

IN-DEBT-NITY OR INDEMNITY: A STUDY ON AGRICULTURAL INSURANCE

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ABSTRACT

The severe issues that afflict Indian agriculture, at present, are the knowledge insufficient and structural deficit, particularly in the rural areas. Matters linked to irrigation in structure, market organization and transport framework add substantial cost to the farmers' operations. Another problem is the lack of delivery systems. There are several policies or schemes which aim towards the development of agriculture. There aren't any effective delivery systems per se that can convert these into effective facilitation at the ground level regarding the increase in productivity or decrease in cost, or increase in price realization. Inadequate government support intensifies these issues.

Government failure is a significant issue in agriculture because of the high risks involved; it makes aid and assistance necessary; like any other business undertaking, agriculture is subject to heightened risks in light of the unpredictable nature of the factors involved. For example, the climate is often a problem - you have droughts in one year and heavy rains in the next. In both scenarios, farmers lose out; therefore, they have to look for a standard period to make money. Government, thus, has to play a significant role in providing support to farmers. This is precisely the same situation worldwide, and there is not really any nation where government interference is not present.

There may be differences in the degree of government influence; however, most countries or areas, particularly industrialised ones like the United States, Canada, and the European Union, have significant government interference. Hence, government facilitation or, in simple terms, assistance is essential for sound agricultural development. The activity of agriculture is subjected to many uncertainties. However, many people in India earn their livelihood from this sector, than from all other economic sectors added collectively. Agriculture associated with several risks

includes adverse changes in both input and output prices. Agricultural risk can be classified as production, price/market, financial/credit and institutional risks. The farmers are not assured of safe quality and disease-free crops, which is vital for obtaining reasonable yield adequate to recover expenses. Crop insurance is one of the significant management schemes to overcome the risk to a greater extent.¹

Keywords: Disaster, risk, insurance, Agriculture, Crop Insurance, Awareness, Farmers, Natural calamities, NAIS, Insurance Product, Indemnity, Survey, Farmers' Suicide, Death, scarcity, government mechanisms, deficit, climate, insured, uncertainty, crops, economics.

INTRODUCTION

Agriculture is extremely important to the country's economic prosperity. At present, around 70% of the population in the country is dependent on agriculture; but Indian agriculture is dependent on monsoon, which is always flexible. It leads to the creation of risk in the cultivation of different crops. Natural calamities may affect the yield of agriculture. To cover this risk, which might occur in future, there is a need for some arrangement, and crop insurance is the only mechanism available to protect against production risk in the agricultural sector. For farmers who face the catastrophe problem for several years, crop insurance will be one of the essential tools to protect them from agricultural loss. Crop insurance is one method by which farmers can steady the farm income and investment; guard against the catastrophic effect of losses due to natural calamities or low market prices. It not only steadies the farm income but also helps them to initiate production activity after a bad agriculture year. It spreads the losses over space and time and allows them to make more investments in agriculture.²

Security in the food chain is a significant concern among the countries, and increasing resources are coordinated in many, if not, most countries to protect the domestic consumers. It continues with applying correct on-farm practices and is predominantly critical during harvesting, storage,

¹Vyas, V S and Surjit Singh (2005): Agricultural Crop Insurance: Performance and Needed Reforms, a report submitted to Agriculture Insurance Company of India, accessed on 21/07/2021. https://www.researchgate.net/publication/262126797_Crop_Insurance_in_India_Scope_for_Improvement.

² Raju, S.S. & Chand, Ramesh (2007), "Progress and Problems in Agricultural Insurance", Economic and Political Weekly, 26 May, accessed on 23/07/2021. https://www.researchgate.net/publication/228418723_Agricultural_Insurance_in_India_Problems_and_Prospects.

processing and marketing. Many of the control measures are about the appropriate procedures being monitored in the food chain. Nonetheless, when the measures are unknown, or the accepted controls are considered inadequate, large quantities of food could still be criticized for consumption, following the heavy losses. These losses could be insurable with policies intended for that reason, which is predicted to be a growth area in the insurance sector.³

