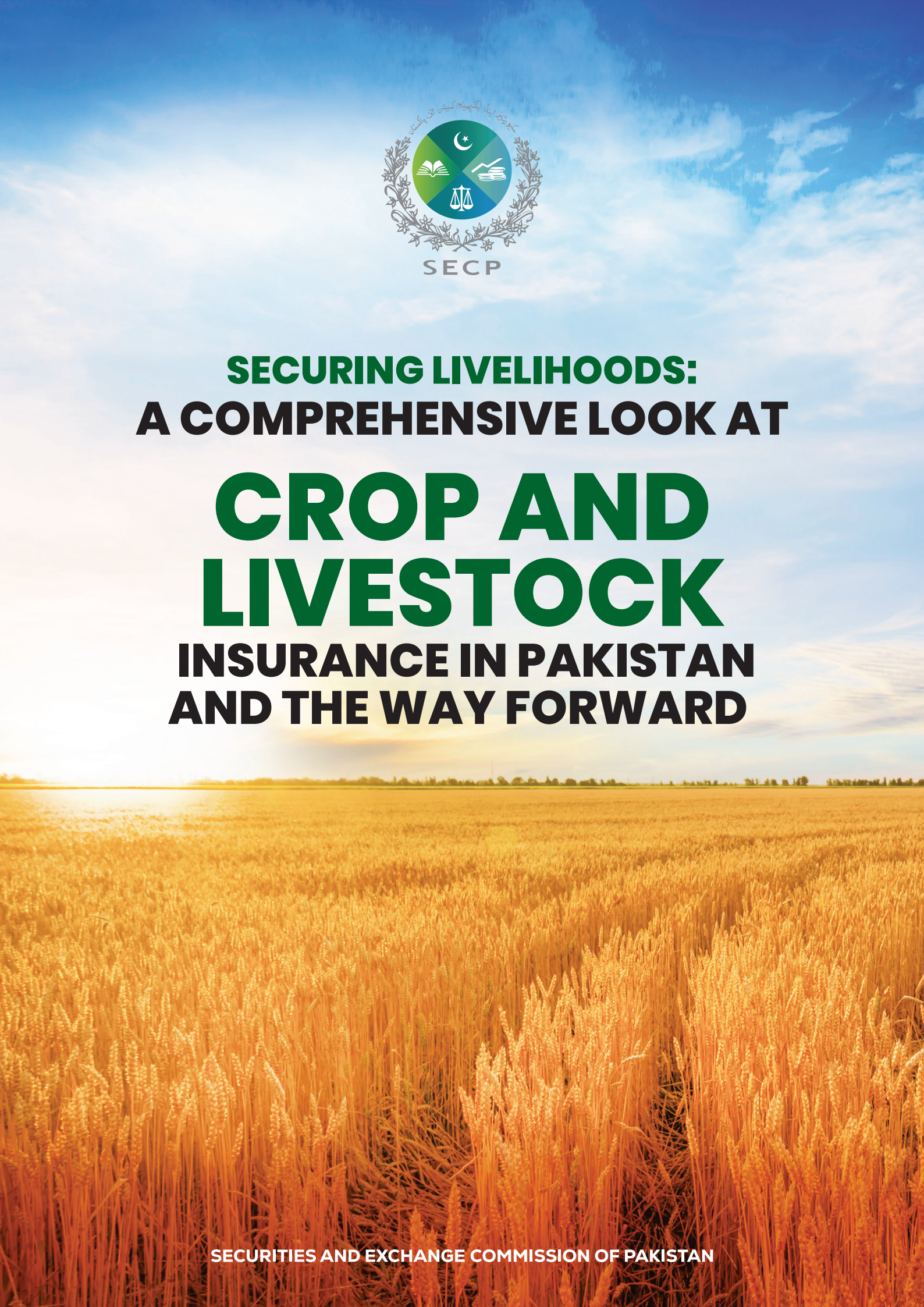


SECP

SECURING LIVELIHOODS:
A COMPREHENSIVE LOOK AT
CROP AND LIVESTOCK
INSURANCE IN PAKISTAN AND THE WAY FORWARD

SECURITIES AND EXCHANGE COMMISSION OF PAKISTAN

Message of the Commissioner - SECP

I am delighted to share with you a comprehensive report providing an in-depth overview of the crop and livestock insurance landscape in Pakistan and highlighting the critical challenges in the realm of advancing agricultural insurance in our country. The report shares insights gleaned from thorough assessments of existing government-led agriculture insurance schemes, innovative pilot initiatives, and recommendations for a way forward.

The agriculture sector is a fundamental pillar of our nation's economy, making a substantial contribution to our GDP (approximately 23%). Its importance also lies in its potential to serve as a key player in ensuring food security and reducing poverty. However, this sector is vulnerable to significant risks, particularly those exacerbated by climate change and natural disasters. In light of these challenges, the importance of agricultural insurance cannot be overemphasized. In Pakistan, the agriculture insurance landscape is underdeveloped, constituting only 2% of the total non-life sector premiums. Government-led insurance schemes in the country, cover around 14% of farmers, out of a total population of approx. 8.2 million, and hence need reassessment and enhancement. The report provides a thorough review of these schemes and highlights the underlying challenges.

Recognizing the vital importance of agricultural insurance by policymakers at the governmental level is instrumental in advancing broader national goals, including ensuring food security, financing disaster risks, promoting rural development and fostering economic stability. The report suggests incorporating agricultural insurance in the disaster risk financing strategy of Pakistan, the national policy on food security, and its potential integration into existing social protection initiatives like the Benazir Income Support Programme (BISP). By improving the current schemes, formation of coinsurance pools/ consortiums, launching crop and livestock insurance schemes at the national level under a public and private partnership model, and integrating agricultural insurance into broader national agendas, we can pave the way for a more resilient and prosperous agricultural sector. The report also highlights the need for leveraging technology, innovative products, and data-driven approaches to enhance coverage of crop and livestock insurance in Pakistan.

This report is a foundational document to initiate meaningful engagement and foster constructive discussions among the key stakeholders including SECP; the insurance industry experts; and the federal and provincial finance and agriculture ministries. Together, we can build a more robust crop and livestock insurance framework that safeguards the livelihoods of our farmers, ensures food security, and fosters sustainable economic growth.

In conclusion, I would like to express my appreciation for the unwavering support of all members of the Insurance Division in their commitment to advancing the insurance sector. Special acknowledgment goes to the authors of this report: Ms. Shazia Rehman, Joint Director, and Mr. Usman Mahmood, Deputy Director for their dedicated efforts in bringing this report to conclusion!

Aamir Khan
Commissioner-Insurance

Table of Content

1 Objectives of the Report

1.1. The key objective of this report is to provide a comprehensive overview of the current agricultural insurance landscape in the country and serve as a foundational document to initiate meaningful engagement and foster constructive discussions among key stakeholders including SECP; the insurance industry; government departments; and industry experts. This report includes a meticulous analysis of existing crop and livestock insurance schemes in Pakistan, identifies key challenges, and explores opportunities for the enhancement of crop and livestock insurance in Pakistan.

1.2. In addition, the report aims to emphasize the key role of agricultural insurance in managing the diverse risks prevalent in the agriculture sector, including those associated with climate change and natural disasters, and in achieving the broader national goals of food security, poverty alleviation, and effective disaster risk financing.

1.3. Finally, by drawing insights from global best practices, the report suggests strategic measures needed to enhance the outreach and efficacy of crop and livestock insurance for a more resilient agricultural sector in Pakistan.

2 Executive Summary

2.1. The agricultural sector holds a key position in attaining food security and combating poverty within a nation. Growth in the agriculture sector has a greater impact on reducing poverty than any other sector of the economy. Food security is a critical global challenge, defined as consistent availability and access to sufficient, safe, and nutritious food to meet dietary needs. Despite efforts, hunger and malnutrition persist, especially in developing regions facing population growth, environmental challenges, and economic inequalities. In Pakistan, food security remains a major concern, with only 63% of households deemed "food secure".

2.2. Pakistan's agricultural sector constitutes 22.9% of the total GDP with 63% contribution by livestock. The agriculture sector is exposed to risks like temperature rise, floods, droughts, pests, diseases, and high input costs. Climate change poses a significant threat, with a predicted 3°C temperature rise by 2040, globally.

2.3. To mitigate these risks and promote a sustainable agriculture sector, the importance of agriculture insurance is highlighted. Globally, agriculture insurance has gained prominence, with programs in over 100 countries. In Pakistan, the agriculture insurance landscape is underdeveloped, constituting only 2% of the total non-life sector premiums. Government-led insurance schemes in the country, covering around 14% of farmers, are crucial but need further expansion and enhancement.

2.4. The report provides a thorough review of existing government-led agricultural insurance schemes in Pakistan, focusing on the Crop Loan Insurance Scheme (CLIS), the Livestock Insurance for Borrowers (LISB), and the Punjab Fasal Beema Scheme. It identifies challenges within these schemes, such as pricing caps, limited coverage, the absence of modern insurance practices, and the need to encourage broader participation by the insurance industry. The report also explores pilot initiatives by TPL Insurance Limited, Salaam Takaful Limited, and Asia Insurance encompassing the use of technology and strategic partnerships to enhance insurance coverage.

2.5. The report also highlights other challenges, in enhancing accessibility and providing insurance in the country, on both demand and supply sides. The country's exposure to high systemic risk from natural hazards, notably floods, droughts and locusts, surpasses the capacity either of the private or public sector to cover substantial losses. The regulatory framework needs clear guidance on innovative products such as index-based or parametric insurance. The absence of robust data and challenges in measuring risks accurately lead to adverse selection, affecting premium rates and hindering the identification of homogeneous risk groups. A pervasive lack of insurance culture among farmers, driven by perceptions of non-viability and unaffordability, further stifles the demand for agricultural insurance. While Takaful has shown promise as an Islamic alternative to conventional insurance, the apprehension of uncertainty and ribba/usury due to the lack of knowledge and clear understanding hinder its widespread acceptance.

2.6. It is imperative to reassess current government-led insurance schemes. Establishing insurance pools/ consortiums is proposed to consolidate risks, rendering agricultural insurance financially viable for insurers and economically feasible for farmers. A mandatory national crop insurance initiative is suggested based on the recommendations outlined in the proposed National Crop Insurance Scheme

by the task force formed under the Ministry of Commerce led by SECP. Likewise, a nationwide livestock insurance program tailored for individual farmers, with graduated subsidies for subsistence farmers, is deemed essential. The report also explores the potential integration of crop and livestock insurance into existing social protection initiatives like the Benazir Income Support Programme (BISP) and analogous provincial programs, a proactive approach to providing financial stability to small and vulnerable farmers. It is emphasized that all these schemes are developed under a Public and Private Partnership (PPP) model with a focus on subsidizing the cost of the private sector insurers under a well-thought-out plan to gradually reduce the government subsidy/ allocation to the extent of the viability gap and transition towards a market-based approach.

2.7. The acknowledgment of the crucial role of agricultural insurance by policymakers at the government level is paramount in achieving larger national agendas, such as ensuring food security, disaster risk financing, rural development, and economic stability. The report recommends the integration of agricultural insurance into the national disaster risk financing strategy, as well as incorporated into the national policy concerning food security. Collaboration among relevant ministries, disaster management authorities, and the agriculture departments at both national and provincial levels must be strengthened for unified and effective efforts for the development of agriculture insurance in the country. Additional recommendations include strategies such as bundling insurance with agricultural inputs, aligning insurance products with risk mitigation measures, and leveraging technology for loss assessment and claims processing.

3 Global Issues of Food Security and Poverty, and The Role of The Agriculture Sector

3.1. Food security as a concept originated in the mid-1970s, in the discussions of international food problems at a time of global food crisis. The initial focus of attention was primarily on food supply problems, of assuring the availability and to some degree the price stability of basic foodstuffs at both international and national levels. According to the World Food Summit, 1996, food security exists when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life.

