

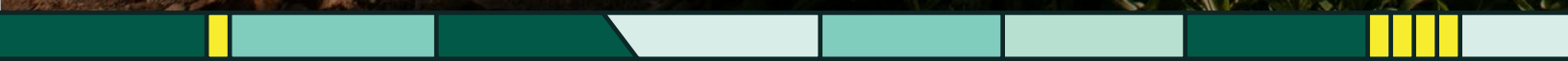
MARCH 2022



STATE OF THE SECTOR: AGRI-INSURANCE FOR SMALLHOLDER FARMERS



A GLOBAL STOCKTAKE OF AN EVOLVING INDUSTRY





FOREWORD



Economic losses due to extreme weather, climate and water events have increased sevenfold from the 1970s to the 2010s.¹ Scientists predict that these events, driven by climate change, will only become more common in the years to come—driving significant losses across many sectors of the economy. With economic damages from extreme weather estimated at more than USD 2 trillion² over the last decade, risk management tools are more necessary than ever.

Low- and middle-income countries are more vulnerable to the impacts of climate change, particularly since a large proportion of their populations depend on climate-vulnerable sectors—such as agriculture and fisheries—for their livelihoods. Agricultural insurance can be a powerful tool to reduce that vulnerability and help smallholder households adapt to climate change. Recent evidence suggests that even a 1% increase in insurance penetration reduces the disaster recovery burden on developing countries by 22%.³

However, the challenges of developing and delivering agri-insurance to smallholder farmers remain significant. Farmer understanding of insurance is typically low, products can be complex and costly to deliver, and regulatory frameworks to facilitate the insurance market are often lacking. Multi-sector collaboration, including an active government role, is needed to close the persistent insurance protection gap in these countries.

In 2018, ISF Advisors, in partnership with the Syngenta Foundation, published *Protecting Growing Prosperity: Agricultural Insurance in the Developing World*. Alongside the release of the report, more than 100 industry stakeholders convened in Basel, Switzerland to consider solutions for maximizing the uptake and impact of insurance for smallholder farming households. However, since that time, the climate crisis has rapidly escalated and the disruptive effects of the COVID-19 pandemic have shifted market dynamics for smallholder farmers. These trends necessitate a new convening and reflection process for the sector.

To that end, this State of the Sector update was commissioned by a new partnership of donors—including the Bill and Melinda Gates Foundation, Syngenta Foundation, FSD Africa, and Swiss Re Foundation—and written by ISF Advisors with support from the Microinsurance Network. The findings of this report were shared and debated in a virtual industry convening of over 130 stakeholders from the 24-27th January 2022. Key ideas and reactions from these discussions have been captured in this report, which sets out to:

- Take stock of the current state of agri-insurance for smallholder households, distilling what has changed in the sector since 2018;
- Introduce new ways of thinking about the sector in the form of four deep dives; and
- Propose a set of priority areas to guide work over the next 5 years.

We hope that this research can continue to support the insights, partnerships and investments needed to respond to the climate crisis, with smallholder farmers at the center of the action agenda.

¹ WMO, 2021

² Swiss Re (2020) sigma 2/2020: Natural catastrophes in times of economic accumulation and climate change

³ Lloyds (2018) A World at Risk: Closing the Insurance Gap

ACKNOWLEDGEMENTS

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This report was prepared by ISF Advisors and the Microinsurance Network. The underlying research and perspectives were developed jointly by Matt Shakhovskoy, Natalia Pshenichnaya, Manuel Lozano, Mark Robertson and Katharine Pulvermacher. Writing support was provided by Kristin Williams, with design and publishing support provided by Julia Toich.

ISF is a specialised advisory group committed to transforming rural economies by delivering partnerships and investment structures that promote financial inclusion for rural enterprises and smallholder farmers. Combining industry-leading research with hands-on technical expertise, ISF develops practical, profitable, and sustainable financial solutions exclusively focused on serving rural populations.

The Microinsurance Network is the global multi-stakeholder platform for professionals and organisations that are committed to making insurance inclusive. Membership-based, we bring together diverse stakeholders from across the value chain who share our vision of a world where people of all income levels are more resilient and less vulnerable to daily and catastrophic risks. We encourage peer-to-peer exchange and learning, facilitate the generation of knowledge and research, and act as advocates, promoting the role that effective risk management tools, including insurance, play in supporting the broader development agenda.



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READING GUIDE: This report provides a concise update of the state of the sector and proposed ways forward for the next 5 years. These two upfront sections can be read as a short synopsis, while the deeper dives provide more granular detail into different aspects of agri-insurance market.

THE CURRENT STATE OF THE AGRI-INSURANCE SECTOR



STARTING POINT: THE STATE OF THE SECTOR IN 2018

In 2018, ISF Advisors, in partnership with the Syngenta Foundation, published *Protecting Growing Prosperity: Agricultural Insurance in the Developing World*. This report provided a snapshot of the agri-insurance market, with a focus on low- and middle-income countries (LMIC). At the time, a global market sizing analysis found that approximately 270 million smallholder farmers required USD 80 billion in agricultural value coverage, representing an annual premium of USD 8-15 billion. **The report also highlighted a significant gap in insurance coverage, with 80% of smallholder farmers in the target countries lacking access to formal insurance.** This percentage was even higher in sub-Saharan Africa, with 97% of farmers lacking insurance coverage.

An ecosystem analysis in the 2018 report revealed consistent challenges to serving smallholder farmers at scale. These included low interest and awareness from potential customers; low capacity of local insurers; under-resourced innovators introducing index products; and limited interest from re-insurers in supporting small volumes associated with new agricultural products targeted at the smallholder market. National governments also faced barriers to developing streamlined approaches to integrating index insurance into national plans and policy, including a lack of best practices for regulating a new wave of index products.