Insurance can, likewise, help in handling the on-farm production risks ensuing to changes in pest management practices. The scientific community is not unanimous in assigning the increases in extreme weather events to global warming. In any case, there is a solid assemblage of conclusionsthat holds this is the situation. Their opinion is that global warming implies more energy/vitality in the system. An outcome of this is a rise in the frequency and enormity of extreme weather events. The expanding frequency of crop-damaging weather events will probably last to push demand for insurance coverage of losses. Simultaneously, the insurance industry is aware of rising vulnerabilities and is looking into new financial products to help manage them.⁴

EVOLUTION OF AGRICULTURAL INSURANCE IN INDIA

The introduction of a crop insurance scheme was taken up for consideration right after the independence in 1947. The Ministry of Food & Agriculture gave an assurance in the Parliament regarding the feasibility of introducing crop and livestock insurance in the country. In 1947-48, a special study was conducted, and two experimental schemes were distributed to all states for implementation. However, owing to budgetary restrictions, none of the states decided to adopt the schemes. The interest in the subject again surfaced in the Third Five-year plan (1961-66). In 1995, the Government introduced a crop insurance bill. The Government also circulated a model scheme of crop insurance among the states so that the interested states could introduce crop

³ *ibid.*

⁴Dandekar VM, 'Crop Insurance In India – A Review', Economic and Political Weekly A-46 to A-59, 2012, accessed on 24/07/2021, https://www.researchgate.net/publication/257929206_GROWTH_OF_NAIS_A_STUDY_OF_CROP_INSURANCE_IN_INDIA.

insurance schemes in the areas under their jurisdiction. However, none of the states favoured the plan citing the same reason of paucity of funds.⁵

The first ever-individual approach crop insurance scheme was introduced in 1972 by the General Insurance Department of Life Insurance Corporation of India on an experimental basis on H-4 Cotton in selected centres in Gujarat state. It continued till 1978-79. However, it covered only 3110 farmers for a premium of Rs.4.54 lakh against claims of Rs.37.88 lakh. The GIC considered it non-viable to continue with the scheme and terminated it.⁶

Later, the General Insurance Corporation of India introduced Pilot Crop Insurance Scheme (PCIS) in 1979, based on the recommendations made by V.M Dandekar, an eminent agricultural economist. It was implemented in 12 states till 1984-85 and covered 6.22 lakh farmers for a premium of Rs. 195 lakh against claims of Rs.155.68 lakh, and the total claim-premium ratio was 79.8% in the entire period. A crop insurance scheme linking institutional credit (crop loan based on area approach) was recommended by V.M Dandekar in 1976, and it was called as "Comprehensive Crop Insurance Scheme" (CCIS). The scheme was implemented in April 1985, and it covered 763 lakh farmers for a premium of Rs. 404 crore against claims of Rs.2303 crore. During 1997, the Experimental Crop Insurance Scheme (ECIS) was implemented in 14 districts of 5 states during the Rabi 1997-98 season, which covered 4.5 lakh farmers for a sum insured of Rs. 168.1 crore, and the claims paid were Rs. 37.8 crore against a premium of Rs. 2.86 crore.⁷

⁵ Bhende, M.J., "Agriculture Insurance in India: Problems and prospects", working papers id: 4840, 2012 eSocialSciences, accessed on 24/07/2021, <http://www.nabard.org/fileupload/DataBank/OccasionalPapers/OC%2044.pdf>.

⁶ Lassa, Jonatan. (2012). Emerging 'Agricultural Involution' in Indonesia: Impact of Natural Hazards and Climate Extremes on Agricultural Crops and Food System.' accessed on 24/07/2021, https://www.researchgate.net/publication/325013336_Emerging_'Agricultural_Involution'_in_Indonesia_Impact_of_Natural_Hazards_and_Climate_Extremes_on_Agricultural_Crops_and_Food_System'_In_Economic_and_Welfare_Impacts_of_Disasters_in_East_Asia_and_Poli.