3.2. Despite various measures taken to alleviate the world hunger problem, food insecurity and undernutrition remain serious problems in many countries. Although achieving food security is desirable irrespective of the political system and socioeconomic conditions, it is an extremely high priority in the developing regions of the world, where population growth coupled with the increased intensity of such environmental events as floods, droughts, extreme variability in temperature or rainfall often pose a threat to food security. Furthermore, due to greater food demand and reduced crop productivity, higher food prices along with income inequalities may negatively affect food access and availability for poor households.[1]

3.3. The agricultural sector plays a strategic role in improving the availability of food and achieving food security. According to USAID, more than 800 million people across the globe go to bed hungry every night, most of them are smallholder farmers who depend on agriculture to make a living and feed their families. Despite an explosion in the growth of urban slums over the last decade, nearly 75% of poor people in developing countries live in rural areas.[2]

3.4. According to similar, recent data from the Food and Agriculture Organization of the United Nations (FAO), around 13% of the population living in developing countries are suffering from undernourishment. Feeding the world's population is a challenge that is likely to become even more serious in the future. The global population exceeded 7.6 billion people in 2018 (have exceeded 8 billion in 2024) and is predicted to reach 9.2 billion by 2050, with a projected increased food demand of 59%–102%. Increase in agricultural production by about 60%–70% is required to provide food for the global population in 2050.[3]

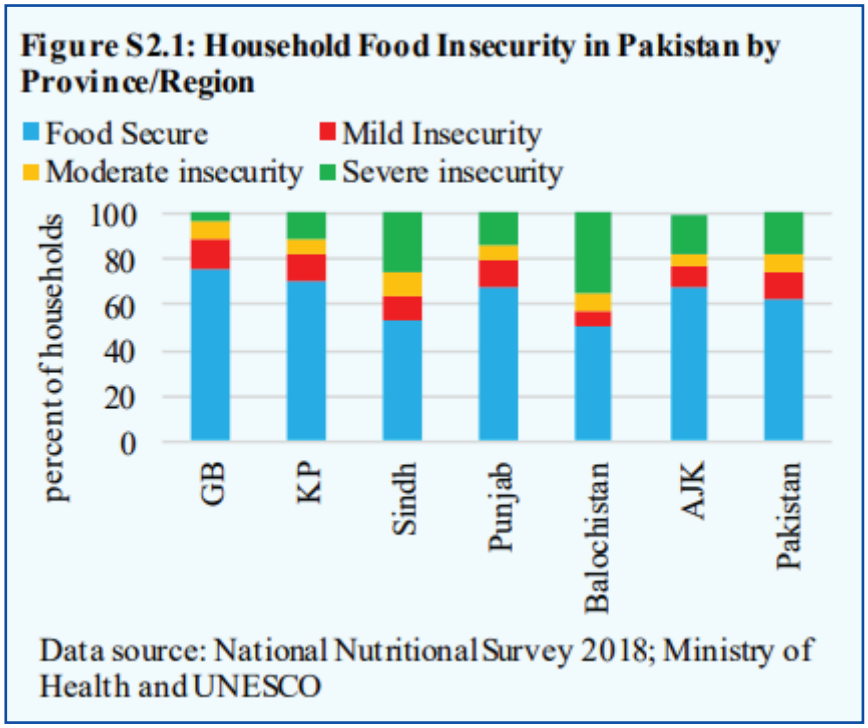
3.5. As per the report by the World Bank, "Five New Insights on How Agriculture Can Help Reduce Poverty", growth in agriculture remains in general two to three times more effective at reducing poverty than an equivalent amount of growth generated in other sectors. This holds irrespective of the empirical method or the poverty metric used to estimate this. The effects on poverty reduction of agriculture are largest for the poorest in society and the advantage of agricultural over non-agricultural growth in reducing poverty ultimately disappears as countries become richer. Furthermore, the lower the literacy rates, the stronger the progressivity in the poverty-reducing effect of agricultural over non-agricultural growth.[4]

[1] The Role of Agriculture in ensuring Food Security - Department of Economics and Economic Policy in Agribusiness, Faculty of Economics and Social Sciences, Poznan University of Life Sciences, Wojska Polskiego, July 7, 2010
[2] USAID Website, Agriculture and Food Security | Archive - U.S. Agency for International Development (usaid.gov)
[3] Pawlak, K.; Kołodziejczak, M. The Role of Agriculture in Ensuring Food Security in Developing Countries: Considerations in the Context of the Problem of Sustainable Food Production. Sustainability 2020, 12, 5488. https://doi.org/10.3390/su12135488
[4] World Bank, Five New Insights on How Agriculture can Help Reduce Poverty LUC CHRISTIANSEN, WILL MARTIN JULY 26, 2018

The current state of food security in Pakistan

3.6. According to the Ministry of Health and Unicef's National Nutritional Survey 2018, only 63.1% of the country's households are "food secure". The survey incorporates the Food Insecurity Experience Scale developed by FAO. The scale trifurcates insecurity along the dimensions: mild (worrying about the ability to obtain food); moderate (compromising variety/quantity of food and often skipping meals); and severe (experiencing hunger on a chronic basis). Alarmingly, 36.9% of the households in Pakistan were labeled as "food insecure" with 18.3% facing "severe" food insecurity across the provinces.

Figure 1: Food insecurity in Pakistan – Survey by FAO



3.7. During the floods of 2022, Pakistan's agriculture sector was the hardest hit sector both in terms of damages and losses. About 4.4 million acres of crops were damaged and around 1 million animals were lost. Total damages and losses amounted to US$ 30.13 billion, of which agriculture suffered US$12.9 billion (43% of total damages and losses). The crop subsector suffered up to 82% of the total damage and losses, livestock 7%, and fisheries/aquaculture 1%. Out of the total need of US$16 billion for recovery and reconstruction, US$ 4 billion (25%) was required for the agriculture sector. The losses and damages in the agriculture sector are expected to spillover effects on lives and livelihoods, poverty levels, food insecurity, and malnutrition, particularly among the poorest and most vulnerable rural communities. The preliminary findings of the Integrated Food Security Phase Classification (IPC), conducted by FAO and IPC partners for 43 vulnerable/flood-affected districts in Sindh, Balochistan, and Khyber Pakhtunkhwa in April 2023, estimated that around 10.5 million people (29% of the rural population) were food insecure during April-October 2023. The number was expected to rise to 11.81 million people (32% of the rural population) from November 2023 to January 2024.[5]

[5] Economic Survey of Pakistan (2022-23) sourced from FAO

The poverty level in Pakistan

3.8. The World Bank has reported that as of 2023, poverty is expected to reach 37.5% in Pakistan with an income level of below 3.65 dollars per day. There are almost 3 million more poor people in Pakistan that will bringing the total number of people living in poverty to approx. 90 million. A difficult macroeconomic environment, a deteriorating labor market, low remittances, high inflation, and the impact of recent natural disasters have led to a decline in household income and an increase in poverty. In the absence of high social spending, all these factors can reverse the poverty gains achieved in the last 2 decades and further reduce the income of already poor households. Informality is prevalent in the labor market and over 40% of the employed population works in agriculture jobs with low productivity. Gender inequality in the labor market is also persistent. Only 1 out of 4 working-age women participate in the labor market and almost 80% work in the agriculture sector.[6]

[6] World Bank, Poverty and Equity Brief, South Asia Pakistan, April 2023.

4 The Agriculture Sector of Pakistan

4.1. Pakistan has a semi-industrialized economy with an integrated agriculture sector, that contributes 22.9% in GDP and 37.4% in employment generation. It is the primary source of livelihood for 63% of the rural population and contributes almost 60% to the country's exports. The country is amongst the world's largest producers of major crops like wheat, cotton, sugarcane, and rice. Following is the contribution of different agricultural sectors in agriculture's value addition and GDP in Pakistan[7]:

Table 1: Contribution of the agriculture sector of Pakistan (Economic survey 2022-23)

Agricultural Sectors	Agriculture's Value Addition			National GDP		
Livestock	62%			14%		
Crops	33%			8%		
Fisheries	1%			0%		
Forestry	2%			1%		
	Current Basic Prices 2015-16 *(influenced by inflation)*					
	Amount (Billion Rupees)			**Growth**		
	FY21	**FY22**	**FY23**	**FY21**	**FY22**	**FY23**
Agriculture Sectors (1+2+3+4)	**12,654**	**14,892**	**19,079**	**22**	**18**	**28**
1. Crops (i+ii+iii)	**4,721**	**5,790**	**7,396**	**27**	**23**	**28**
i) Important Crops	2,731	3,276	4,170	36	20	27
ii) Other Crops	1,799	2,196	2,952	20	22	34
iii) Cotton Ginning	191	318	274	3	66	-14
2. Livestock	**7,505**	**8,644**	**11,141**	**19**	**15**	**29**
3. Forestry	**236**	**263**	**322**	**19**	**11**	**23**
4. Fishing	**192**	**194**	**220**	**3**	**1**	**13**

Livestock

4.2. Key highlights

- The livestock sector has emerged as **the largest contributor to agriculture,** accounting for approximately 62.68% of the agriculture value added and 14.36% of the national GDP during FY-2023.
- Over **8 million rural families engaged in livestock production** deriving 35 – 40% of their income from this sector.
- The net foreign exchange earnings of the livestock sector contribute around **2.1% of the total exports in the country.**
- The national herd population of livestock for the last three years is given in the table below:[8]

[7] Economic Survey of Pakistan 2022-23
[8] Economic Survey of Pakistan 2022-23

Table 2: Population of livestock (Economic Survey 2022-23)

Number in Millions			
Species	**2022-23**	**Species**	**2022-23**
Cattle	51.5	Camels	1.1
Buffalo	42.4	Horses	0.4
Sheep	31.6	Asses	5.6
Goat	80.3	Mules	0.2

Crops

4.3. Key facts and indicators

- Pakistan has two cropping seasons,
  'Kharif' being the first sowing season, starts from April and ends in June; and is harvested during October-December. Rice, sugarcane, cotton, maize, moong, mash, bajra and jowar are kharif crops.
  'Rabi', the second sowing season, begins in October and ends in December; and is harvested in April-May. Wheat, gram, lentils (masoor), tobacco, rapeseed, barley, and mustard are Rabi crops.
- The major crops of Pakistan are wheat, rice, cotton, sugarcane, and maize. These crops contribute 18.23% to agriculture's value addition and 4.18% to GDP.
- Other crops contribute 14.49% to agriculture's value addition and 3.32% to GDP.
- The yields of major crops are 1.5 to 4.2 times below field potential and 2.1 to 5.8 times below international best practice.
- The table below shows the contribution of each major crop to the value added in agriculture and GDP:[9]

Table 3: Contribution of Major Crops to GDP (Economic Survey 2022-23)

Major Crops	Agriculture's Value Addition	National GDP
Cotton	1.4%	0.3%
Sugarcane	3.7%	0.9%
Rice	1.9%	0.4%
Maize	3.0%	0.7%
Wheat	8.2%	1.9%

4.4. Furthermore, the agriculture sector serves as a catalyst for other industries and sectors of the economy of Pakistan. Agricultural products serve as inputs for various downstream industries, such as food processing, textiles, and leather goods. The direct and indirect contribution of agriculture within the domestic economy was estimated at 45% by a study of the Bank of the Punjab. More than 75% of Pakistan's exports (both direct and indirect) are found to be based on agriculture. Pakistan's export mix has lamentably remained the same for more than a couple of decades. Textiles have dominated, followed by rice, fruits, leather goods, etc. For every extra dollar of cotton produced at the farm gate, there are at least three dollars and fifty cents of textile products exported by Pakistan.[10]

[9] Economic Survey 2022-23
[10] Breaking Pakistan's Agriculture Myths, Kazim Saeed, November 19, 2023, DAWN

5 Risk Exposures and The Major Challenges of The Agriculture Sector of Pakistan

Rise in temperature

5.1. Studies suggest that Pakistan's crops are highly sensitive to changes in temperature, a temperature rises in the region of 0.5°C – 2°C could lead to around 8% – 10% loss in yield.[11] Moreover, the mean temperature across the country has increased by 0.5°C in the past 30 years. It is predicted that there will be a 3°C temperature rise by 2040 and by the end of the century, temperatures are predicted to have risen 5 – 6°C that will cause a loss of up to 50% of wheat productivity in Asian countries. This loss will be greater for Pakistan due to its geographical Position.[12] Increases in temperature speed up crop growth cycles and shorten the time between sowing and harvesting, affecting crop yields. A decrease of 14.7% and 20.5% in wheat and rice due to climate change has been observed in Pakistan in the past few years with their market price shooting up.[13]

5.2. Climate change is expected to impair livestock productivity through changes in fodder and feed quality and quantity, as well as increasing the susceptibility to disease outbreaks. Additional the climate related effect on crops indirectly affect livestock, as approximately 40% of fodder production relies on crop fields. The remaining 60% comes from rangelands, which are affected by ecological decline and are vulnerable to climate change, population increase, economic growth, and urbanization.

Floods

5.3. Pakistan has been facing the challenges of erratic rainfall patterns. The prolonged precipitation patterns increase river and inland water levels, resulting in flash, river, and urban flooding. The rivers in Pakistan are mainly supplied by the glaciers of the Hindu Kush, Karakorum, and Himalayas Mountain ranges, and as a result of rising temperatures, they are melting rapidly increasing the risk of avalanches and Glacial Lake Outburst Floods (GLOF) across the river systems of the country. Over 3000 glacial lakes have developed in Gilgit Baltistan and Khyber Pakhtunkhwa regions, of which 33 glacial lakes have been assessed as prone to hazardous GLOF.[14] Floods inundate fertile land, kill livestock, destroy standing crops, and reduce or eliminate yields. In the aftermath of the 2010 floods in Pakistan, one-fifth of the country's land area was submerged, damaging the economy, infrastructure, and livelihoods, and leaving 90 million people food insecure.[15]

Droughts

5.4. Droughts become more frequent in arid and semi-arid areas. Around 80% of Pakistan's area is arid or semi-arid; and processes linked to human development such as overgrazing, over-exploitation of water resources, over-cultivation, and excessive use of fertilizers degrade land quality and expand drylands. Pakistan is at risk of getting affected by two primary types of droughts, "Meteorological" (associated with precipitation deficit and degree of dryness) and "Hydrological" (associated with a deficit in surface and subsurface water flow). From 1999–2002, droughts in Sindh and Baluchistan killed two million

[11] 15078-WBPakistan Country Profile-WEB.pdf (worldbank.org)
[12] Climate Smart Agriculture in Pakistan, Climate knowledge portal World Bank
[13] Climate Impacts on the agricultural sector of Pakistan: Risks and solutions, 2021 - ScienceDirect.
[14] Scaling-up of Glacial Lake Outburst Flood (GLOF) risk reduction in Northern Pakistan, United Nations Development Programme (undp.org)
[15] Climate Smart Agriculture in Pakistan, Climate knowledge portal World Bank

livestock and necessitated emergency relief to provide drinking water and food aid to farming communities. The drought period between 2015-2017 reduced livestock output by 48% and highlighted the potential threat of future increases in drought frequency.[16]

Pests and diseases

5.5. Pests and diseases are other major risks for crops and livestock in Pakistan. Crops due to pests and diseases get damaged at different stages of growth, harvest, transportation, and storage leading to significant losses.