More than 100 micro-level insurance schemes were identified as active in the market in 2018, but there were significant regional variations in the types of product design and distribution models used. These schemes were highly concentrated in certain countries, with India, Kenya, and Mexico making up over 60% of developing markets coverage. **In most cases, the cost of serving**

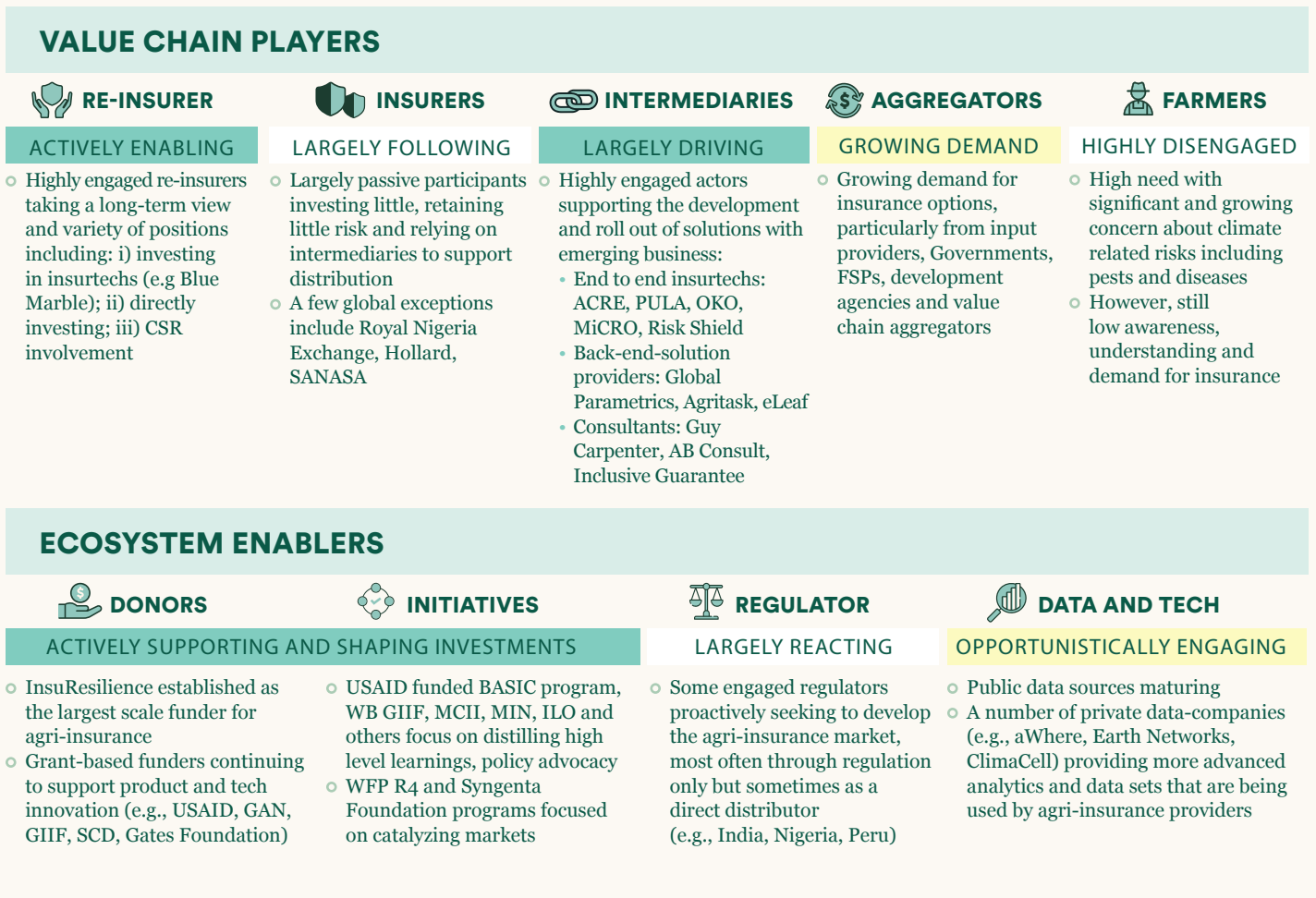
smallholder customers was a major determinant of the go-to-market strategy—with the result that index insurance was primarily distributed through pre-aggregated farmer networks, with over 90% of solutions bundled alongside other services and products. Heavy subsidisation was also identified as a significant driver of initial uptake

THE STRUCTURE OF THE MARKET TODAY

Today, the structure of the agri-insurance industry largely matches the ecosystem view established in our 2018 report. Yet deeper reflection shows how significantly the agri-insurance product market differs from traditional insurance markets. In traditional insurance markets, local insurer products respond to consumer demand for coverage. But smallholder farmers, despite their need for insurance coverage, have limited demand or ability to pay for it. At the same time, most local insurers have little interest in making the investments necessary to offer new products—in part, due to the high levels of perceived risk associated with agriculture, lack of technical skills and capacity, and the challenging economics of serving impoverished customers.

What has emerged, as seen in Figure 1, is a market driven by collaboration between re-insurers and a core set of “innovating intermediaries” that are establishing tailored insurance products delivered via various aggregators, from governments to seed companies. While local insurers are (in most cases) underwriting these insurance solutions, they are not playing a lead role in either developing or taking the products to market. Another important actor in this landscape is donors, who have played a catalysing role in market development by actively funding innovation and scale-up of solutions. In recent years, however, the donor role has shifted toward a focus on ecosystem support as maturing provider models are increasingly financed by more commercial capital.

FIGURE 1: AGRI-INSURANCE STAKEHOLDER LANDSCAPE



Looking more deeply at this market, **a select number of re-insurers are also actively engaged in building and enabling the market for agricultural insurance**—not just through underwriting the products, but also via direct investments. For example, BlueMarble was founded by a group of global re-insurers and SwissRe provided hands-on support in the set-up of insurance provider MICRO. In interviews, a number of these re-insurers noted two key drivers of their involvement: 1) important macro shifts in agricultural risk management and 2) the long-term opportunity to introduce products in this area.