⁷ Raju, S.S. & Chand, Ramesh (2007), "Progress and Problems in Agricultural Insurance", Economic and Political Weekly, 26 May, accessed on 23/07/2021. https://www.researchgate.net/publication/228418723_Agricultural_Insurance_in_India_Problems_and_Prospects.

NATIONAL AGRICULTURAL INSURANCE SCHEME

In the Rabi season of 1999-2000, the Government of India, in partnership with the General Insurance Corporation of India (GIC), created the National Agricultural Insurance Scheme (NAIS) as a successor to the CCIS, and is in force at present. The implementation of NAIS was taken over by the Agricultural Insurance Company of India Ltd. (AICIL), which was founded on December 4, 2002 and began operations in April 2003.

The existing National Agricultural Insurance Scheme (NAIS) is a crucial step forward in insuring the risks of millions of farmers whose livelihoods are dependent on the monsoon rains' pattern and distribution. However, it has some of the similar major flaws as other Crop Insurance systems across the world.⁸

With the passage of the IRDA Act in 1999 (Insurance Regulatory and Development Authority Act), the Indian Insurance sector opened to healthy competition by facilitating the entry of new private insurers into the insurance business, hitherto the area of the public sector. Insurance penetration (premium as % of GDP) in India was merely 1.93% showing 0.54% and 1.39% in the non-life and the life insurance sectors, respectively, which is far below the 16.54%, 13.35%, 11.28%, 11.17% of South Africa, South Korea, Japan and UK respectively.⁹ India, being an agrarian economy, there are immense opportunities for agricultural insurance in India. The new areas like weather insurance, rainfall insurance and cyclone insurance give scope even for the new private insurers and reinsurers to exploit the opportunities in the niche areas.¹⁰

Indian agricultural sector still depends mainly on the Monsoons. Agriculture is known as the "Gamble of Monsoons". The erratic and uneven distribution of the monsoons perpetuated yield/price volatility and hence farmers' exposure to risk and uncertainty. In this scenario, allocating the risk is an essential aspect of decision-making to farmers. The danger emphasises the necessity for contingency planning that will assist individuals effectively manage risky

⁸ Mahajan, Shrikrishna, GROWTH OF NAIS: A STUDY OF CROP INSURANCE IN INDIA. BAUDDHIK, Pg 1-15, 2012., accessed on 24/07/2021, https://www.researchgate.net/publication/257929206_GROWTH_OF_NAIS_A_STUDY_OF_CROP_INSURANCE_IN_INDIA.

⁹ Dr. Amarendra Reddy, 'AGRICULTURAL INSURANCE IN INDIA-A PERSPECTIVE', 6 TH GLOBAL CONFERENCE OF ACTUARIES FEBRUARY 18-19, 2004, accessed on 15/08/2021, <https://ideas.repec.org/a/icf/icfjag/v03y2004i1p36-45.html>.

¹⁰ ibid.

situations. Designing and implementing contingent contracts is thus an important component of the Indian agricultural sector's development.¹¹

Traditionally, in India, the risk would be managed privately or through implicit contracts within the family or relation-network (caste groups / extended families / joint families). Such contracts can be prettyvaluable for handling non-covariant risks. A developmental policy that includes explicit insurance arrangements for both farm and non-farm activities/workers helps in the country's economic development through specialization and helps in increase/stabilization the income of the farmers / non-farm workers.¹²

SALIENT FEATURES

1. Availability of the scheme to all farmers - loanees and non-loanees both – irrespective of their size of holdings.
2. The Crops covered under this scheme are - all food grains, oilseeds, & annual commercial crops (like sugarcane, potato, cotton, ginger, onion, turmeric, chillies, coriander, cumin, jute, tapioca, banana, & pineapple etc.). The premium rates are fixed at 2% for other rabi crops, 3.5% for bajra and oilseeds, 2.5% for other Kharif crops, and 1.5% for wheat.
3. In the case of small and marginal farmers, the Central and State Governments bear half of the premium charges.¹³
4. Agricultural Insurance Company of India (AIC), a separate entity, has been established to implement NAIS with the help of rural financial institutions, State Governments and Farmers.
5. Limit for sum assured is the thresholdyields of the cop in the specified area.
6. It covers all crops for which reasonable past yield data is available.
7. Indemnity is calculated as per the formula:

¹¹ *ibid.*

¹² Debabrata Mukhopadhyay, Rupam Mukherjee, 'Crop insurance for agricultural turn-around in India', International Journal of Economic Policy in Emerging Economies (IJEPEE), Vol. 13, No. 5, 2020, accessed on 23/07/2021, <https://www.inderscience.com/offer.php?id=110441>.