5.6. The direct impact of disease outbreaks on livestock primarily affects the health of the animal population and decreases herd productivity. These setbacks subsequently influence agricultural economies by reducing the availability of animals and affecting the quality and quantity of products such as meat, milk, eggs and fiber. One significant example is the Lumpy Skin Disease (LSD), a vector-borne viral disease that affects cattle and buffalo emerged in Pakistan in November 2021, LSD quickly spread across all four provinces, including Gilgit-Baltistan and Azad Jammu and Kashmir. This disease led to considerable economic losses, manifested through decreased production of milk and meat, infertility in livestock, damage to cattle hides, restrictions on trading animal products, and disruptions in the livelihoods of farmers. Additionally, it has caused distortions in the milk and meat value chains. A study conducted in the districts of Rahim Yar Khan and Chakwal found that milk production dropped by 72% for at least 60 days following the onset of the disease.[17]

Other challenges

5.7. Subsistence and small-scale farmers in the country struggle with limited access to modern technologies, agricultural inputs, and credit, which hampers their ability to boost incomes and manage risks effectively. Furthermore, poor rural infrastructure including roads, transportation, storage facilities, education, and health services restricts agricultural growth and development.

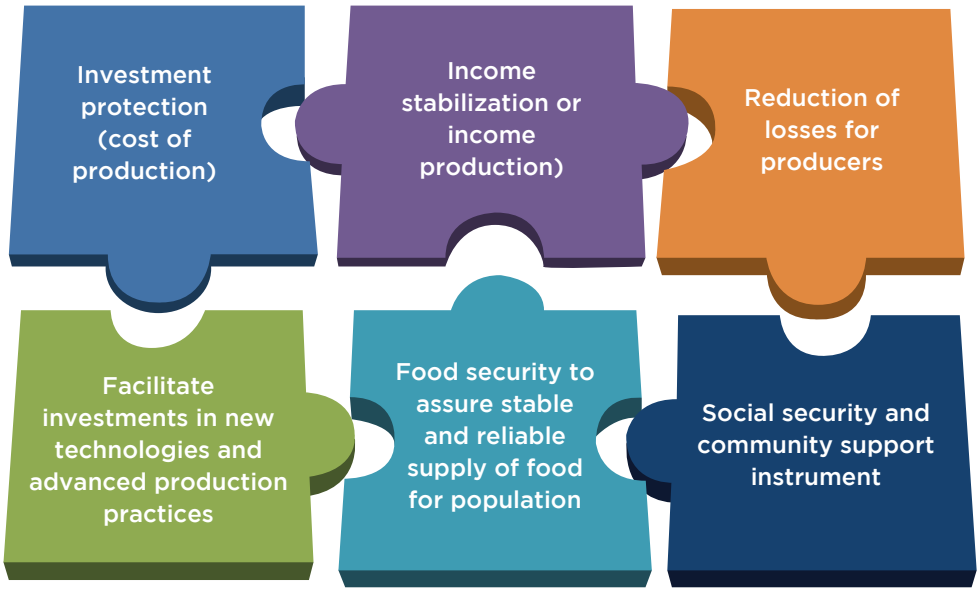
5.8. In Pakistan, irrigation is crucial for agriculture, relying predominantly on the Indus River and its tributaries. Out of Pakistan's total land area of 79.6 million hectares, approximately 23.4 million hectares are cultivated, with 18.63 million hectares benefiting from irrigation.[18] However, several challenges undermine the efficiency and sustainability of water resources for irrigation. These challenges include deforestation, sediment accumulation in reservoirs, the effects of climate change, inefficient irrigation methods such as flood irrigation, over-extraction of groundwater and insufficient storage capacity. These factors collectively contribute to the deterioration in both the quantity and quality of water available for irrigation.[19]

[16] Pakistan – Country Profile, World Bank
[17] Economic Survey of Pakistan, 2021-22
[18] Climate Impacts on the agricultural sector of Pakistan: Risks and solutions, 2021 - ScienceDirect
[19] Economic Survey of Pakistan, 2021-22

6 Importance of Agriculture Insurance and Its Global Landscape

6.1. Agriculture insurance is a risk management mechanism to provide for financial stability in the agricultural sector. It primarily aims to protect farmers from the financial repercussions of unpredictable events such as adverse weather conditions, pests and diseases, etc. By providing a safety net, agriculture insurance helps ensure that farmers can continue their operations, sustain agricultural production, and maintain their livelihoods. Additionally, it encourages investment in modern farming practices, access to credit, and the adoption of innovative and sustainable agricultural techniques. Ultimately, agriculture insurance plays a crucial role in supporting rural development, ensuring food security and building climate resilience, contributing to the overall well-being of the agricultural sector and rural communities.

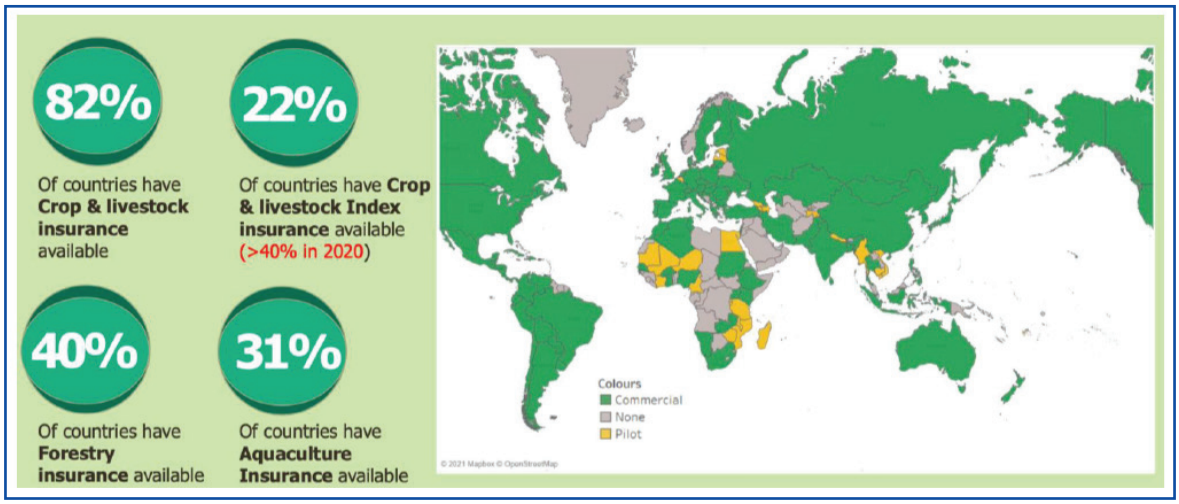
Figure 2: Potential Benefits of Crop Insurance
(Source, ADB presentation on Agriculture Insurance, Disaster Risk conference, 2023, Turkey)



6.2. Although agricultural insurance has been offered in some industrialized countries for more than a century, the agricultural sector remains underserviced in middle and low-income countries. Since the late 1990s, however, dwindling public support for agricultural producers in emerging markets has led to a renewed interest in agricultural insurance. The development of agricultural risk modelling techniques and the emergence of insurance pools and index-based insurance contributed to re-evaluation of the potential role of agriculture insurance in emerging economies.

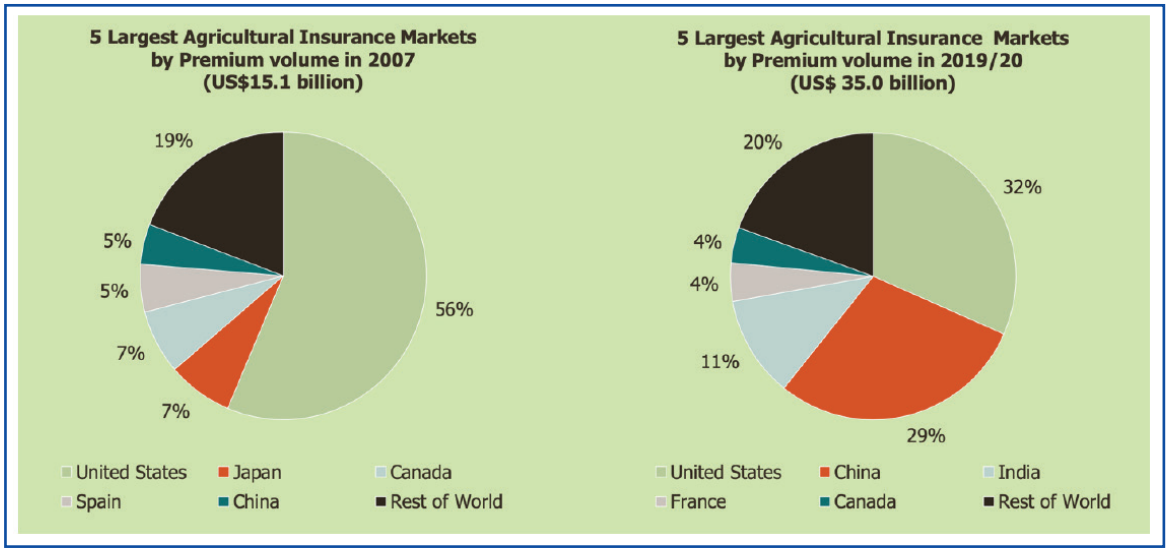
6.3. A study conducted by the World Bank in 2018 shows that agricultural insurance is available in more than 100 countries either as well-developed programs or pilots which represents 82% of the total number of countries. Further, as of 2020, more than 40% of such countries have well-established innovative crop and livestock insurance products. 85% of these countries have government-subsidized premiums which constitute 68% of the average premium value.

Figure 3: Global footprint of agriculture insurance (Source World Bank)



6.4. As per an estimate the world's agriculture premium amounts to approx. 35 Billion USD in the year 2020 with approx. 80% share contributed by the US, China, India, France, and Canada, collectively.

Figure 4: Global footprint of agriculture insurance (Source World Bank)



7 Demystifying Public, Private Partnership Model For Enhancing Agriculture Insurance

7.1. An insurance Public and Private Partnership (PPP) constitutes a contractual agreement between a public sector entity (or entities), typically represented by a ministry or local authority through a government program and the private sector, represented by the insurance industry and its network of partners. This arrangement integrates business objectives with public policy goals in a cost-effective and efficient manner. The PPP model enhances the resilience of the insurance sector by leveraging resources, expertise and investments from both the government and private insurance companies. This collaboration facilitates the development of tailored insurance products that are financially viable, inclusive, and accessible to smallholder and marginal farmers.

7.2. In the Asia-Pacific region, there has been significant growth in PPP models in agriculture insurance over the past two decades. These models entail private commercial or mutual insurers being responsible for providing insurance, while the government offers support typically in the form of premium subsidies and/or reinsurance protection.

China: China has one of the largest PPP agricultural insurance market where agricultural insurance is underwritten by private or mutual insurance companies and national and local (provincial) governments provide premium subsidies. The government also intervenes in reinsurance either through China Re, the national reinsurance company, and/or through government catastrophe co-reinsurance agreements in several provinces.

India: India, the national livestock insurance scheme is underwritten both by a group of public and private insurance companies with premium subsidy support.

Japan: Japan has one of the oldest PPPs. A large number of cooperative insurance companies underwrite a national subsidized crop (rice, maize, and fruit crops), livestock and forestry insurance programme, which is reinsured by the government.

Republic of Korea: Since 2001 the Republic of Korea has operated a pool co-insurance crop and livestock scheme that is led by the National Agricultural Cooperative Federation (NACF) and is co-insured by five local insurance companies and one reinsurance company. This programme receives major government premium subsidy support and the government also provides stop loss reinsurance protection for losses exceeding a defined level.[20]

7.3. The International Labour Organization (ILO) in its report "Making Public and Private Partnership Work in Insurance" has highlighted the important role of PPP in addressing the various challenges in the enhancement of the insurance sector. such as market failures, government failures, and behavioural barriers. A market failure in the insurance market is observed when the right products for risk management are not available in the market, particularly for low-income people, for a variety of reasons, including insufficient infrastructure or lack of capacity within the industry or of clients or lack of data. A government failure occurs when governments implement policies that compete against insurance mechanisms, thus diluting the impact of insurance. An example of this can be ex-post support in the face of catastrophes when there is an insurance mechanism operating. A better understanding of insurance mechanisms and benefits might be needed at the government level in order to encourage sound policy-making. Behavioural barriers can be observed when, despite the benefits of insurance, individuals

[20] Agriculture Insurance in Asia and Pacific Region, FAO, RAP PUBLICATION 2011/12

and certain levels of government continue to make poor risk-management and financing decisions, perhaps through a lack of financial literacy or awareness. A PPP between different institutions or levels of government and the insurance and reinsurance industry can overcome these barriers and behaviours. If well-designed, a PPP can strengthen the capacities of different levels of government; accelerate project implementation; achieve better risk allocation; enhance public management; reduce costs; and increase the quality of services. Both governments and private players can benefit from a well-designed PPP.[21]

7.4. Careful consideration is necessary in designing subsidy structures within PPP insurance programs to avoid adverse consequences that could strain government budgets and lead to significant economic inefficiencies. By ensuring that insurance subsidies are intelligently crafted, these programs can achieve cost-effectiveness while minimizing disincentives. Subsidy structure must be built on mechanisms that gradually reduce subsidies and eventually withdraw government financial support, thereby transitioning towards a market-based approach for interventions. This approach not only fosters financial sustainability but also encourages greater accountability and efficiency within the insurance sector, benefiting both governments and private players alike.