Local insurers are mostly lagging behind in terms of both appetite and capacity, with a couple of notable exceptions (e.g., Hollard Mozambique, Royal Exchange Nigeria). Insur-techs are filling the gap with a variety of business models, as well as differing commercial and impact motivations. In particular, insur-techs are

stepping in to innovate around a) developing parametric products and b) using digital technology to reach and serve smallholders at scale.

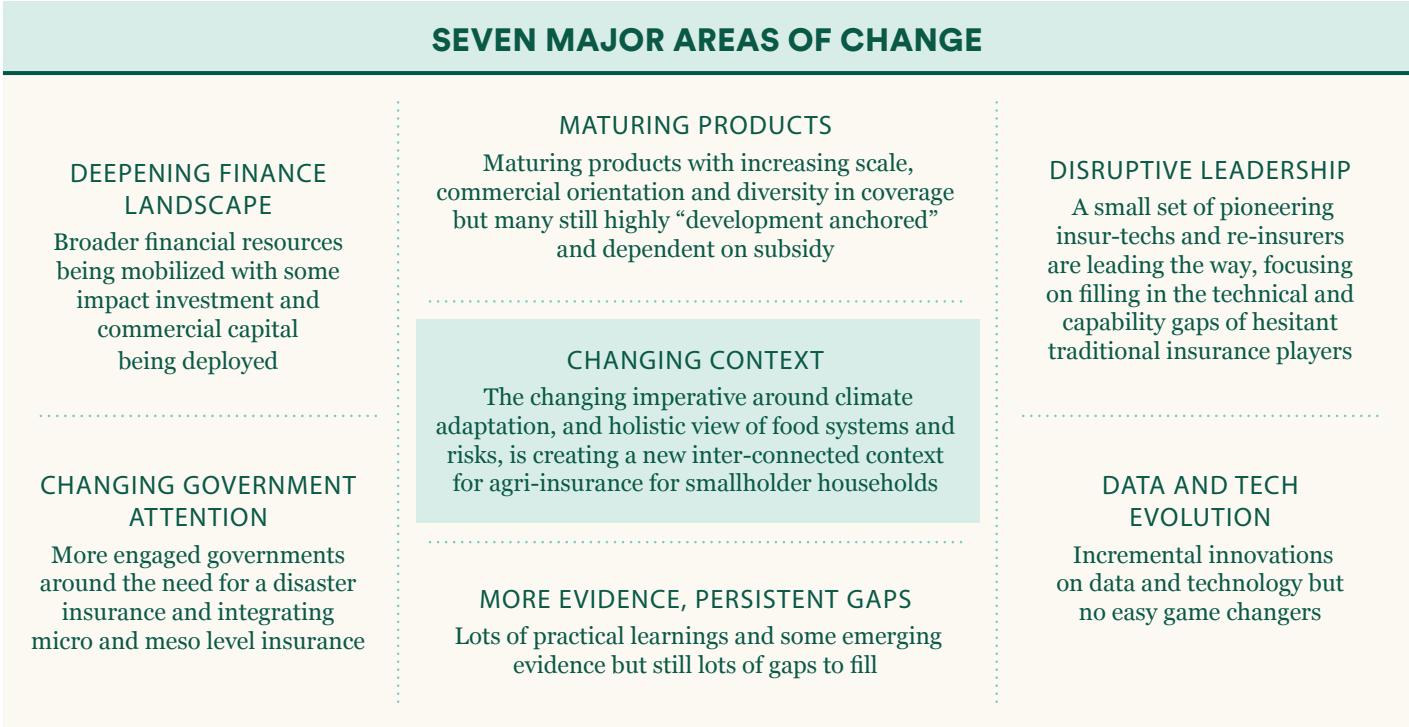
In the current market, demand for insurance is primarily driven not by farmers but by institutional and organised agricultural value chain stakeholders, especially aggregators. Governments, NGOs, commodity buyers, input providers, cooperatives, and financial service providers are incorporating insurance as a part of climate adaptation strategies and influencing the design of insurance products. Demand from different stakeholders is shaping macro- (national-level), meso- (institutional level cover), and micro-insurance, resulting in a more integrated approach to risk transfer. When it comes to individual farmer decisions, **the majority of smallholder farmers still do not see value in insurance services.** This may be due to low financial literacy and lack of understanding about the benefits of

insurance. In relation to index-based products, there is limited awareness and trust, but also high basis risk; this ultimately affects customer loyalty and retention. Finally, depending on the insurance scheme design, the price of the premium may be a significant barrier to customer uptake.

KEY DRIVERS AND AREAS OF CHANGE

As the agri-insurance market continues to evolve, our research revealed key trends that are shaping the trajectory of products, partnerships, and stakeholder roles. These trends, outlined in Figure 2, are the result of an extensive literature review and interviews with over 50 stakeholders in the agri-insurance industry.

FIGURE 2: KEY CHANGES IN THE AGRY-INSURANCE SECTOR



First, the context for agri-insurance has fundamentally changed. The sixth assessment report by the Intergovernmental Panel on Climate Change, released in 2021, articulates a virtually certain increase in global temperatures in the near- and mid-term in *all* analysed scenarios. One result will be a growing occurrence of extreme weather events unprecedented in the observational record, including heatwaves and agricultural droughts.⁴ Without measures to help farmers adapt to climate change, worst case scenario models estimate that global agricultural productivity may decrease by 17% by 2050, and by as much as 50% in Africa.⁵

In addition, COVID-19 has demonstrated: 1) rural communities’ extreme vulnerability to shocks, 2) governments’ lack of preparedness to offer social protection at scale, and 3) the volatility of global supply chains. As a result, there is now more focus on building capacity to manage risk, providing earlier and more reliable crisis response, and approaching climate risks more systematically at the farm level. **These factors have created a new context that is both stimulating demand and necessitating new thinking about the role and positioning of agri-insurance.**

⁴ <https://www.ipcc.ch/report/ar6/wg1/>

⁵ Hugh Turrall, Jacob Burke, and Jean-Marc Faurès. Climate change, Water and Food Security. FAO, (Rome: 2011)

Within this changing context, developing countries require greater access to finance to respond quickly and effectively to disasters. The overwhelming majority of interviewed stakeholders described an increase in demand from governments, as well as institutional and private sector actors. Multiple tools have emerged at a national level to enable this, including national disaster funds, contingent credit lines, and macro parametric insurance products. Regional risk facilities have also continued to expand their coverage and products. For example, the Caribbean Catastrophe Insurance Facility introduced the Caribbean Oceans and Aquaculture Sustainability Facility in 2019, and are currently developing a drought insurance product.