¹³Prabhakar, S.V.R.K., Abu-Bakar, A., Claudio, C. and Hung, H.V. 2013. Promoting Risk Financing in the Asia Pacific Region: Lessons from Agriculture Insurance in Malaysia, Philippines and Vietnam. Institute for Global Environmental Strategies (IGES),Hayama, Japan, accessed on 21/08/2021, www.asiapacificadapt.net.

$$\frac{\text{Shortfall in yield}}{\text{Threshold Yield}} \times \text{sum insured for the farmers}$$

Threshold yield – Actual yield for the defined area = Shortfall in yield.¹⁴

DISASTER RISKS IN THE AGRICULTURAL SECTOR

Natural catastrophes like as earthquakes, landslides, volcanic eruptions, fires, floods, and cyclones kill hundreds of people each year and ruin billions of rupees in property. The rapid growth of the world's population has increased both the rate and harshness of natural disasters. Natural or man-made disasters might strike at any time. Disaster management is the general response to a disaster in terms of relief and rescue operations. The impact can be mitigated by having a thorough awareness of preventive measures as well as knowledge of particular life-saving instruments and procedures. When such life-saving tools and techniques are used at the time of the event, they can control substantial or even total damage to life and belongings. Hence, to reduce the severity of the disaster, the response also has to be equally swift with tools and techniques ready at hand.¹⁵

Agriculture is highly important in many poor and middle-income Asian nations. However, this sector is susceptible to a plethora of risks and uncertainties that influence various participants in agricultural supply chains in various contexts. Asia's agriculture industry is subject to a wide range of natural disasters, and as a result, farmers in the area, experience frequent crop losses and loss of livelihood.¹⁶

¹⁴Mia, Md & Er, Ah Choy & Prabhakar, S.V. R. K. & Pereira, Joy. (2015). Disaster risks and insurance in the agriculture sector in Asia: A review. *Journal of Food, Agriculture and Environment*. 13. 245-249, accessed on 21/08/2021,

https://www.researchgate.net/publication/282209952_Disaster_risks_and_insurance_in_the_agriculture_sector_in_Asia_A_review.

¹⁵Prabhakar, S.V.R.K., Abu-Bakar, A., Claudio, C. and Hung, H.V. 2013. Promoting Risk Financing in the Asia Pacific Region: Lessons from Agriculture Insurance in Malaysia, Philippines and Vietnam. Institute for Global Environmental Strategies (IGES), Hayama, Japan, accessed on 21/08/2021, www.asiapacificadapt.net.

¹⁶ibid.

1. **Weather/climate-related risks:**

Climate change, including variability and extremes, is a pervasive source of risk to agriculture. Agriculture is highly climate sensitive, making it one of the most vulnerable industries to the risks and consequences of global climate change.¹⁷ Weather-related risks, including extreme weather events, may adversely impact farmers' crop production, yields, and yield quality.¹⁸ However, it may have an influence on farmers' need for inputs and other support services, as well as their capacity to repay loans, as well as buyers and processors farther upstream in the supply chain.¹⁹ Climate-related risks can reduce agricultural production and yield volume, as well as impair product quality and interrupt the flow of commodities and services.²⁰

2. **Hydro-meteorological and geophysical risks:**

Floods, hurricanes, cyclones, typhoons, earthquakes, and volcanic eruptions are all hydro-meteorological and geophysical threats that agriculture is extremely vulnerable to. Natural disasters, wherever they strike, wreak havoc on fragile agricultural infrastructure, resulting in direct/indirect loss and interruption in production, processing, and distribution (including damaged roads and disrupted transportation).²¹ Earthquakes, for example, can cause damage to irrigation systems and agriculture fields, eventually leading to harvest failures owing to