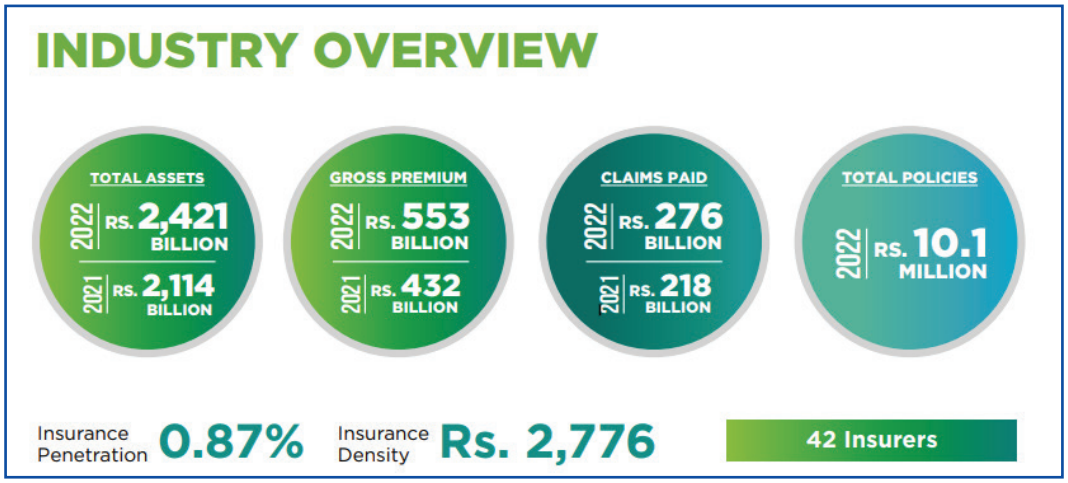
[21] "Making Public Private Partnerships Work in Insurance", Miguel Solana, 2015, ILO

8 The Landscape of Agriculture Insurance in Pakistan

8.1. The Insurance sector in Pakistan is regulated by SECP under the Insurance Ordinance, 2000 (the Ordinance) and secondary legislation under it. SECP is an autonomous body administratively falling under the domain of the Ministry of Finance, whereas insurance as a subject is allocated to the Ministry of Commerce under the Rules of Business, 1973.

8.2. Under the Ordinance, the insurance business has been divided into two mutually exclusive categories of businesses (except for health insurance and accidental death insurance) namely life insurance business and non-life insurance business. The Ordinance provides separate requirements for paid-up capital, solvency, accounting, and reporting requirements, and classes of business for these two categories. SECP has proposed important amendments to the Insurance Ordinance 2000, which include creating regulatory provisions for index-based products, disaster insurance, InsurTech companies, technology platforms and self-network platforms pending completion of the legislative process.

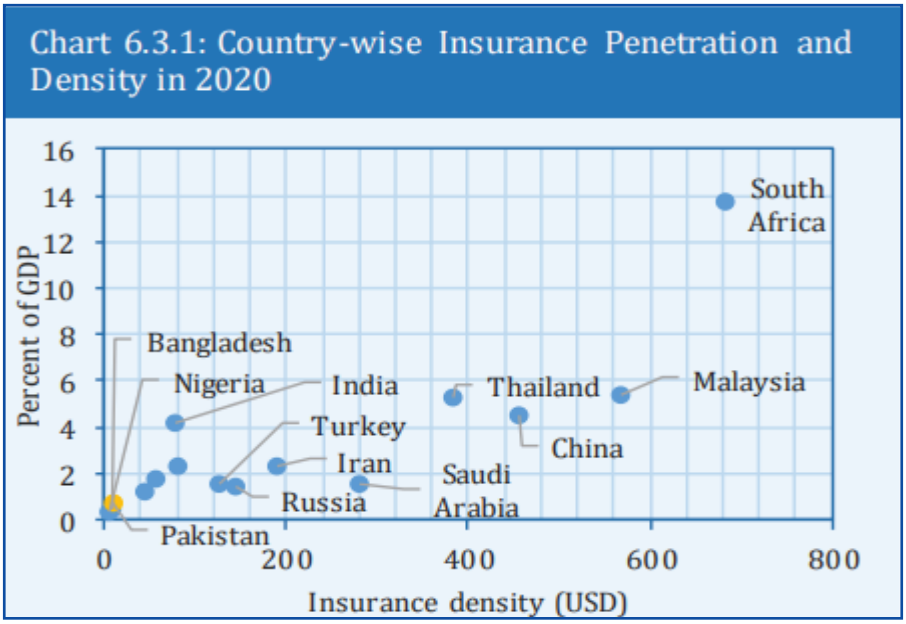
Figure 5: Insurance Industry Statistics (FY 2021 – 22)



8.3. For the year 2022, the life sector generated PKR 375 billion gross premiums written by 8 conventional insurers and 3 family takaful operators. Meanwhile, the gross written premiums by non-life sector, comprised 2 dedicated general takaful operators and 28 conventional insurance companies, reached Rs. 178 billion in 2022, compared to Rs. 140 billion in 2021, indicating a growth of 27%. Among various categories of non-life sector, fire and property damage insurance held the highest share at 27% of total premiums, amounting to Rs. 49 billion, followed by motor insurance at 23% (Rs. 40 billion), and Engineering at 17% (Rs. 30 billion). Dedicated personal lines of non-life insurance business (Home & Household contents, individual health, and travel) constituted only 1% of the total premium in 2022.

8.4. Pakistan's insurance penetration compared to its peer countries remained low at less than 1% of GDP. Similar was the case with Insurance density which stood at USD 10 premium per capita. Although premiums showed a 27% growth in the year 2022, the impact on insurance penetration remained insignificant due to the small initial base.

Figure 6 : Insurance penetration and density 2020 various countries



8.5. Agriculture insurance premiums account for just 2% of the overall premiums in the non-life sector, amounting to Rs. 2.8 billion, marking a mere 8% rise from 2021, which falls 19% below the average industry increase.

Figure 7: Share of various classes of business in GWP of non-life sector FY 2022

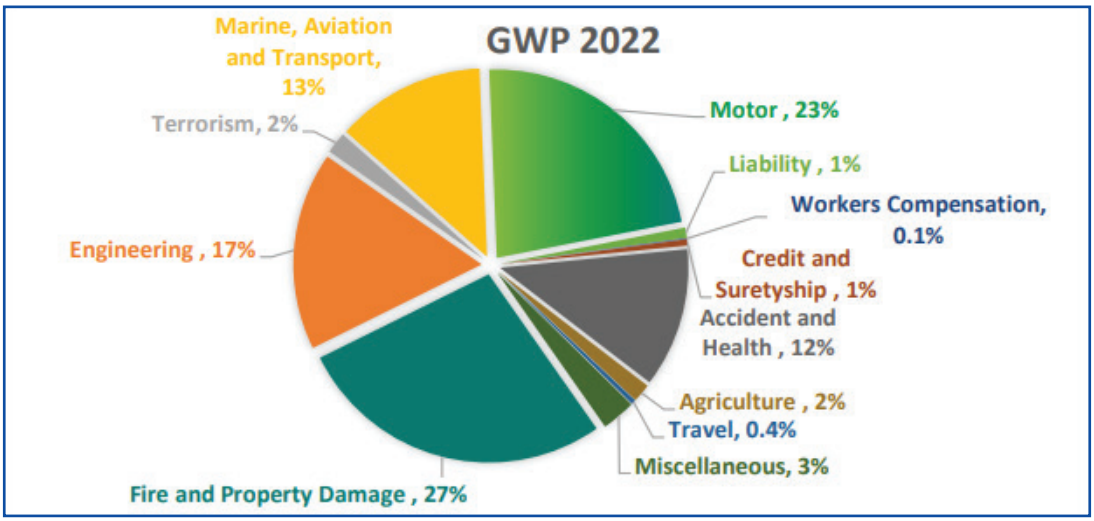


Table 4: Key statistics of agriculture insurance in Pakistan

Items	Gross Written Premium		Gross Claim		Claims Ratio		Net Premium		Retention Ratio	
	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022
Livestock insurance	698	822	428	504	61%	61%	609	674	87%	82%
Crop Insurance	1,950	2,004	350	1,132	18%	56%	1,152	1,113	59%	56%
Total	**2,648**	**2,826**	**778**	**1,636**	**29%**	**58%**	**1,760**	**1,787**	**66%**	**63%**

Table 5: Various forms of crop insurance in Pakistan* (2022)

Sr No	Initiative	Type of Insurance	Insurers	Area	Partners
1	**Govt Led Scheme**	Crop loan insurance Scheme - SBP, Indemnity Insurance	**16 insurers**	Across Pakistan mainly in Punjab and Sindh	**Commercial Banks/ MFBs**
2	**Govt Led Scheme**	Punjab Fasal Beema, Area Yield Index Insurance(AYII)	**United Insurance, Askari Insurance**	Punjab	**Government of Punjab, World Bank**
3	**Private - Pilot**	AYII	**TPL**	Gujranwala, Hafizabad, Sheikhupura Districts	**HBL, PAC, PULA**
4	**Private - Pilot**	weather index insurance	**Asia**	Swabi & Mardan	**Blue Marble**
5	**Private - Pilot**	weather index insurance	**Salaam Takaful**	Several districts in Punjab, KPK and Sindh	**JazzCash, bank Islami, Infarmers, Syntenga**
6	**Private Direct Insurance**	Indemnity Insurance	**1 insurer**	Haiderabad, Murdan, Khanewal	**-**

* based on the data collected from insurers

8.6. In the year 2022, premiums from crop insurance contributed 71% of the total gross premium from the agriculture sector. The claims ratio has significantly increased by 29% mainly due to the flood losses. Crop insurance is primarily represented by government-led schemes: the Crop Loan Insurance Scheme by SBP and the Punjab Fasal Beema scheme by the Punjab Government, contributing approximately 1 billion each in gross premiums. Additionally, there are a few pilot projects and direct insurance offerings by a few companies.

8.7. Similarly, the Livestock Insurance Scheme for Borrowers (LISB), mandated by SBP, accounts for one-third of the total premiums from livestock insurance, with the remainder mainly sourced from corporate livestock insurance. Apart from LISB, the level of livestock insurance for individual farmers is minimal, either provided directly or in partnership with financial institutions and NGOs. In terms of coverage of agriculture insurance, among the total population of 8.2 million farmers[22], only 14% are insured, as detailed in the table provided below:

Table 6: Key statistics related to agriculture insurance in Pakistan

Total/Insured Farmers	Number	Insured Farmers	Numbers*
Total Number of farmers	**8.2 million**	CLIS	480,000
Subsistent farms with land of 5 Acres or below	**7.4 million**	LISB	52,000
Insured farmers	**1.1 million**	Punjab Fasal Beema	600,000
% of insured farmers	**14%**	Total	**1,132,000**

*Based on the data collected from Insurance companies

[22] http://agribusiness.org.pk/

9 Navigating the Agriculture Insurance Schemes in Pakistan

Crop Loan Insurance Scheme (CLIS)

9.1. CLIS is the first nationwide scheme launched in 2008 by the Government of Pakistan led by SBP. It is structured as a PPP between SBP, Commercial banks/MFBs lending to farmers, and a group of insurance companies. CLIS is currently implemented throughout Pakistan but is concentrated more in Punjab and Sindh Province, because of their leading role in agriculture.

9.2. The following are the salient features of the scheme:

- The scheme is compulsory for farmers who obtain seasonal production loans from commercial banks/ MFBs to cultivate any of the five major crops, namely, wheat, rice, sugarcane, cotton and maize. The insurance provides cover against disasters like floods, drought, hailstorms, pest attacks, frost and fire damage.
- The premium is capped at 2% which is fully subsidized by the Government of Pakistan for farmers having landholding of up to 25 acres. The lending institutions pay premiums to the insurance companies and submit the premium details of each loanee farmer to SBP for reclaiming the premium subsidies. Farmers with more than 25 acres who take out seasonal loans do not qualify for any government premium subsidies.
- A unique feature of CLIS is that it caps insurers' and their reinsurers' liability at a loss ratio of 300% per cropping season (In Kharif and Rabi seasons, separately). The 300% loss ratio cap on the CLIS means that the maximum claims liability borne by an insurer and its reinsurer(s) would be equal to three times the value of the premium they have received. The Government's rationale for capping losses is to encourage insurance and reinsurance companies to participate in this catastrophic crop insurance program by limiting their liability.
- The scheme carries a two-stage indemnity procedure: first, the Provincial Government has to declare a calamity where localized crop losses at a village level or subdistrict level exceed 50% of the reference crop yield for that area. After a calamity is declared, then the lending banks and insurers assess the actual damage at the individual farmer level.