Private sector actors in agricultural value chains—such as input providers, commodity buyers, and financial service providers—are also increasingly turning to de-risking solutions in an attempt to climate-proof the supply chain, driving demand for meso and micro-level insurance. Financial service providers are incorporating insurance into agricultural loans—for example, mobile money loans obtained via Digifarm are insured via ACRE Africa and Pula.

Alongside this rising demand we observed a new awareness and willingness to approach climate adaptation and risk management holistically, from regional strategies all the way to farm-level practices. While some actors, such as the World Bank, have established models for determining how solutions at different levels should work together, many are still grappling with how, when, and where to use macro, meso, and micro solutions. There is also little guidance on how to more effectively integrate risk management approaches, including insurance, at the farm level.

For a deeper exploration of this changing context and the positioning of agri-insurance please refer to Deep Dive 1

Encouragingly, agri-insurance products are gradually becoming more sophisticated, especially in terms of quality and the range of covered risks and events. Most providers still focus on improving the accuracy of entry-level input

cover for smallholders and experimenting with novel indices and technologies for more accurate assessments (e.g., Global Parametrics have developed a novel ‘Water Balance Index’ based on evapotranspiration data). But a few intermediaries and insurance providers are working toward models that could increase the level of coverage for the farmer, with notable examples of OKO and BlueMarble. One key bottleneck for increasing the level of farmer coverage is high premiums—an issue that can only be solved by partial cost-share with other stakeholders, such as government or value chain players with dedicated funds for reinvesting into farmer communities. This can be seen in the example of Fair Trade funding, where a higher price is paid by end consumers.

Intermediaries, mostly insur-tech companies, are driving most of this innovation. Few are attempting to control the market end-to-end, as this is costly and time consuming. Still, a handful of players like Pula, OKO, and ACRE are not only developing an index product, but also actively building distribution models, offering customer support, working with the local insurer on a revenue-share basis, and capturing a percentage of the premium. Very few providers are pursuing this model, which requires significant on-the-ground operations, negotiations capacity, and patient capital. The upside of this expensive operation is closer links and feedback loops with farmers, as well as significant learnings about operational realities that inform faster iterations and product improvements.

Other insur-tech companies carve out a more niche role at the back-end technology level, offering data, index, models, and software for running an index to local insurers or aggregators. In turn, these players decide on pricing and customer experience, and then distribute policies through their relevant channels. Since 2018, more players have entered the ‘back-end’ segment of insur-tech suppliers. Regardless of their approach, insur-tech companies tend to also support local partners with re-insurance through their network, reducing their product’s time to market.

For a deeper exploration of intermediaries, product design, and distribution approaches please refer to Deep Dive 2

Access to more mature data and technology is a key enabler driving advances in product design and business models. Increased availability of global datasets, such as satellite-based observations, and remote sensing of environmental parameters has enabled the proliferation of base technology and back-end solutions in the sector. This, in turn, has given rise to new indices, such as the evapotranspiration index, and contributed to improved product accuracy. Moreover, multiple sources of satellite observations with sufficient granularity are now available to the industry free of charge (e.g., insur-tech OKO is using publicly available data from the geostationary MeteoSat satellites).

At the same time, there are still significant gaps. The lack of reliable ground-level weather observations remains a major hindrance for the development of insurance in LMIC. In sub-Saharan Africa, weather station coverage is eight times lower than the minimum level recommended by the World Meteorological Organization (WMO). While ground-level weather data is more reliable than remote sensing sources, there are still very few initiatives for scaling up Automated Weather Stations (AWS). One remarkable example is a recent investment into SkyMet by InsuResilience Investment Fund. Additionally, the lack of quality data on agricultural yields limits the advancement of insurance products, with few notable examples of initiatives working to address this challenge (e.g. NASA Harvest EO-FARM project).

While there is continuous experimentation with new technologies—such as AI, blockchain, and drones—to increase the quality or reduce the costs of product delivery, these have not yet fundamentally changed agri-insurance business or delivery models.

For a deeper exploration of product design and distribution approaches please refer to Deep Dive 3

Local governments in LMIC are increasingly adopting holistic strategies to support climate adaptation of smallholder farmers and the wider agricultural sector. This includes policies to build resilience against shocks and foster financial inclusion—with insurance being one of many tools. Governments that are actively involved in supporting the agri-insurance sector often play a mix of three roles: regulator, enabler, and/or distributor. One notable difference since 2018 has been that governments are now playing a more active role in the sector, often driving demand as a distributor/aggregator and entering private sector partnerships.

Governments across LMIC are also now developing more proactive regulatory approaches to index insurance—often spurred by requests from the private sector to allow index products or provide clarity around licensing. Emerging government approaches include: regulatory sandbox (as in Kenya); approval of specific index products for distribution (as in Uganda); and/or clearer overall laws and regulation. Despite these advances, there is still a need for clear best practices in index insurance regulation, as well as for government capacity building. One model could be the World Food Programme’s work with the government of Senegal to drive a cross-ministerial working group on index insurance.