¹⁷Warner, K., Ranger, N., Surminski, S., Arnold, M., Linnerooth-Bayer, J., Michel-Kerjan, E., Kovacs, P. and Herweijer, C., 2009. *Adaptation to Climate Change: Linking Disaster Risk Reduction and Insurance*. United Nations International Strategy for Disaster Reduction (UNISDR), Geneva, Switzerland, pp. 1-30, accessed on 1/08/2021, <https://unfccc.int/resource/docs/2009/smsn/ngo/163.pdf>.

¹⁸Smit, B. and Skinner, Mark, "Adaptation options in agriculture to climate change: A typology. *Mitigation and Adaptation Strategies for Global Change*", 7:85-114, 2002, accessed on 28/07/2021, https://www.researchgate.net/publication/292028874_Adaptation_options_in_agriculture_to_climate_change_A_topology_Mitigation_and_Adaptation_Strategies_for_Global.

¹⁹ Reilly, J. 1995. Climate change and global agriculture: Recent findings and issues. *American Journal of Agriculture Economics* 77:727-733, accessed on 28/07/2021, <https://www.jstor.org/stable/1243242>.

²⁰Steven Jaffee, Paul Siegel, and Colin Andrews, "Rapid Agricultural Supply Chain Risk Assessment: A Conceptual Framework", *Agriculture and Rural Development Discussion Paper 47*, The World Bank, Washington, DC, 2010, pp. 9-12, accessed on 28/07/2021, <https://www.farm-d.org/document/rapid-agricultural-supply-chain-risk-assessment-a-conceptual-framework/>.

²¹Lassa, J.A. 2012. Emerging 'Agricultural Involution' in Indonesia: Impact of natural hazards and climate extremes on agricultural crops and food system. In Sawada, Y. and Oum, S. (eds). *Economic and Welfare Impacts of Disasters in East Asia and Policy Responses*. Economic Research Institute for ASEAN and East Asia (ERIA) Research Project Report 2011, No.8. pp. 601-640, accessed on 01/08/2021, https://www.researchgate.net/publication/325013336_Emerging_'Agricultural_Involution'_in_Indonesia_Impact_of_Natural_Hazards_and_Climate_Extremes_on_Agricultural_Crops_and_Food_System'_In_Economic_and_Welfare_Impacts_of_Disasters_in_East_Asia_and_Poli.

fluctuations in water supply. To put it another way, natural catastrophes frequently result in large short-term yield reductions, future market price hikes, and asset damage, all of which impede the flow of products, services, and information.²²

3. **Biological and environmental risks:**

Agriculture is also vulnerable to a variety of biological and environmental threats. The exposure of living creatures to microorganisms and poisonous substances causes several kinds of dangers.²³ Crop and livestock pests and diseases, contamination due to inadequate sanitation, human contamination and illnesses, and contamination impacting food safety are all examples of biological risks for agriculture. Biological risks are associated chiefly with yield and quality reductions, but they can also disrupt the flow of goods and services.²⁴ In contrast, environmental risks for agriculture include contamination and degradation of natural resources and environment, contamination and degradation of production processes and processing. Ecological deterioration (e.g., soil erosion, pesticide or manufacturing effluent runoff into water supplies) may have a negative impact on future productivity, worker health, or downstream market access. Massive or over-fertilization changes the atmosphere resulting in heavy air, soil and water pollution with consequent impairment of agricultural ecosystem services.²⁵ Since the **Kerala floods** made news, many people have wondered if the tragedy was human caused, and if so, what has to be done to avert similar destruction in the future?²⁶

²²Mia, Md & Er, Ah Choy & Prabhakar, S.V. R. K. & Pereira, Joy. (2015). Disaster risks and insurance in the agriculture sector in Asia: A review. *Journal of Food, Agriculture and Environment*. 13. 245-249, accessed on 21/08/2021,

https://www.researchgate.net/publication/282209952_Disaster_risks_and_insurance_in_the_agriculture_sector_in_Asia_A_review.