Key statistics

9.3. As per the data collected by SECP from the insurance companies since the inception of the scheme, the following are the key statistical highlights:

Number of insured farmers (2022)	Total numbers of farmer covered under the scheme since inception	Total claims paid since Inception
479,355	4,929,000	6,524 million

Average claims incidence	Average claims ratio
1.1%	46%

Figure 8: Claim ratio and claim incidence over the life of the scheme (CLIS)

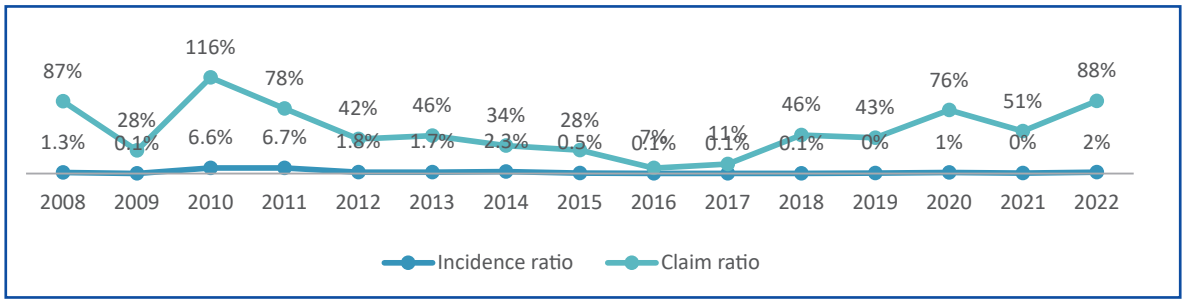


Table 7: Details of premium and claims under CLIS

Year	No. of borrowers covered	Amount of premium received (billions)	Total amount of sum insured (billions)	No. of borrowers who the claims were paid	Total amount of claims paid (billions)	Claim incidence ratio	Claim ratio
2008	4,759	12	843	62	10	1.3%	87%
2009	130,552	436	29,695	438	121	0.1%	28%
2010	175,374	611	43,328	11,643	707	6.6%	116%
2011	160,569	681	37,048	10,794	533	6.7%	78%
2012	221,515	720	45,238	3,978	299	1.8%	42%
2013	252,564	827	49,704	4,367	376	1.7%	46%
2014	223,166	835	49,194	5,106	281	2.3%	34%
2015	310,519	967	59,366	1,694	272	0.5%	28%
2016	575,516	1,373	90,343	561	90	0.1%	7%
2017	672,313	1,650	103,121	788	189	0.1%	11%
2018	438,078	1,415	91,248	598	657	0.1%	46%
2019	475,301	1,477	100,631	2,232	636	0.5%	43%
2020	356,108	1,094	76,999	4,844	836	1.4%	76%
2021	453,643	1,139	81,792	1,929	581	0.4%	51%
2022	479,355	1,069	82,359	7,641	936	1.6%	88%
Total/ Average	**4,929,332**	**14,306**	**940,909**	**56,674**	**6,524**	**1.1%**	**46%**

Livestock Insurance for Borrowers (LISB)

9.4. Given the importance in Pakistan of livestock beef and dairy production and to promote increased access for producers to livestock investment credit, in 2014, SBP launched a Livestock Insurance Scheme for borrowers backed by a premium subsidy mechanism by the government. SBP adopted the same PPP model as for the CLIS, with private sector insurers, lending institutions (providing livestock investment loans to small-scale cattle, buffalo and dairy producers), and the Federal Government (providing premium subsidies to those small-scale livestock producers).

9.5. The following are the salient features of the scheme:

- The objective of the scheme is to improve access to finance for the livestock and dairy sector and to mitigate the risk of losses to farmers in case of death of animals.
- Loans up to PKR 5 million for the purchase of animals are given by the banks/ MFBs and required to be compulsorily insured. GoP provides financial support to LISB in the form of a 100% premium subsidy for a maximum premium rate of 4% for small farmers, financing the purchase of up to ten cattle (or buffaloes). Loans above the threshold of 10 animals do not qualify for any premium subsidy, and the livestock producer must pay the full premium.
- Indemnity amount is up to the insured amount of loan or individual price of the animal as declared by the lending institution with a maximum sum insured of PRK 5,000,000 per borrower with a 20% compulsory deductible for every claim.
- Insured perils are death due to disease/natural, death due to floods, heavy rains, windstorms, drought, accidental death, etc. The animals covered include cows, buffaloes, and bulls (aged from 9 months to 7 years old) and all imported animals.
- In case of the death of an animal the insured, or branch informs to the company via e-mail, phone call, SMS, writing etc., and waits for at least 24 hours before disposing of the carcass. The insurance company then arranges a veterinary doctor approved by Pakistan Veterinary Medical for death confirmation. The insured submits the claim form duly stamped and signed within 14 days. The insurance company is required to settle the claim within 30 days of the claim lodgment.

Key statistics

9.6. Based on the data compiled by SECP from insurance companies since inception of the scheme, the following key highlights of the scheme are noted:

Average number of borrowers a year	Average number of insured animals a year	Total claims paid since inception
103,000	176,000	729 million

Average claims incidence	Average claims ratio
0.85%	46%

Figure 9: Claim ratio and claim incidence over the life of the scheme (LISB)

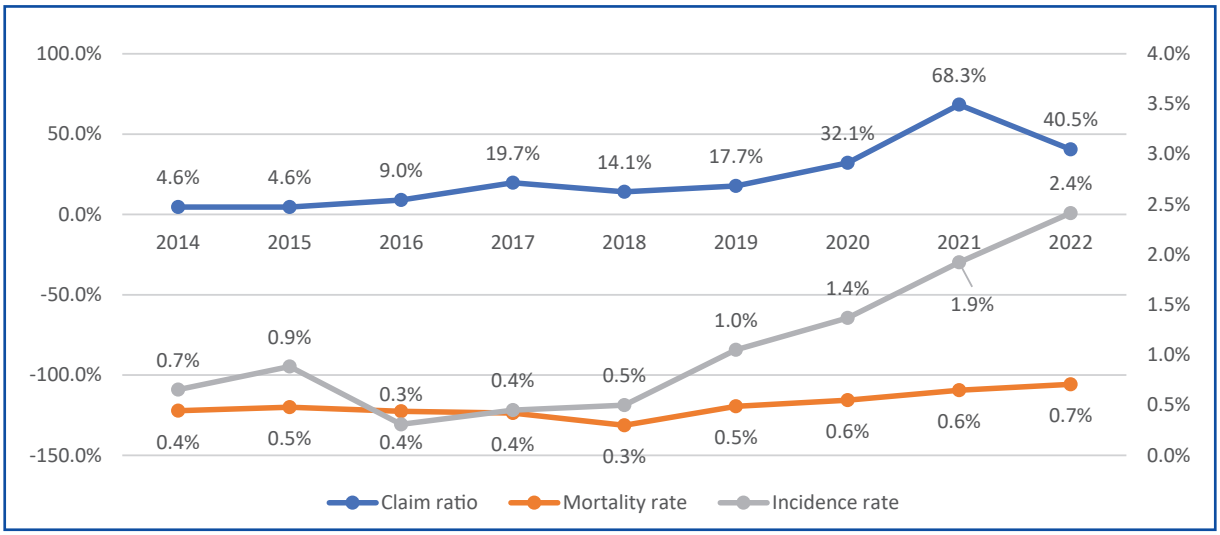


Table 8: Details of premium and claims under LISB

Calendar Year	No. of borrowers covered	No. of animals insured	Amount of premium received (millions)	Total amount of sum Insured (millions)	No. of borrowers for which the claims were paid	No. of animals for which the claims were paid	Total amount of claims paid (millions)	Claim ratio	Claim incidence	Mortality rate
2014	47,427	60,171	190	8,207	268	272	9	5%	0.57%	0.45%
2015	75,260	120,996	267	13,746	590	590	12	5%	0.78%	0.49%
2016	210,407	172,749	356	23,332	632	770	32	9%	0.30%	0.45%
2017	169,944	175,375	462	20,504	1,698	1,775	91	20%	1.00%	1.01%
2018	169,785	351,217	730	30,275	1,182	1,493	103	14%	0.70%	0.43%
2019	87,361	226,107	576	26,061	1,044	1,275	102	18%	1.20%	0.56%
2020	61,460	159,606	298	14,568	950	1,071	96	32%	1.55%	0.67%
2021	50,557	159,131	252	12,733	1,058	1,167	172	68%	2.09%	0.73%
2022	52,418	154,894	278	14,998	1,198	1,257	113	40%	2.29%	0.81%
Total	924,619	1,580,245	3,411	164,426	8,620	9,670	729			
Average	102,735	175,583						20%	0.85%	0.45%

Punjab Fasal Beema Scheme

9.7. The Punjab Government introduced a crop insurance scheme with the name of Punjab Fasal Beema, in the year 2018, for the farming community in case of natural calamities/disasters as part of the "Strengthening Markets for Agriculture and Rural Transformation in Punjab" (SMART Punjab) project. Based on the feasibility study for agriculture insurance in the province of Punjab in 2017 by World Bank, this large-scale area yield index crop insurance was designed and implemented in 2018 in the Punjab along with a financial literacy education program for farmers to harness the benefits of insurance to improve their livelihoods.

Table 9: Details of premiums and claims under the Punjab Fasal Beema Scheme [23]

Season	Districts	Crops	The number of insured farmers'	Premium paid (Millions)	Claim amount (Millions)	Number of claimants	Claim incidence	Claim ratio
Kharif 2018	4	Cotton & rice	16,750	42	33	1986	11.8%	78%
Rabi 2018-19	9	Wheat	41,375	54	Nil	Nil	Nil	Nil
Kharif 2018	18	Cotton & rice	226,832	400	98	4,958	2.1%	24%

No claim Bonus Regime

In 2020, a major change was made in the scheme, whereby the Punjab Government entered into the insurance arrangement based on the No Claim Bonus Regime (NCB). Under NCB, the insurance companies are required to deposit the unspent premium into the government treasury after deducting administrative costs for the specific insured season. In other words, if no claim occurred in any of the insured districts for any insured crop, then the insurance company(ies) has to refund 95% of the unutilized premium amount given by the Punjab Government at the start of every season. In case, if the claim amount is higher than the premium paid, then it would be the sole responsibility of the insurance company to pay the complete compensation to the affected insured farmers. The first tender document with NCB was floated in April 2020 and ultimately two insurance companies jointly underwrote the crop insurance program. Both insurance companies agreed to refund the unspent premium amount if the claim amount is less than the premium paid after deducting their administrative expenses i.e. 20% of the premium amount.

9.8. The below extracts show the impact of the NCB regime on the Kharif season 2020 with a refund of 6.9 million to the Punjab Government.[24]

Table 10. No Claim Bonus Regime under Punjab Fasal Beema

Table 2: Summary of the Kharif 2020 season under No-Claim Bonus Regime

Sr. No.	Insurance Company	Total Farmers Insured	Total Premium Paid (Rs. Mil)	Farmers Insured In Affected Tehsils	Total Claims (Rs. Mil)	Refund of Public Money (Rs. Mil)	Absolute Premium (Rs. Mil)
1	The United Insurance Company	164,886	306.89	35,224	368.6	0.00	476.0
2	The Askari Insurance Company Ltd.	89,596	176.08	7,713	133.6	6.90	
Total		**254,832**	**482.97**	**42,937**	**502.18**	**6.90**	

[23] FEATURES OF CROP INSURANCE.pdf (punjab.gov.pk)
[24] The Fallacy of No-Claim Bonus in Crop Insurance Pakistan.pdf (punjab.gov.pk)

Other salient features of the scheme:

9.9. Following are the other salient features of the scheme:

- 100% premium subsidy to insurance companies for small and marginalized farmers having landholding of less than 5 acres. However, the government provides a 50% premium subsidy to farmers having landholding of more than 5 acres up to 25 acres.
- This is an Area Yield Index Insurance scheme and the average yield data of the last ten years is taken as the benchmark. The insured yield index is 80% of the benchmark in the case of cotton crops and 90% for wheat, rice, sunflower and canola crops. Crop Reporting Service (CRS) notifies the actual yield estimates as per the crop calendar in place for the insured crops which are considered final.
- The farmers register themselves by calling or sending SMS to the specific toll-free numbers of the Punjab Government or by visiting the nearest offices of the Department of Agriculture. The registration service is also available through an online system.

Current Initiative in Agriculture Insurance

National Crop Insurance Scheme

9.10. The Government of Pakistan initiated the National Financial Inclusion Strategy (NFIS) in 2015 to bolster financial inclusion across the nation by expanding access to and utilization of financial services, including insurance services, by 2023. As part of this initiative, the National Crop Insurance Scheme (NCIS) was developed to protect all farm households. A task force was formed by the Ministry of Commerce, led by the SECP, with other members comprising nominees from the federal and the provincial agricultural ministries, SBP and representatives from private and public insurers.

9.11. The NCIS proposal was finalized by the task force in February 2021. Considering the practical administration and suitability of Area Yield Index Insurance (AYII) given the country's circumstances regarding cost and the impact of unforeseen events on crop yields, the task force recommended the introduction of AYII at the national level for all major crops across Pakistan by 2023. The proposal was submitted to the Ministry of Finance in May 2021, and subsequently, the report was shared with the Ministry of Commerce for necessary steps towards its implementation. The key features of the proposed scheme are outlined below:

Table 11. Key features of proposed NCIS

Area	Description
Objective	Increase agricultural finance and safeguard around 9 million farm households in case of loss of crops due to natural calamities and disaster
Beneficiaries	The loanee and non-loanee crop owners who bear the gain and loss of the crops, whether landowners or tenants.
Type of scheme	Area yield index insurance for both borrower and non-borrower farmers with no claim refund
Minimum scope	Enrol at least 60% of the non-loanee farmers in the first year, and at least 70% enrolment in the second year of the scheme.
Crops covered	Rice, Maize, Cotton, Sugarcane, and Wheat.
Insured perils	Climatic, natural, or biological perils

Area	Description
Period of insurance	From time of sowing to time of harvesting
Sum insured	80% of total value of crops, The total value of crops = AuC x RP AuC = Area under cultivation, RP = Relevant Price
Reference yield	Average of top five average yields of particular unit area of insurance from the ten preceding years in terms of yield (kg) per acre
Unit area of insurance	A district will be considered a Unit Area of Insurance (UAI). Provinces may reduce the UAI considering their respective CCE capability and data availability.
Claims trigger	The claim will be triggered if the actual yield during a current year/ season in the UAI is less than 80% of the reference yield.
Claim assessment methods	The claim may be assessed by using Crop Cutting Experiments (CCE), unmanned aerial vehicles (UAVs) or otherwise known as drones with Remote sensing/ satellite imagery using a Geographical Information System.
Claim payout	Claim Payout/ acre = [(Reference yield x 80%) – Actual yield] x price of the crop
Technology Platform	An integrated, technology-based management system, through which, all relevant stakeholders can be integrated into a single ecosystem.
Selection of insurers	The insurance companies will be selected after competitive bidding following the PPRA Rules for three years.
Premium Subsidy Mechanism	100% premium subsidy to farmers having landholding of less than 5 acres 50% premium subsidy to farmers with landholding of >5 to 25 acres. Farmers with landholding above 25 acres will bear the cost of insurance on their own.
Financing	The subsidy cost is proposed to be shared between the Federal Government and the relevant provinces proportionally.
Scheme owner and Implementing agencies	The Ministry of National Food Security and Research is the scheme owner and the provincial agriculture departments will serve as primary implementing agencies for the respective provinces
Awareness	Multi-channel awareness campaigns to be launched to impart awareness at a broader level through media, seminars etc.
Enrolment	Automatic enrolment for farmers with landholding less than 5 acres by the provincial agricultural departments. Enrolment of farmers with landholding above 5 acres through customer touchpoints such as rural support programs, branches of MFBs, MFIs, other NGOs or digital platforms.
Reinsurance	The reinsurance arrangement by the participating insurance companies in accordance with the requirements of insurance laws.
Exclusions	War, civil war, strikes, riots, terrorism, no utilization/sowing, Loss due to individual negligence or self-inflicted damage
Monitoring and Evaluation (M & E) Mechanism	To ensure that the subsidy is achieving its intended purpose, a long-term M&E system that tracks the performance of the scheme, costs of the insurance to the government and its impacts against the intended goals of the subsidy.