For a deeper exploration of the role of governments please refer to Deep Dive 4

Alongside these changes, the financial landscape supporting the agricultural insurance sector is also growing. In 2018, the agri-insurance market was predominantly donor-funded; now it is starting to attract a wider range of capital and financial instruments. Key catalytic grant funders—such as GiZ, the Syngenta Foundation, Swiss Capacity Building Facility, the Swiss Agency for Development and Cooperation, USAID, and World Bank—have continued to support the nascent market as broader types of financing solutions have

6 Protecting-low-income communities through climate insurance, 2020 IIF

7 <https://www.insuresilience-solutions-fund.org/press>

emerged. Under the umbrella of the InsuResilience' Global Partnership, InsuResilience Investment Fund (which has, to date, invested USD 133 million out of an allocated USD 230 million⁶) and Solution Fund (allocation of EUR 15 million⁷) are a key part of this evolution, mobilising blended capital to create a strong ladder of finance for the sector. Many intermediaries are now also accessing more commercial seed funding (e.g., seed round closed by OKO) and venture capital funding (e.g., series A round raised by Pula) as their business models mature.

Finally, the sector is rapidly learning and building evidence at both the programmatic and industry levels. Donor and multilateral funding has enabled a significant base of lessons learned that are available in the public domain. A number of insurance-focused programmes—including by World Food Programme, MercyCorps AgriFin, and Global Index Insurance Facility—are iterating their approaches and providing lessons from portfolio deployments as they learn. More evidence is also available related to the impact of insurance, with a few players providing a critical supply of scientifically sound data for decision making; these players include University of California-Davis, the Agricultural Insurance Evidence Programme, and Columbia University's International Research Institute for Climate and Society. In particular, there have been new insights into the factors that promote the uptake of insurance, which have been picked up by private sector actors designing market strategies. For example, Pula is working with aggregators to pre-finance premiums to increase insurance uptake. New evidence around outcomes and impacts on smallholder families—such as reduced vulnerability to climate change and achieving 'Resilience+'⁸—is important for further public and private sector investments. The InsuResilience Working Group on Impact has been set up to streamline social impact metrics and standards across the industry, and to enhance the quality and availability of global evidence around agricultural insurance for smallholder farmers.

IN SUMMARY

Overall, the agri-insurance market in 2021 is one which is **maturing to be able to support more efficient scaling of products** within a wider variety of contexts, product bundles, and partnerships models. At the same time, it's operating in a changing macro environment that is challenging practitioners to **think more holistically about managing risks at different levels** (macro, meso, and micro) and through more integrated approaches and tools. Stakeholders are continuing to work on solving the **fundamental challenges of efficiently and effectively delivering insurance to smallholder farmers**—utilizing everything from regulations to data to new systems and models. Finally, the market is contending with **how to wisely deploy scarce subsidy** to meet multiple objectives, including maximising short-term risk coverage for the most vulnerable while building sustainable markets over the long term.

This picture of the agri-insurance market is encouraging. Since our last analysis in 2018, there has been genuine progress and indications of a maturity that is reflected in the scale, impact, and sustainability of some services. However, the market continues to grapple with the implications of dramatically worsening climate-related risks. In the remainder of this report, we will take four deep dives into salient issues that will help further shape a shared understanding of opportunities and challenges in the agri-insurance market.

8 <https://basis.ucdavis.edu/publication/evidence-insight-generating-resilience-reduce-poverty-and-spur-agricultural-growth>

CHARTING THE COURSE FOR THE NEXT FIVE YEARS



This report illustrates just how complex and multi-dimensional the “agri-insurance sector” is at a global level. In January 2022, key industry stakeholders participated in a series of six workshops to explore the themes of this report. Drawing on these discussions, we identified key positioning principles, areas of opportunity, and priority actions important for the industry over the next 3-5 years. We acknowledge that this synthesized view does not represent the views of all stakeholders in the industry. However, we hope that the combination of broad research for this report and the detailed stakeholder conversations at the January 2022 convening has captured a critical mass of viewpoints from which to distill a useful snapshot of the ongoing evolution of agri-insurance for smallholder farmers.

A (RE-)POSITIONING OF AGRICULTURE INSURANCE FOR SMALLHOLDER FARMERS

Expert stakeholders affirmed that agri-insurance for smallholder farmers has moved from a narrow set of index products to a much broader set of solutions, including hybrid solutions that blend index and traditional products. Following COP26, experts from across the sector expressed a new feeling of urgency to scale up agri-insurance solutions to cover more smallholder farmers and more risks. However, stakeholders also identified a need to **re-position agri-insurance to be more closely aligned and integrated with:**

- **More integrated approaches to farm-level resilience and adaptation** that strategically “bundle” or align insurance with other necessary products, services and risk management approaches, presenting a strong value proposition to value chain players;
- **The interests and operations of major agri-food companies** that are deepening their engagement with smallholder farmers; and

- **The broader landscape of dialogue, partnerships, digital and data innovation and funding** emerging around climate change, smallholder farmer resilience, ESG investments, and disaster insurance.

Some of this re-positioning is already underway as key actors and major initiatives have built forward-looking agendas based on these principles. However, many industry stakeholders emphasized the need to drive this re-positioning more quickly to keep up with the increasing severity of the climate crisis and unlock necessary resources.

KEY AREAS OF OPPORTUNITY AND PRIORITY IDEAS TO TAKE FORWARD

Many needs, constraints, and opportunities were discussed in the January 2022 industry convening. From these discussions, **four key opportunity areas and priority ideas for action are detailed below, with a focus on those that represent a substantive shift from the current focus of the industry.**

OPPORTUNITY AREA 1: Building momentum for government-led approaches that include smart uses of subsidy, an involved private sector, and the resources to scale. Stakeholders emphasized the critical role of governments (including local government) in anchoring long-term agri-insurance markets. While this report has highlighted the disruptive role of a small number of agri-tech intermediaries in developing new solutions and distribution approaches (alongside banks, input companies, and aggregators), there is a growing belief that governments must be more involved in order to achieve long-term scale. Discussions on the role of government centered on its critical role in establishing the right regulatory environment, space for innovation and strategic connections between the macro-, meso-, and micro-level management of risks. However, against

the backdrop of agri-insurance markets that are heavily supported by governments in more developed countries, the opportunity relies on a combination of *committed* governments, *smart* uses of subsidies, and an *involved* private sector.