²³Abbas K Jha, Barenstein, Jennifer Duyn, Phelps, Priscilla M, Daneil Pittet, and Stephen Sena, "Safer Homes, Stronger Communities: A Handbook for Reconstructing after Natural Disasters", Global Facility for Disaster Reduction and Recovery, the World Bank, Washington DC, 362 p, accessed on 16/08/2021, <https://openknowledge.worldbank.org/handle/10986/2409>.

²⁴ Steven Jaffee, Paul Siegel, and Colin Andrews, "Rapid Agricultural Supply Chain Risk Assessment: A Conceptual Framework", *Agriculture and Rural Development Discussion Paper 47*, The World Bank, Washington, DC, 2010, pp. 9-12, accessed on 28/07/2021, <https://www.farm-d.org/document/rapid-agricultural-supply-chain-risk-assessment-a-conceptual-framework/>.

²⁵ibid.

²⁶ Chandra Bhushan, "what's next for flood-devastated kerala?", *Financial Express*, Aug 29, 2018, accessed on 08/08/2021, <https://www.financialexpress.com/opinion/whats-next-for-flood-devastated-kerala/1295523/>.

The answer is that the Kerala floods of 2018 were man-made. There were, however, two types of artificial influences. Climate change is the first, and local ecological devastation is the second. To some extent, Kerala's extreme rainfall and subsequent floods might be attributed to climate change. Nonetheless, the flood disaster was exacerbated by ecosystem degradation, particularly in the Western Ghats and other environmentally vulnerable places like as the nilam (or wetlands).²⁷

To prevent global warming, we, the people, must strengthen our environmental governance while cooperating with other countries. First, our environmental governance falls short of protecting the environment. Environmental, forest, wildlife, coastal regulations, land use, and all kinds of regulations are flouted with impunity. In reality, there is no practical preventative measure to noncompliance. This deterrence must be altered. Furthermore, climate change would damage neighbourhoods, ruin the economy, and put a strain on the country's stability and security. To minimize the impacts, we must start adapting to climate change. This will require putting adaptation at the center of our development policies and processes.²⁸

FARMERS' SUICIDES AND AGRARIAN CRISIS IN INDIA

World Health Organization estimates the 900,000 people worldwide die from suicide every year, including about 170,000 in India alone.²⁹ The Government of India relies on its National Crime Records Bureau (NCRB) for national estimates, and these report fewer suicide deaths than the estimated by WHO.³⁰ Right to Life, the Right to an adequate standard of living, the Right to Work, the Right to food, the Right to water, the Right to health, and the Right to an effective remedy, are all implicated in the farmer suicide issue in India. Here, these rights are inexorably linked as the violation of one informs the violation of the others.³¹

²⁷ *ibid.*

²⁸ *ibid.*

²⁹ Vikram Patel, Chinthanie Ramasundarasettige, Lakshmi Vijayakumar, J S Thakur, Vendhan Gajalakshmi, Gopalkrishna Gururaj, Wilson Suraweera, Prabhat Jha, "Suicide Mortality in India: A Nationally Representative", Vol.379, June 23, 2012 Survey borrowed from WHO, "The Global Burden of the Disease: 2004 Update" (Geneva: World Health Organization), 2008, accessed on 10/08/2021, <http://www.cghr.org/wordpress/wp-content/uploads/Suicide-Lancet.pdf>.