Area Yield Index Insurance pilot by TPL Insurance Limited

9.12. In the year 2021, TPL Insurance Limited, Habib Bank Limited (HBL) and the Bank of Punjab (BoP) entered into a strategic partnership for the pilot testing of an Area Yield Index Insurance product, proposed by Pakistan Agriculture Coalition (PAC) with PULA as implementation partner & SCOR as the reinsurer. Under the product, farmers availing crop production loans from HBL and BoP in pilot districts were provided AYII insurance coverage bundled with their loan product. The product insured the crop production risks against climatic abnormalities including windstorms, frost, excessive rainfall, heatwaves, hail, flood, drought, pests and diseases. The product did not include any pay-out limitations or waiting for calamity declaration from any government agency. The pilot project started with wheat and rice crops in four districts of the Punjab i.e. Pakpattan, Gujranwala, Hafizabad, and Sheikhupura. The crop yield was insured against a pre-set average benchmark yield based on historical data and the insurance claim was triggered if the average yield falls below 70% of the threshold. The crop yield was measured through crop-cutting experiments carried out by PULA utilizing scientific technology driven basis instead of traditional methods.

Pilots by Salaam Takaful Limited

9.13. Salaam Takaful piloted a weather para/metric index-based crop insurance program in the Arifwala and Vehari regions of the Punjab in collaboration with Syngenta Pakistan Limited. Syngenta is a leading agriculture innovation and technology company that provides crop protection, biologicals, seeds, crop enhancement products and digital services. The pricing strategy of the scheme attracted a wide range of customers, however for scalability, the Company considers affordability, awareness and trust in insurance products as major challenges.

9.14. Salaam Takaful has also introduced a hybrid Crop Parametric Takaful product. This innovative solution provides crop insurance for JazzCash users through a JazzCash mobile application. It employs a predefined weather index to ensure equitable payouts and simplify the claims process. Takaful coverage is triggered when the maximum temperature or annual rainfall accumulation reaches a specified threshold in the covered region. For crop losses due to locust attacks or floods, takaful payments are made if the actual yield falls below 50% of the reference yield for that area, and if the crop is located in a region officially declared as calamity-affected by the government (or a competent authority).

Weather Index Insurance by Asia Insurance Limited

9.15. Asia Insurance in collaboration with a London-based Insurtech, Blue Marble, launched a weather-index insurance pilot program to support smallholder farmers in rural areas. The partners believe that weather index insurance is a superior solution for addressing farmers' needs while also providing better coverage to Agri lenders than is presently available in the market. Claims and pay-outs were streamlined to ensure swift compensation to farmers. Payments were triggered automatically to policyholders based on a predefined index that measures the gravity of the event and then provided farmers with swift access to claims.

10 Unveiling Hurdles: Key Challenges Confronting Advancement of Agriculture Insurance in Pakistan

Challenges in the existing government-led crop and livestock insurance schemes

Based on the detailed deliberation and discussions with the various insurers and industry experts, the following major challenges have been identified in these schemes:

CLIS - Major Challenges

- **Pricing determination**

  The insurance companies cannot charge a premium of more than 2%. The price is neither actuarially determined nor revised considering the prevailing market conditions. Pricing agricultural insurance products is a critical aspect of designing products that are attractive and affordable to farmers, financially viable and sustainable for insurers. It requires a long series of high-quality historical agricultural/weather data. The price of agricultural insurance in competitive markets depends ultimately on the demand for and supply of insurance. However, insurance premiums are generally determined using actuarial-driven key factors, which mainly include the catastrophic load, expense load and annual expected losses. The respective sizes of these components of the technical insurance premium depend on the products and the markets.[25]

  Furthermore, insurance companies are compelled to further reduce the premium rates to be included on banks' panels. The current prevailing premium rate is now below 1.5%. To remain competitive, smaller insurance firms often offer lower premiums, which in turn reduces their maximum exposure limits and the total sum insured. This practice of price undercutting can lead to a decrease in participation by larger companies in the scheme.

- **Lending institutions are the direct beneficiaries**

  The lending institutions are the direct beneficiaries of CLIS, as they receive pay-outs to compensate for loans provided to farmers. Consequently, while small-scale farmers may still be creditworthy, they lack protection for the additional costs incurred in crop cultivation or potential income losses from crop sales.

- **Pays claims only when the crop damage exceeds 50%**

  CLIS is a catastrophe insurance product that pays claims only when crop damage exceeds 50% of the average yield in a defined area. In case an area damage is estimated at less than 50% of crop production and yield, neither the bank nor the insured farmer receives any compensation. Farmers who lose up to nearly half of their expected crop still have to repay their loans to the banks, out of the sale of their remaining harvest, which leaves farmers with little or no surplus to feed their families or to purchase seed and other inputs for the next crop season.

[25] Government Support to Agriculture Insurance, World bank Report by Olivier Mahu

- **Coverage is for five major corps only**

  The program only covers losses for five major Rabi and Kharif crops and does not offer protection for losses in high-value vegetable and tree fruit crops. In Punjab, commercial banks that provide loans to farmers cultivating high-value crops like tobacco, potatoes, bananas, mangoes or citrus are unable to obtain insurance for loanees for these crops against risks such as excessive rainfall, floods, frost and hail etc.

- **Declaration of calamity is subjective**

  The declaration by the local government of a disaster (calamity) appears to be subjective and open to interpretation. The original SBP framework for CLIS recommended that a calamity should be declared where actual yield losses in the defined area exceed 50% of the actual average yield for that area in the past three out of five years. This actual objective assessment of area yields does not appear to be carried out consistently. Further, standardized or objective loss assessment procedures for the in-field measurement of actual damage by insurers and banks also appear to be lacking. The costs of individual farmer field-level yield loss assessment on very small farms are extremely high and time-consuming. At times, it is cheaper for the insurers to pay the full value of the sum of insured loans to the bank than the cost of actual loss assessment.

- **Triggering of 300% crop insurance limit**

  In instances where a calamity is declared in a district, a practice has emerged where banks trigger the 300% claims payment limit irrespective of whether the incurred loss within that specific district falls below 300% of the premium collected by a given insurance company during that season. Consequently, insurance companies find themselves obligated to disburse a claim payment equal to 300% of the premium amount, even when the actual loss is lower. This practice has substantial repercussions for insurance companies.

  Certain banks advocate for an alternative approach, urging insurance companies to settle claims based on the actual loss without the imposition of the 300% limit. While some smaller insurance companies are adopting such arrangements, however, it is important to note that they are assuming a notable level of risk, particularly as a significant calamity could have a profound impact on these companies.

- **Lending institutions are exposed to losses of above 300%**

  Due to the limitation of losses being capped at a 300% loss ratio per season, lending institutions face significant exposure to losses resulting from catastrophes. This point applies particularly to regional banks or MFBs which, unlike larger lending institutions, cannot spread their risk geographically across the entire country. If losses exceed the 300% loss ratio, these lenders must bear the excess losses themselves. According to a feasibility study by the World Bank[26], the lending institutions desire that the government amend the CLIS, to ensure that losses surpassing the 300% loss ratio would be indemnified in full.

- **Lack of coverage under CLIS for all production loans**

  CLIS is obligatory for all crop production loans extended by Banks/MFBs for five major crops: wheat, cotton, rice, sugarcane and maize. However, a thorough analysis is required to determine whether it is universally implemented for all such production loans.

[26] A Feasibility Study – Assessing the Potential for large Scale Agriculture and Live Stock Insurance in the Punjab Province, Pakistan

State Bank of Pakistan has assigned an annual agriculture credit disbursement target of Rs1,800 billion to the financial institutions for FY23 to cater to the agriculture credit demand in the country. Moreover, in line with the national food security requirements and the need for mechanization of farms to enhance agriculture productivity, specific targets of Rs140 billion is set for production loans of wheat crops. During FY22, the financial institutions managed to disburse Rs1,419 billion to the agriculture sector compared with the disbursement of Rs1,366 billion during FY21.[27]

The amount of disbursement of production loans during the financial year 2022 (July-March) is approx. Rs. 452 Billion (Extracts from the Economic Survey of Pakistan 2022-23 are attached below). Considering the value addition of 5 major crops is 60% out of the total value addition of crops and prorating the disbursement to a full year the amount of disbursement of 5 major crops could roughly be 361 Billion. However, during the year 2022, the amount of sum insured as per the data provided by the insurance companies is around Rs. 82 billion. Assuming an average premium rate of 1.5%, the premium receipt from the estimated production loan disbursements of Rs. 361 Billion should be around Rs. 4.6 Billion while the premium received by the insurance companies is only Rs. 1 billion. This matter needs to be evaluated by the government to assess whether there are gaps in the mandatory implementation of the scheme.

Table 12: Credit disbursements in Agriculture (Source Economic Survey of Pakistan 2022-23)

Table 2.20: Credit Disbursements by Sector & Purpose (Rs billion)

Sector& Purpose		FY2021 (July-March)		FY2022 (July-March)		% Growth over the Period
		Amount Disbursed	% Share within Sector	Amount Disbursed	% Share within Sector	
A	**Farm Sector**	**507.9**	**53.3**	**474.0**	**49.5**	**-6.7**
1	Production Loans	452.4	89.1	441.3	93.1	-8.0
2	Development Loans	55.6	10.9	32.7	6.9	15.5
B	**Non-Farm Sector**	**445.8**	**46.7**	**484.3**	**50.5**	**8.6**
1	Livestock/Dairy & Meat	250.1	56.1	269.7	55.7	7.8
2	Poultry	158.0	35.4	168.9	34.9	6.9
3	Fisheries	5.3	1.2	9.6	2.0	81.0
4	Forestry	0.011	0.003	0.0	0.0	33.1
5	Others	32.4	7.3	36.1	7.5	11.4
Total (A+B)		**953.7**	**100**	**958.3**	**100**	**0.5**

Source: State Bank of Pakistan

LISB – Key challenges

- **Physical tagging of the animals is a must**

  Physical tagging of the animals is a mandatory requirement of the scheme. It is essential to reconsider the mandatory requirement for physical tagging embracing modern technological solutions for animal tagging, such as electronic or digital identification methods which could offer a more efficient alternative.

- **The mortality rate of the animal under the scheme is extremely low**

  According to data gathered from insurance companies given in table 8 above, the observed mortality rate for animals stands at a very low at 0.45%, notably lower than the average mortality rate reported in the SMEDA feasibility study for adult cows in Pakistan, which is around 2%. This disparity raises questions about potential factors contributing to the difference and one plausible explanation may be linked to farmers' challenges in filing claims and a lack of awareness regarding the necessity to inform banks or insurance companies within the stipulated time. An assessment is crucial to delve into the underlying reasons and better understand this variance.

[27] www.sbp.org.pk/press/2022/Pr-26-Aug-2022.pdf

- **Pricing determination**

  The insurance premium rate set by the SBP stands at 4%, lacking actuarial determination or adjustments based on prevailing market conditions. In practical terms, the market norm is notably lower, typically falling between 2 to 2.5%. This variance stems from a common practice wherein banks further bargain with the insurance companies. Particularly the smaller insurance companies resort to undercutting the SBP rates to maintain competitiveness. While this approach fosters competition, it introduces inherent long-term risks for the involved insurance companies.

- **Lending institutions are the direct beneficiaries**

  Similar to CLIS, the direct beneficiaries of LISB are the lending institutions, which receive the payouts to offset loans to farmers. Therefore, although the loanee farmers remain creditworthy, they have no protection for the loss of the additional costs they have incurred in purchasing the animals (if any) and setting up the farm, loss of income and portion of loan already repaid. Further, there is a 20% compulsory deductible for every claim and the burden of 20% of the losses also passes on to the farmers.

Punjab Fasal Beema – Key challenges

- **No claims bonus Regime**

  The reimbursement of 95% of the premium amount, after deducting administrative expenses, has reportedly seen as a notable challenge for insurance companies. This reimbursement structure deviates from traditional insurance principles and raises concerns about the long-term sustainability of insurance providers, particularly during periods when claims exceed total premium receipts. The bidding documents lack clarity regarding compensation for insurance companies under this arrangement. Continued adherence to this practice may prompt the need for insurers to establish liability limits, potentially affecting the relief and claims amounts provided to farmers.

  It is essential to note that this reimbursement mechanism differs from the no-claim bonus, which is a widely accepted insurance practice offering policyholders discounts based on consecutive claim-free years—not at a scheme level. This bonus generally serves as an incentive for policyholders, encouraging them to adopt risk-averse strategies and contributing to a reduction in moral hazard.

- **Registration of the authentic farmers**

  Ensuring the enrollment of legitimate farmers is crucial for the Government to guarantee that subsidies and benefits reach those genuinely engaged in a specific crop covered by insurance. Collaborating closely with local agricultural authorities, extension officers and village panchayats to collect information and verify the authenticity of farmers would be advantageous. Local officials often possess valuable insights into the farming community and can aid in the verification process.