Priority ideas aligned with this opportunity area include:

- **More Government-anchored insurance programs** that establish multistakeholder approaches to scaling agri-insurance at the country level to suit the local context and needs. Whilst the private sector has an important role to play in delivering many insurance products, stakeholders across the sector emphasized the need to have governments at the center of the design, and often the long term funding, of these solutions.
- **More sophisticated approaches to risk layering and smart use of subsidies** across the macro, meso, and micro levels. With catastrophic events increasing in frequency and severity, new approaches and blueprints for managing risks between and across levels will be a key area of ongoing work for governments, the V20 countries, and collaboration platforms such as the InsuResilience Global Partnership, UNDP Insurance and Risk Finance Facility (IRFF), World Bank GRIIF, Syngenta Foundation, and Africa Risk Capacity program.
- **More research and evidence-based policy guidance** around the use of premium subsidies, sandboxes, adaptive regulation, and approaches to scaling agricultural insurance through government programs. While some progress has been made over the past 3-5 years by organizations such as the ILO, UC Davis, Walker Institute, World Bank, and InsuResilience Global Partnership in establishing an evidence base to guide policy, more is needed.

OPPORTUNITY AREA 2: Focusing new innovation on how to cost efficiently and effectively reach smallholder farmers at scale Innovation funding for agri-insurance has necessarily been focused on product-level innovation for over a decade. Industry stakeholders emphasized that the fundamentals of many products in the market now work, but innovation is now needed

around bridging the last mile. The construction of scalable, low-cost channels (including meso-level cover) that can simultaneously manage payments and quality may require non-traditional actors and approaches. Priority ideas aligned with this opportunity include:

- **Deepening human-centered design and behavioral research** to continue to reveal the needs of smallholder farmers in more detail, including important gender considerations. Conducting this research is often beyond the resources of individual providers, who default to agile product development and refinement approaches based on customer feedback. Organizations such as 60 Decibels, Dalberg Design, IDEO, and the Busara Center can continue to deepen farm-level insights that the industry can use to refine products, bundles, and distribution approaches;
- **Establishing unconventional partnerships for distribution** including diverse field forces, energy networks, PAYGO companies, aggregators of aggregators, and shared agent networks. As with much of the product innovation over the past decade, intermediaries and innovation-focused donors will likely play a key role in identifying and testing these new approaches.
- **Establishing links with products across service providers** beyond agri-insurance to integrate advisory, access to inputs, and facilitated market access in service bundles (or aligned menus) that can share product distribution costs, enable farmers to reduce production risk, and, increase the value of individual services. Given the highly localized nature of agricultural needs and the services ecosystem, these breakthroughs will likely need to come from partnerships at the national and even sub-national level that focus on specific value chains, agro-climatic zones, and farming communities.
- **Leveraging new payment infrastructure and technologies** to speed up claims payments and reduce friction. With an explosion of fin-tech investments in emerging markets over the last three years, there is an opportunity to go beyond traditional mobile money integrations to explore other payment and smart contracting technologies.

OPPORTUNITY AREA 3: Establishing the next set of critical public good “scale enablers” to help break through the required cost and quality thresholds for delivery and impact at scale.

Relative to other forms of microinsurance, agri-insurance is a very difficult product to cost-efficiently and sustainably deliver with low basis risk. This reality requires the industry to think carefully about what public good investments can best create the shared infrastructure needed to deliver impact at scale. Industry practitioners emphasized the ongoing need for public and philanthropic resources to establish a number of shared enablers focused on:

- **Establishing more open data hubs and data-sharing standards** that enable proprietary data to be confidentially aggregated alongside public datasets for use by insurance providers. Important first steps have been made in this direction through the CGIAR big data platform, KALRO data hub in Kenya, AgriStack in India, and the Global Open Data for Agriculture and Nutrition (GODAN) initiative. However, much more needs to be done to establish the infrastructure, governance, and technical data management approaches to realize the promise of open data hubs, including how to ensure different initiatives complement and build on each other over time.;
- **Cracking the nut on collecting quality ground truthing data** cheaply and at scale. One of the most critical enablers for agri-insurance (and climate planning overall) is collecting and analyzing hyper-localized data. Ongoing experiments with drones, remote sensors, weather stations, crowd-sourced photos, and high resolution satellite imagery continue to show promise. Innovations in this area, including the application of AI analytics, should continue to be a priority for donors working on the climate adaptation challenge; and
- **Continuing to improve independently managed quality standards and norms** for agri-insurance products. Building on work by UC Davis, more development is needed to establish and mainstream independent rating tools for agri-insurance indexes and products in a way that aligns with public policy and public sector standards and regtech (technology for regulatory purposes).

OPPORTUNITY AREA 4: Establishing the right global, regional, and national platforms to drive coordination, collaboration, learning, and co-investment across silos and global agendas.

Stakeholders across the agri-insurance ecosystem described a need to move beyond the siloed piloting phase of the industry lifecycle to a more transparent, coordinated, and “leveraged” approach. More global and regional infrastructure has emerged (or matured) in the past 3-5 years to help make this transition (e.g., InsuResilience Global Partnership, UN IRFF, Microinsurance Network, WFP R4 program, Africa Risk Capacity, and a range of other regional or national initiatives). However, practitioners highlighted the potential for:

- **A more effective global knowledge hub** to capture, curate, and disseminate best practice, lessons, and evidence related to scaling agri-insurance across an increasingly complex set of agendas;
- **A pre-competitive co-creation forum** for many of the leading agri-techs, insurance companies, and programs to co-create solutions through sharing knowledge and ideas as well as representing the ongoing challenges of the sector to get to sustainable scale; and
- **More donor collaboration** through existing (or new) fora to create more coordinated and leveraged investments across agendas including climate adaptation, gender, livelihood development and disaster risk management.