³⁰ *ibid.*

³¹ Common on Human Rights, Question of the Realization in all countries of the Economic, Social and Cultural Rights contained in the Universal Declaration of Human Rights and in the International Covenant on Economic,

More than 2.5 lakh Indian farmers are said to have committed suicide in the last two decades, an unprecedented wave of suicides in human history. A significant number of those affected are cash crop farmers and cotton farmers in particular. In recent years, the subject of farmer suicides has become a typical symbol in writing about India's neoliberal tensions. Farmers' suicides have been lumped together with stereotypical urban slums and persistently high illiteracy rates as symptoms of the shadow—the concept of 'shining India'.³²

In comparison to the non-farming population, farmers have a greater suicide rate across the world. When we look at all of India and the state-by-state agricultural suicide estimates, the figures are startling. In a span of 10 years (1997-2006), the number of farm suicides was 166,304 in India. In 1998, there was a sharp increase (nearly 16,000) and again in 2002 (remained steady around 17,000-18,000). However, even this estimate is an underestimation as the data has been put together from police records. The experience suggests that police often adopted stringent definition (the title to the land was taken as a criterion for identifying the farmer, which often left out a genuine farmer from the count) of a farmer in determining farm suicides.³³

SUGGESTIONS

In recent years, natural disasters, particularly climate-related ones, have increased both in frequency and magnitude. Scientists over the world have agreed that human-induced climatic change is exacerbating this impact. The agriculture sector is likely to be affected most due to extreme weather events like cyclones, floods or drought. So, the farmers are hit the hardest. For Natural Disasters such as drought, storm, flood-prone plain countries like India, structural measures for managing the disaster risk and its consequences are often less effective. So, non-structural measures, like micro-insurance or agriculture insurance, are being suggested as a risk management strategy. The reasoning is that poverty and susceptibility to climate change feed each other, and this nexus necessitates that climate change measures operate in tandem with

Social and Cultural Rights, and study of Special problems which the Developing Countries face in their efforts to achieve these human Rights, April 20, 2011, accessed on 10/08/2021, http://ap.ohchr.org/documents/E/CHR/resolutions/E-CN_4-RES-2001-30.doc.

³² *ibid.*

³³ Nagaraj K, "Farmers' Suicides in India: Magnitudes, trends and Spatial Patterns", Madras Institute of Development Studies, Macroscan, 2008, p. 4, accessed on 06/08/2021, https://www.macroscan.org/anl/mar08/pdf/Farmers_Suicides.pdf.

poverty reduction programmes. Henceforth, micro or crop insurance, customized to the specific needs of the poor, maybe an effective instrument for the purpose. UN Climate Convention and the Kyoto Protocol have included insurance provisions as a mechanism to address the risks from climate change.

1. There is a need for an agent at the local level for helping the farmers with claims assessment and receiving the indemnity payment.
2. Grama Panchayat should be made accountable for admitting claims of insurance and disbursement of claims to farmers. It can act as an authorized institution to presenting the scheme. It also can declare the disasters and assess losses.
3. Farmers should be indemnified as soon as possible, like within 2-3 months from loss. Hence, they can make preparation for their next crop season. Therefore, there is a need for proper coordination between bankers and implementing agencies.
4. There should be an interaction between all of the agencies who are involved in this scheme.
5. NAIS should adopt an alternative method of assessing yield. If the damage to the crop is extensive, the dependable procedure for concurrent examining and payment have to be sought. Interviews with experts could help in assessing the damage to a crop at different points.³⁴
6. In addition, the unit of indemnity payment must be investigated. The difference between the area yield and the threshold yield multiplied by the liability is used to compute indemnity under NAIS. The procedure is accepted. The main thing is the determination of the area. Presently, the yield estimate is finalized at Mandal or Block level. NAIS was estimated to move towards Panchyat or village level within three years from its initiation; however, NAIS failed to advance.
7. Training in agricultural risk management is needed, and special attention should be paid to the diffusion and exchange of national and international experiences.
8. Risk Management tools should be designed based on a comparative analysis of successful internal and international experiences.

³⁴ Surjit Singh and V S Vyas, 'Crop Insurance in India', Economic and Political Weekly, Vol. 41, Issue No. 43-44, 04 Nov, 2006, accessed on 17/08/2021, <https://www.epw.in/journal/2006/43-44/special-articles/crop-insurance-india.html>.