  The feasibility study on Agriculture Insurance in Pakistan, released by the Pakistan Agriculture Coalition in June 2021, brought attention to cases within the program where compensation was disbursed to farmers who had not cultivated the specific crop in question.

- **Participation by a limited number of insurance companies**

  The current landscape of the scheme underscores the pressing need for the active involvement of additional insurance companies as currently, only 2 insurance companies are participating in the scheme out of 30 non-life insurance companies. A broader array of insurance providers is essential for the expansion of the program's reach, ensuring that a larger proportion of farmers can benefit from it.

The Punjab Government may conduct a detailed analysis to comprehend the reasons behind the lack of participation from other insurance companies. Subsequently, the key components of the scheme and the bidding process be revisited, accordingly.

- **Manual Crop cutting experience**

  The determination of the average yield is one of the most critical elements in the success of an Area Yield Index Insurance scheme as it will determine whether the farmer will be getting any claims and to what extent. Crop Reporting Service (CRS) by the Punjab Government, releases up to three estimates of area, production and average Yield for different crops. The final estimate of area and production is prepared based on the Area under the crop supplied by the Revenue Department on complete enumeration (census). Average yields are worked out through objective crop-cutting experiments conducted in 5500 randomly selected villages/fields in the province by the field staff of CRS.[28] The current process is based on completely manual methods with no major involvement of technology. Technology-based yield estimation can bring a paradigm shift in the current sampling process that will help farmers receive their rightful claims at the right time.

  In 2016, India launched a nationwide crop insurance program, the Pradhan Mantri Fasal Bima Yojana (PMFBY), which increased the number of Crop Cutting Experiments (CCEs) required to be carried out manifold. The program required at least four CCEs for a major crop in a village or village panchayat. This immediately increased the number of CCEs to around 7-8 million per year from the earlier about a million. Since the harvest period is very short, carrying out so many CCEs with limited manpower became extremely difficult. Using technology to optimize the number of CCEs and making them more representative of the overall crop situation of the insurance unit (village, village panchayat, block, revenue circle, Mandal or taluk) offered a potential solution. During Kharif (monsoon) 2018 and rabi (winter) 2018-19, India's agriculture ministry commissioned pilot studies to develop satellite and other advanced technologies for CCE optimization. The studies showed that using satellite data, modeling approaches and other related parameters, it is possible to reduce the number of CCEs by 30-70% while maintaining accuracy.[29]

Lack of national-level agriculture insurance schemes for non-loanee farmers

10.1. Presently, there is a notable absence of any national crop and livestock insurance schemes catering specifically to non-loanee farmers in the country. The existing coverage extends to merely 14% of the total farming population, with only 1.1 million farmers currently ensured out of a substantial number of 8.2 million total farmers. This coverage gap is particularly significant given that a considerable majority of this population engages in subsistence farming. The challenges faced by non-loanee farmers are multifaceted, exacerbating issues related to affordability, awareness and resilience in the face of disaster risk exposure.

10.2. A national-level agriculture insurance scheme for non-loanee farmers is a vital tool for promoting resilience, stability and sustainability in the agricultural sector as it can address the unique challenges faced by farmers who may not have access to formal credit and reinforces the importance of securing livelihoods in the face of unpredictable agricultural risks.

[28] Crop Estimates | Crop Reporting Service (punjab.gov.pk)
[29] How India is Using Space Technology to Smart Sample crops, Shibendu S. Ray, March 2021

Affordability

10.3. The constraint of limited affordability significantly contributes to the subdued demand for insurance. In numerous developing nations, the meager incomes prevalent among the majority hinder the evolution of robust insurance markets. The financial resources of the population are predominantly directed towards essential needs like food and shelter, leaving little room for investing in insurance. Even when insurance options exist, health and life coverage often take precedence over agricultural insurance. Rural households engaged in agriculture frequently grapple with insufficient profits to absorb the costs associated with agricultural insurance. In Pakistan, more than 95% of the farmers are classified as subsistent farmers with land of 5 acres or less. Government subsidies play a vital role in promoting agriculture insurance globally by enhancing its accessibility and affordability for farmers, particularly smallholders. As mentioned in paragraph 7.3 earlier, the majority (85%) of countries with agriculture insurance programs offer government-subsidized premiums which constitute 68% of the average premium value in such countries.

Lack of awareness

10.4. A commonly cited reason for the low demand for agricultural insurance in developing countries is the limited understanding of its benefits. Insurance is often perceived as a nonviable investment because premiums are collected every year but indemnities are paid much less frequently. Insurance is a complex financial product. Many rural households in developing nations are not financially literate and insurance is an unfamiliar concept to many potential policyholders. As a result, the few insurance products that are currently available in low- and middle-income markets are not well understood by potential buyers. Policy exclusions and coverage limitations are often a source of confusion. Thus, potential buyers, even educated ones, sometimes prefer to retain risk than trust a third party like an insurance company.

10.5. Furthermore, the design of post-disaster relief often results in the crowding out of insurance. If farmers expect post-disaster relief from the government, development agencies or NGOs, they have little incentive to purchase insurance.

High systemic risk

10.6. The systemic component of agricultural risks has the potential to result in substantial losses within the portfolios of agricultural insurers. Estimated probable maximum losses for significant events far surpass average expected losses by a considerable margin. Pakistan faces escalating exposure to and vulnerability to various natural hazards, notably floods and droughts, positioning it among the top 10 countries most susceptible to the impacts of climate change, according to the Global Climate Risk Index, 2021.[30] The surge in natural hazard occurrences over the past 20 years has led to notable loss of life, economic setbacks and setbacks in development progress. The private sector in Pakistan cannot absorb such extensive losses. While the option of spreading and diversifying risks across different sectors through international reinsurers exists, the challenge arises in the form of the cost of reinsurance and its affordability for farmers.

[30]David Eckstein, Marie-Lena Hutfils and Maik Winges. (2021), "Global Climate Risk Index 2021", published by German watch, p. 13, available at https://www.germanwatch.org/sites/default/files/Global%20Climate%20Risk%20Index%202021_2.pd

Lack of data and inability to measure risk appropriately

10.7. Another significant challenge involves the ability to assess risks, gather pertinent data, monitor producer behavior and establish effective underwriting practices. Adverse selection occurs due to information gaps, leading to inaccurate premium calculations that attract high-risk individuals to purchase insurance. Identifying homogeneous risk groups is essential for a successful insurance contract. Individual grower yield-based crop insurance and indemnity products require farm-level yield data, which is costly to obtain even in developed nations. Index-based insurance also demands substantial data. In India, county-level aggregate data have been collected for over 20 years by local statistical departments through crop-cutting experiments (CCEs) to inform agricultural policy. Similarly, weather-based crop insurance relies heavily on weather data, contingent on the density and accuracy of the weather station network.

10.8. The absence of a national-level Natural Catastrophe (NAT CAT) model in Pakistan poses challenges for insurers relying on sub-national or global models, potentially leading to underpricing or overexposure. Developing such a model is crucial for insurers to conduct precise risk assessments and manage portfolios effectively.

Limited access to the international reinsurance market and absence of insurance pools/consortiums

10.9. The insurance market of Pakistan is underdeveloped and it lacks both technical and financial capacity for agricultural insurance. Many insurance companies in developing countries identify limited access as one of the main constraints to the development of agricultural insurance. The current small insurance market of Pakistan due to low penetration faces more difficulty attracting these international companies. In such a situation it becomes more important that insurance products are appropriately designed and priced to generate enough premium volume to cover the expected losses, operating costs and costs of capital (including profits).

10.10. Currently, Pakistan lacks any sort of domestic coinsurance pool/ consortium that would provide a mechanism for insurers to collectively share risks locally, reducing dependence on international reinsurers and promoting economic self-sufficiency within the insurance sector. The absence of such a local mechanism contributes to a significant outflow of foreign exchange, as insurance companies in the country resort to reinsuring the risks beyond their capacity with foreign counterparts.

Regulator impediments

10.11. The current framework although does not restrict, however, does not specifically addresses innovative agricultural insurance products, such as index-based crop insurance or parametric crop insurance. This new type of insurance, in which claim payments are based on an index (such as average yield in a given geographical area or rainfall levels) rather than actual individual losses, can challenge the basic requirements of insurable interest. A strict interpretation of this principle may exclude index-based products as an insurance product because an index is used as a proxy for losses, which is by definition is not directly correlated with individual losses. In this regard, certain changes have been proposed in the Insurance Ordinance, 2000.

Moral hazards

10.12. Moral hazard is also an underlying challenge in government-subsidized insurance schemes where lead insurers have no direct interaction with farmers. Moral hazards pose a significant challenge to the efficacy of such programs, as farmers may be tempted to take risks or neglect preventive measures knowing they have a safety net in the form of insurance coverage. One way to address this issue is by promoting a culture of responsible farming through education and awareness campaigns. These initiatives can highlight the importance of sustainable agricultural practices, risk mitigation strategies and the long-term benefits of investing in technologies that enhance crop resilience. By fostering a sense of shared responsibility between farmers and insurers, these campaigns contribute to a more informed and conscientious approach to farming, reducing the likelihood of moral hazards.

Low takaful penetration

10.13. The introduction of Takaful Rules, 2012 by SECP has marked a significant milestone in fostering financial success, with the total revenue generated reaching PKR 62 billion in 2022, showing an encouraging growth of 11% from the previous year. Despite this progress, there remains ample room for further development. Family Takaful now constitutes 11% of the total life insurance sector and general Takaful accounts for 12% of the total non-life insurance sector, firmly establishing Takaful as a noteworthy participant in Pakistan's insurance landscape. Takaful, serving as an Islamic alternative to conventional insurance, presents a compelling solution to address religious beliefs that have historically posed challenges to insurance penetration in Pakistan. The primary barrier lies in the religious prohibition on conventional interest-based insurance, which is perceived to involve elements of uncertainty (gharar) and usury (riba). Takaful, in contrast, operates on the principles of cooperation, shared responsibility and ethical investment in Sharia-compliant assets. By adhering to Islamic principles, takaful offers individuals a way to manage risk without compromising their religious convictions.

11 A Way Forward for Pakistan

Evaluation and monitoring of current government-led agriculture insurance schemes

11.1. A thorough reassessment of the Crop Loan Insurance Scheme and the Livestock Insurance Scheme for Borrowers is required to ensure they genuinely deliver valuable insurance coverage to farmers. Given the considerable time that has elapsed since their launch in 2008 and 2014, this review should address key challenges, including premium caps, limits of liability, coverage, claims procedures, mandatory implementation and the adoption of modern methods for animal tagging etc.

11.2. Similarly, a review of the Punjab Fasal Beema Scheme is warranted to tackle issues such as premium reimbursement for no claim bonus, streamlining the farmer registration process, engaging more insurance companies in the scheme and updating current yield measurement methodologies.

11.3. Moreover, it is essential to establish a continuous evaluation and monitoring mechanism for these schemes to assess the benefits and challenges faced by all key stakeholders: Insurers, banks, regulators, agriculture departments and farmers. Crucially, the justification of insurance subsidies requires evidence-based principles, necessitating ongoing data collection through monitoring and evaluation processes.

National-level crops insurance scheme

11.4. The importance of developing a national-level crop insurance scheme for farmers cannot be overstated in the pursuit of a resilient and sustainable agricultural sector in Pakistan. As referred in para 6.3 above, 85% of the countries with agriculture programs include subsidized premiums mechanism supported by the governments. Special treatment for agriculture is common worldwide, in both developed and developing countries. Such agricultural programs generally reflect social and political goals, emphasizing the significance of agriculture for the economy and the essential role of food in society.

11.5. In line with the recommendation of NCIS discussed above in detail, a national-level compulsory crop insurance scheme should be introduced in a piecemeal manner with the following high-level considerations:

- The scheme covers both loanee and non-loanee crop owners, including landowners and tenants, with the provincial agriculture departments determining beneficiary status based on land ownership.
- It encompasses all major crops in Kharif and Rabi seasons throughout Pakistan.
- The insured perils include climatic, natural or biological events affecting crop yield and the period of insurance spans from sowing to harvesting.
- The scheme is built on parametric structure and claims are assessed using technology-based methods of measuring crop cutting experience.
- The scheme is implemented through a pool/consortium-based structure by including all willing insurance companies with the required reinsurance arrangement.
- Premium subsidies are based on landholding size and the financing is shared between the federal government and relevant provinces.

- The Ministry of National Food Security and Research oversees the scheme, with provincial Agriculture Departments serving as primary implementing agencies.
- Awareness and enrolment strategies involve multi-channel campaigns and automatic enrolment for small landholders.
- A robust monitoring and evaluation mechanism is established to track the performance and impact of the subsidized insurance over time.

National-level livestock insurance scheme

11.6. The livestock sector in Pakistan, surpasses crops in GDP contribution, serving as a primary source of food, income and employment, particularly in rural areas. Despite its economic importance, the livestock sector lacks adequate insurance coverage for individual farms. The current insurance scheme of SBP is limited to loanee farmers and private sector direct insurance mainly covers corporate farmers.

11.7. Similar to the proposal for a national-level crop insurance scheme, nationwide livestock insurance for individual farmers is essential. The scheme may include a sliding scale of the subsidy to be offered to the farmers with funding to be supported by the Government with a sharing mechanism between federal and provincial governments.