As was mentioned above, these opportunity areas and ideas do not set out to be exhaustive. Rather, they represent a point-in-time industry perspective on how to guide the ongoing development of agri-insurance as a product market that now exists within a rapidly evolving set of climate-related agendas. As with all complex markets and systems, there is no way to “super-plan” how things evolve from this point. However, we hope that these opportunity areas can help industry players and other interested stakeholders take the next set of critical steps in realizing the potential of formal risk management solutions for smallholder farmers.



DEEPER DIVE 1: RETHINKING PRODUCT POSITIONING



THE 2018 STARTING POINT

In 2018, agri-insurance for smallholder farmers was primarily seen as a standalone product. While there was strong awareness of the impact that agri-insurance could have on smallholder resilience and financial inclusion, most stakeholders were still focused on improving product accuracy, efficiency, and scale. Our report at the time presented recommendations for how to make micro and meso insurance more successful as a long-term market solution.

NEW INSIGHTS, TRENDS, AND WAYS OF THINKING

As described earlier in this report, the context for agri-insurance has changed over the last few years—and with it has changed the perspective of sector stakeholders on the role and positioning of these products. Rather than considering agri-insurance a purely standalone solution, most stakeholders interviewed for this report were considering how insurance should be used alongside other tools and approaches. They are also increasingly positioning agri-insurance within emerging climate adaptation and resilience responses at national and international levels.

While our report reflects this new “systems view” of agri-insurance, two key questions remain: 1) how should micro- and meso-level agri-insurance work with macro-insurance and sovereign risk transfer solutions? and 2) how can more integrated approaches to farm-level risk management and risk transfer be developed and scaled?

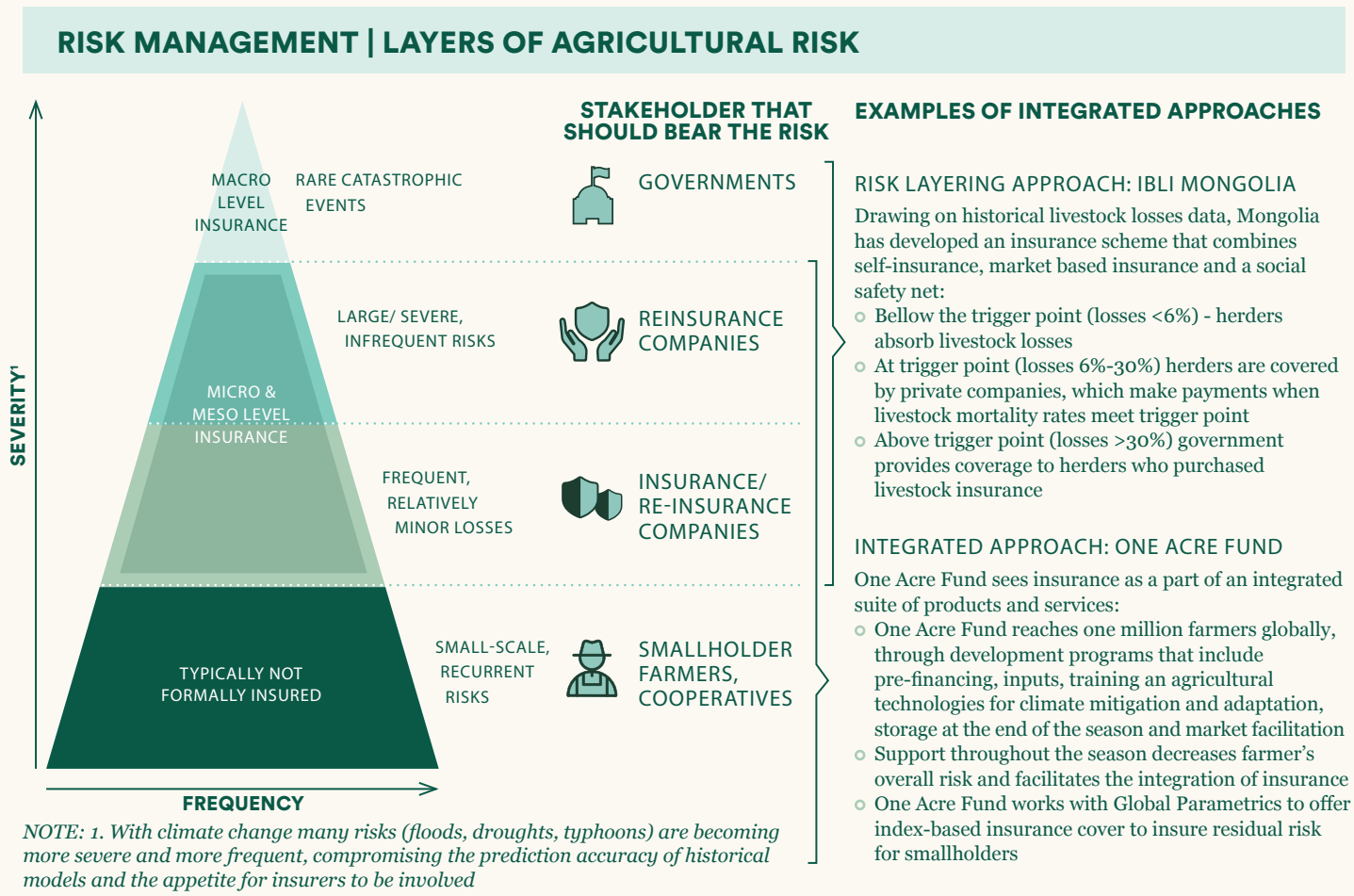
IMPORTANCE OF SOVEREIGN RISK TRANSFER AND MACRO-LEVEL INSURANCE

In instances of sovereign risk financing for relief and recovery following natural disasters, governments act as the ultimate risk aggregator. This financing can involve both single- and multi-country approaches to insurance. Once an insurer payout is triggered, the public entity can use the funds for a variety of purposes, such as maintaining government services, providing assistance to affected populations, and ensuring the stability of public budgets. In some cases, these payouts can be channeled to the population through existing social protection programmes and be distributed through pre-determined contingency plans.⁹

