedule were not objectively given. As a result of that the present study is mainly restricted to the secondary data analysis of government owned agricultural insurance companies in India.

1.11 ORGANIZATION OF THE STUDY

The study is divided into seven chapters. Chapter II presents review of existing literatures both at national and international level on risk management in agriculture with special reference to agricultural insurance. Chapter III discusses the concept of risk management and agricultural insurance along with the theoretical framework behind the study. Chapter IV describes the historical background of agricultural insurance with special reference to the expansion of agricultural insurance in India. Chapter V deals with procedures and methods. This chapter delineates data used for the analyses and techniques employed to analyze the growth and development of agricultural insurance in India and also to examine the portfolio risk management of agricultural insurance companies in India. Chapter VI interprets the empirical and analytical results and also presents a brief analysis of the study. Chapter VII summarizes and concludes the study and makes series of recommendations on better portfolio risk management in agriculture and contains a discussion how to promote and develop agricultural insurance market in India along with some suggestions for further research

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