11.8. To formalize this initiative a task force is recommended, consisting of representatives from the Ministries of Agriculture, Finance and Commerce, along with provincial agriculture departments and the insurance industry. Their key responsibilities would encompass market analysis, data collection, stakeholder engagement, devising pricing subsidy mechanisms and claims process and communication strategies to enhance awareness and participation

Crop and livestock insurance incorporated into the social protection schemes of the Government

11.9. According to a report by FAO 'Linking Agriculture Insurance and Social Protection', an agricultural insurance scheme can act as a fundamental shock-responsive component within a broader social protection system. It provides low-income farming households with an essential layer of protection against natural hazards (such as droughts, floods, pests and diseases) while acting in synergy with traditional social protection measures that focus on chronic vulnerabilities.

11.10. Integrating crop and livestock insurance into the Benazir Income Support Programme (BISP) and similar provincial initiatives represents a proactive strategy to provide financial security to small and vulnerable farmers. A key advantage of this approach is the affordability of premiums for smallholder farmers through funding by the scheme. By contributing a modest amount annually for such farmers extensive coverage can be secured, providing them with the financial resilience needed to bounce back from adversities.

11.11. Moreover, the integration of insurance components into social protection programs streamlines the administrative process. It leverages the existing infrastructure and outreach capabilities of initiatives like BISP, making it more accessible for small farmers who may have limited resources and awareness about insurance options.

Inclusion of agriculture insurance into national strategies and policies

11.12. The acknowledgment of the need for agriculture insurance by the government departments mainly including the Ministry of Finance, the Ministry of Commerce, Federal and provincial agriculture departments is vital to enable its growth in Pakistan. They need to understand the crucial role agriculture insurance can play in achieving their larger agendas such as ensuring food security, rural development and economic stability.

Inclusion of crop and livestock insurance in the National Disaster Risk financing (DRF) Strategy

11.13. The significance of insurance instruments in disaster risk financing cannot be overstated. Insurance provides a mechanism for transferring the financial burden of disaster-related losses from individuals, businesses and governments to insurance companies and risk pools. This helps to mitigate the economic impact of disasters by providing timely financial assistance for recovery and reconstruction efforts.

11.14. Disaster risk financing instruments begin with risk retention instruments for more frequent and less damaging events. For medium to high-level risks, generating higher levels of loss but less frequent events, market-based risk transfer solutions provide more cost-efficient financing.

11.15. An effective country DRF strategy should be developed based on detailed knowledge of the country's disaster risk. Close coordination is needed not only between NDRMF, NDMA and PDMA but also the institutions such as SECP, Ministry of Food Security & Research and provincial agriculture departments to have in place an effective disaster risk financing strategy. This strategy shall include risk transfer instruments dealing with crop and livestock insurance, as agriculture is one of the most affected sectors in Pakistan by natural hazards.

Inclusion of crop and livestock insurance in the national policy for food security

11.16. The Ministry of National Food Security & Research is mainly responsible for policy formulation, economic coordination and planning in respect of food grains and agriculture. Its mandate includes the procurement of food grains and fertilizer, import price stabilization of agricultural produce, international liaison and economic studies for framing agricultural policies. Due to the vital role of crop and livestock insurance as a risk management tool for ensuring financial stability in the agricultural sector and promoting food security, the ministry shall integrate it into the national policy for food security.

Formation of agriculture Insurance pools/consortiums

11.17. Agricultural insurance, being a specialized field of insurance, presents insurers with heightened exposure to catastrophic risks within the country. This elevated risk level may jeopardize the financial sustainability of the entire insurance industry. It is necessary to reinforce this line of business to protect the insurance industry against a financial contagion caused by excessive agricultural insured losses.

11.18. An agriculture insurance pool/ consortium could act as a risk aggregator for the insurance. It is a collaborative risk-sharing mechanisms that involve multiple insurance companies coming together to spread and manage risks more effectively based on a predetermined arrangement. Such a structure is also beneficial in providing farmers with affordable and effective agricultural insurance that is financially sustainable in the long term without heavy public subsidies. In this regard, a start can be taken from the crop loan insurance scheme of SBP, by converting it into a broad-based crop insurance pool/ consortium.

11.19. Financial needs of the insurance pool can be fulfilled through different sources such as premiums, profits/surplus reinvestment, government and foreign donors (subsidies, grants/loans), Federal Insurance Fee, catastrophe bonds, contributions from social protection programs in the country and donations etc.

11.20. SECP is in the process of finalizing a concept paper "Insurance Pools Dynamics" with the objective of assisting in the development of the insurance market via collaborative participation of the industry, government organizations and multilateral agencies to help grow and retain insurance risks within Pakistan through the collective structure. The concept paper lays out the approach towards the establishment of the insurance pools through broader overview, roles of different stakeholders, governance and operational structures etc.

Implementation of a PPP model

11.21. A PPP model must be embraced as the prevailing model for all the government initiatives proposed in para above such as national-level crops and livestock insurance schemes, formation of insurance pools/consortiums and integration of agriculture insurance with the social protection schemes of the government. By harnessing the combined strengths of public and private entities, PPPs offer a dynamic framework for pooling resources, expertise and innovation. This collaborative approach not only optimizes the financial sustainability of insurance programs but also enhances their reach and effectiveness in safeguarding farmers against diverse risks. In all such schemes, focus shall be on subsidizing the cost of the private sector insurers under a well-thought-out plan to gradually reduce the government subsidy/ allocation to the extent of the viability gap and transition towards a market-based approach.

Usage of technology and innovative products in the enhancement of agriculture insurance

11.22. Innovations in technology are revolutionizing the landscape of agriculture insurance, offering more precise risk assessment, efficient claims processing and tailored coverage for farmers worldwide. One significant advancement lies in the integration of remote sensing technologies such as satellite imagery, drones and IoT sensors. These tools provide insurers with real-time data on crop health, weather patterns and environmental conditions, enabling them to accurately evaluate risks and losses. For instance, satellite imagery can detect crop damage caused by natural disasters or pests, triggering automatic claims processing and swift pay-outs to farmers, thus reducing the financial burden during critical times.

11.23. Index-based or parametric insurance has been implemented in several countries as the primary disaster insurance product for the agricultural sector that offers efficient solutions to the challenges of agriculture insurance. Unlike traditional methods, they use predetermined indices linked to agricultural risks, like weather patterns or yield levels, to trigger payouts. These models streamline claims processing by providing transparent and objective criteria for assessing losses. For example, a parametric policy might pay out if rainfall levels during a critical growth period fall below a specified threshold, while an index-based scheme could use satellite data to determine payouts based on crop health or yield variations. By decoupling payouts from individual losses, these models provide fast and predictable support to farmers, helping them manage risks like adverse weather or pests. Moreover, they extend coverage to a wider range of farmers, including those lacking historical data or facing high administrative costs with traditional insurance.

11.24. Insurance Companies can take advantage of the SECP's regulatory Sandbox which is a tailored regulatory environment for conducting limited-scale, live tests of innovative products in a controlled environment for a limited period to assess their viability before launching on a full scale.

11.25. The regulatory framework surrounding innovative products like index-based or parametric insurance requires clear and comprehensive guidance to ensure their effective implementation and widespread adoption. As these insurance mechanisms deviate from traditional indemnity-based models, rules and regulations must be reviewed to accommodate their unique characteristics while safeguarding the interests of both insurers and policyholders.

Bundling of insurance with agriculture inputs

11.26. Combining agriculture insurance with inputs is rapidly emerging as a potential solution to enhance the social impact of agricultural insurance, make insurance more tangible and expedite its scalability. There is evidence indicating that access to agricultural insurance results in significantly increased agricultural investments and encourages farmers to make riskier yet more rewarding production choices. However, offering insurance as a standalone product may not be adequate to overcome the constraints faced by farmers. Hence, bundling provides added value for all participants in the value chain.

11.27. Bundling offers increased value to all stakeholders in the value chain. For insurers, bundling presents an opportunity to leverage existing non-insurance services to enhance penetration and outreach, compensating for the lack of staff and distribution in rural markets. It allows insurers to capitalize on the goodwill of their partners and encourages customers to explore insurance. Non-insurance service providers benefit from an additional revenue stream and heightened loyalty to their products. For farmers, bundling provides access to multiple services in one place, offering insurance at a cost-effective price.

Linking agriculture insurance products with risk reduction measures

11.28. Agricultural insurance products that incentivize risk reduction measures (e.g., better terms of coverage if farm practices reduce losses) and cropping mechanisms (e.g., continued access to loans and supplemental funds to farmers after a disaster) could be developed with relevant stakeholders. Insurers could partner with the institutions involved. Institutions that enhance outcomes by supporting improved agricultural production and loss prevention practices include the Pakistan Agricultural Research Council, Pakistan Meteorological Department and Pakistan Livestock Research Institute etc.

Availability of data

11.29. Access to comprehensive farmer, crop and animal data is essential for designing effective agriculture insurance products that accurately assess risks and tailor coverage to the specific needs of agricultural communities. Farmer data, including demographics, landholdings and farming practices, provides insurers with insights into the characteristics and vulnerabilities of their clientele. Crop data, such as planting dates, crop varieties and historical yields, enables insurers to evaluate production risks associated with different crops and regions. Additionally, animal data, including herd sizes, health records and breeding information, is crucial for assessing livestock-related risks and designing insurance solutions that protect against diseases, mortality and production losses. By leveraging this data, insurers can develop customized insurance products that offer adequate coverage and support to farmers, thereby promoting resilience and sustainability in agriculture.

11.30. Governments play a vital role in facilitating data collection and sharing among stakeholders. A recent project on digital and financial inclusion of farmers has been executed using the Public Land Records Authority (PLRA) data in Punjab. A similar project was being replicated for Sindh and KPK with the ADB's assistance following the World Bank's SMART (strengthening markets for agriculture and rural transformation) project in Punjab. Similarly, there is a dire need for livestock data especially related to ownership of the animals. On the point of access, users of data may pay a small fee to public institutes and secure access to all public recorded data referenced prior with due respect to data sanctity. Further, digital forms of cattle identification (already in use by some insurers) may be employed by government bodies to capture accurate data efficiently and made available for insurance purposes.

11.31. The National Disaster Risk Management Fund has engaged the Space and Upper Atmosphere Research Commission (SUPARCO) to develop a NAT CAT model of Pakistan. This NAT CAT modeling will assess disasters posed by natural hazards including hydro-meteorological (flood, drought, Tropical Cyclone) and Geo-physical (earthquake), to evaluate exposure and vulnerability of elements at risk and will quantify its financial impacts up to Tehsil (sub-district) level. The NAT CAT modeling outputs will include hazards, exposure, vulnerability and risk assessment against natural hazards (flood, drought, Tropical Cyclone and seismic) of varying frequency and magnitude on the national level. However, given the insurance sector's pivotal role as a key user, the model must align with the sector's requirements. To achieve this alignment, the input of the insurance sector should be solicited through SECP, ensuring that the insights are appropriately incorporated into the model's framework. This collaborative process not only enhances the model's relevance for the insurance sector but also strengthens the overall effectiveness of disaster risk financing initiatives.

Suggested next-step action items

11.32. Action items that have been indented for the stakeholder include the following:

Table 13. Next step actions

Sr.	Action items	Responsible parties	Timelines*
1	Engagement with the Ministry of Finance, Ministry of Commerce, Ministry of National Food Security and Research, SBP and Insurance Industry to gather feedback on the report and elaborate the suggested action items pertaining to each party.	**SECP**	**Short term**
2	A consortium or pool-based structure for crop and livestock insurance, beginning with the existing Government Crop Loan Insurance Scheme through a PPP model.	**MoF, MoC, MoNFSR, SBP, SECP, Insurance industry**	**Medium term**
3	National-level crop and livestock Insurance schemes through PPP models.	**MoF, MoC, MoNFSR, SECP**	**Long term**
4	Evaluate the potential to integrate agricultural insurance into the BISP social protection framework, considering its possible coverage and benefits.	**BISP, SECP**	**Medium term**
5	Make PPP model the basis of all government initiatives mentioned in points 2-4, with focus on subsidizing the cost of the private sector insurers under a well-thought-out plan to gradually reduce the government subsidy/ allocation and move towards a market based approach.	**MoF, MoC, MoNFSR, SBP, SECP,BISP, Insurance industry**	**Medium term**
6	Review of the issues and challenges in the CLIS, LISB and Punjab Fasal Beema scheme as identified in this report and initiate collaborative efforts involving all stakeholders to address and propose necessary changes to these schemes.	**SBP/Agriculture Department of the Punjab Government, MoF, SECP**	**Medium term**

Sr.	Action items	Responsible parties	Timelines*
7	Incorporate crop and livestock insurance into the disaster risk financing strategy of Pakistan and make necessary amendments in the NAT CAT model to cater to the needs of the insurance sector and grant access.	**NDRMF, MoF**	**Short term**
8	Include agricultural insurance in the national food security policy and facilitate the collection and distribution of essential data related to crops, livestock and farmers, to insurance companies for the development of effective insurance products.	**MoNFSR, SECP**	**Short term**
9	Encourage the development of innovative insurance products by creating a regulatory framework that promotes innovation and reduces regulatory uncertainty, particularly for parametric or index-based insurance.	**SECP, Insurance industry**	**Medium term**
10	Collaborating with international developmental organizations such as the Asian Development Bank, World Bank and UNDP for targeted actions to promote the agricultural sector in Pakistan.	**SECP, MoF, ADB, WB, UNDP**	**Short term**
11	Engagement with the Insurance companies involved in various innovative pilots on agriculture insurance to explore the opportunities for scaling these pilots.	**SECP, Salaam, TPL, Asia Insurance**	**Short term**
12	Encourage and support insurance companies in testing new and innovative insurance products within the SECP's regulatory sandbox.	**SECP, Insurance industry**	**Medium term**
13	PRCL to review its current reinsurance capacity of crop and livestock insurance and develop a strategy for its enhancement.	**PRCL, SECP**	**Short term**

*Short term – less than 6 months
Medium term – 6 months to 24 months
Long term – More than 24 months

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