9. Assistance should be provided for the design of specialized units or agencies and the training of human resources.
10. The assistance should be provided to institutions for the design and implementation of pilot agricultural insurance projects.³⁵
11. Tools should be evaluated for consistency, and their impact on beneficiaries should be assessed.
12. Regional and international inter-institutional technical networks are also needed to coordinate efforts to design and develop agricultural risk management tools, approaching them as regional public goods.
13. The slow progress observed is probably attributable to the complexity of agricultural risk management and agricultural crop insurance and a shortage of information on the subject.
14. Training is lacking, and few academic and research programs in India thoroughly address production risks or their economic and social concerns. Training Institutes need to be setup adequate in number and of a good standard.
15. There is a great need to introduce agriculture and crop insurance, relatively comprehensive rural insurance for farmers and village artisans and craftsmen on the same lines as 'food security'. This will be a highly enabling and helpful measure to mitigate poverty and ensure reasonable living for the farming community in India.³⁶

CONCLUSION

Nowadays, tremendous changes have occurred in the agricultural sector, such as; Irrigation facilities, improvement in infrastructure and communication etc. But the risk in its production has increased, and this hazard is very high for farm income and production. Most of the farmers are choosing the option of suicide rather than crop insurance. Hence, there is a severe issue of sharing farmers' risks and protecting their crops against adverse weather and natural calamities.

³⁵ibid.

³⁶Atmanand, "Insurance and disaster management: the Indian context", *Disaster Prevention and Management*, Vol. 12 No. 4, pp. 286-304, 2003, accessed on 17/08/2021, <https://www.emerald.com/insight/content/doi/10.1108/09653560310493105/full/html?skipTracking=true>.

To protect farmers against such natural hazards, there is a need to inform them about crop insurance and its benefits.³⁷

The farmers face major twin problems like low productivity on one side and less technology advancement in agriculture on the other side. Crop insurance is a remedy for the issue of risk management to the farmers. But, NAIS has few severe deficiencies like the coverage of in-term of area, payment of compensation based on the area approach, corruption at a high level, delay in indemnifying the yield obtained under NAIS, etc. These limitations hinder the expectancy of farmers.³⁸

Currently, the State's responsibility is to compensate for a disaster like a drought or a flood. If the State can take precautions like insurance before such a catastrophe occurs, then the cost of spending for that event can come down significantly. On the other hand, if the Government insures catastrophic risk, farmers are left with only moderate risks. So, the premium they have to pay will come down significantly, thereby making the crop insurance product affordable to them. Furthermore, additional legal adjustments are required to accommodate diverse insurance delivery institutional structures, such as mutual crop insurance in Mexico, providing incentives to insurance firms and small farmers to participate in crop insurance, and assuring the availability of reinsurance.³⁹

Many state governments like Rajasthan and Andhra Pradesh have taken some initiatives for supporting small and marginal farmers. There is a need for a distinct national crop insurance mission. This mission must have representation from various stakeholders and have to be high profile enough for dealing with multiple state governments as agriculture is a state subject. More importantly, they must have to be endowed with adequate budgetary resources. Agricultural

³⁷ M.V.K. Sivakumar, Motha, Raymond P., Das, Haripada P., "Natural Disasters and Their Mitigation for Sustainable Agricultural Development", accessed on 19/08/2021, http://www.wamis.org/agm/pubs/agm10/agm10_15.pdf.

³⁸ Sundar J, Laitha Ramakrishnan, "A Study on Farmers' Awareness, Perception and Willing To Join and Pay for Crop Insurance", International Journal of Business and Management Invention, www.ijbmi.org, Volume 2 Issue 1 | January. 2013 | PP.48-54, accessed on 19/08/2021, [http://www.ijbmi.org/papers/Vol\(2\)1/Version_3/F0214854.pdf](http://www.ijbmi.org/papers/Vol(2)1/Version_3/F0214854.pdf).

³⁹ M.V.K. Sivakumar, Motha, Raymond P., Das, Haripada P., "Natural Disasters and Their Mitigation for Sustainable Agricultural Development", accessed on 19/08/2021, http://www.wamis.org/agm/pubs/agm10/agm10_15.pdf.

Insurance is a step to protect farmers by minimizing the impact of such losses; it has not so far made headway in India.⁴⁰

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