Ultimately, the use of financial risk transfer at the macro level should free resources for disaster risk reduction, climate adaptation strategies, and other government investments in monitoring and preparedness. Parametric insurance products are used to improve the efficiency of multi-country risk pooling. Some prominent examples of multi-country and/or regional catastrophe insurance schemes are the Caribbean Catastrophe Risk Insurance Facility and Africa Risk Capacity, both of which are still evolving the number and diversity of services and products offered to members.

Given the growing frequency of extreme climate events, the validity of historical weather models is questionable—and it may not be feasible in the future for private sector insurers to absorb ever-increasing climate risk by itself at the micro and meso levels. Thus, there is a greater need for public-private cooperation in risk management, with governments playing the role of re-insurer. In this role, governments can offer a credit guarantee and/or step in to cover a catastrophic risk layer while utilising a range of tools, such as contingent funds, government reserves, and insurance, including multi-country risk-pooling arrangements.

FIGURE 3: RISK LAYERS AND THE POSITIONING OF MICRO AND MESO LEVEL INSURANCE



Most stakeholders interviewed for this report agreed that, in many contexts, farmers across LMIC may be too poor and vulnerable to afford insurance. In these cases, governments can consider a macro-level insurance arrangement in which the region or state is the actual owner of the insurance policy, while smallholders are the beneficiaries of the payouts triggered following a disaster. Examples of such schemes are FOGASA-SAC in Peru and CADENA in Mexico.

RISK LAYERING

Strategic risk layering involves gaining a comprehensive view of the different risks faced by the agricultural sector, categorizing them into different tiers (based on frequency, magnitude, and level of loss), and choosing the correct combination of strategies and instruments that allow

each tier to be addressed in an efficient and cost-effective manner. **Unfortunately, however, few countries are following a risk layering approach.**

When the catastrophic risk layer is actively managed by the government, it encourages investments and participation by the private sector. Using historical census data, Mongolia has developed an insurance scheme that combines self-insurance, market-based insurance, and a social safety net. Below the trigger point (losses <6%) herders absorb livestock losses; at trigger point (losses 6%-30%) herders are covered by private insurance companies; above trigger point (losses >30%) government provides coverage to herders who purchased livestock insurance. Additionally, insurance is bundled with education on farming practices to prevent further land degradation by herders and ensure better climate adaptation and mitigation.

BUNDLING FOR REDUCED RISK AT MICRO AND MESO LEVEL

Over the past 15 years a number of bundling approaches have been developed for micro and meso level insurance. Successful bundling strategies for risk reduction include: a) contract farming bundled with insurance and weather forecasts (e.g., PepsiCo India and ICICI Lombard); b) credit linked with insurance, which results in higher loan uptake and improved lenders' ability to serve the smallholder segment (e.g., loans for livestock obtained via a network of participating banks in Mongolia and insured by Re JSC); and c) drought-resistant inputs bundled with insurance for increased resilience (e.g., CIMMYT project; Phoenix Seed Co and Hollard Mozambique product offer).

However, holistically improving the climate resilience of rural households requires simultaneously strengthening assets, incentivizing investments, and promoting effective risk management practices alongside insurance. **The majority of stakeholders interviewed for this report agreed that agri-insurance should be viewed as one of many components of climate risk-management strategies, beyond the scope of narrow bundles.** Farmers also need access to basic infrastructure, climate-smart advisory, and a range of financing instruments, to name a few. In this regard, beyond being a successful distribution strategy, bundling could create a higher overall value for the farmer. Within a comprehensive risk-management approach, insurance acts as a residual risk transfer tool. This should ultimately make insurance more affordable and result in increased adoption. Moreover, as has been demonstrated in Nigeria, with improved farming practices comes an increased appetite from the private sector to serve smallholder farmers, which in turn drives market demand for meso-level insurance¹⁰ and a more diverse set of risk management and transfer tools.

As insurance players (in partnership with other value chain stakeholders) are transitioning toward a package of products and services for farmers, there is potentially a win-win scenario where risks are reduced for all parties.

KEY INDUSTRY CONSIDERATIONS

Given the trends and approaches detailed above, the agri-insurance industry should consider further action and innovation along the following lines:

- **Coordination models:** An unprecedented level of coordination and cooperation is required to align the roles of international risk pools, local governments, and the private sector in managing climate risks through macro-, meso-, and micro-level insurance schemes.
 - *Key question: What new models and approaches for industry coordination need to be developed?*
- **Risk layering approaches:** Catastrophic risk is a principal design challenge for national strategies; if not properly managed, it can cause divestment of private sector companies. There are very few examples of best practice in risk layering, demonstrating the need to promote this approach, including through capacity building.
 - *Key question: What approaches to risk layering should be further developed and codified for use across a broader range of country contexts?*
- **Deeper integration and more extensive bundling:** There is an increasing need for prevention and risk management approaches to converge around farmer segments and needs. This integration should ideally happen at all levels (e.g., through government policies, service providers portfolio, farm management practices, and farmer education on climate mitigation and adaptation) and result in more holistic bundling of support measures, with insurance dealing with residual risk.
 - *Key question: Where can more holistic bundles of support be developed for different smallholder farming segments, including insurance?*

¹⁰ InsuResilience, 2020

DEEPER DIVE 2: A NEW VIEW ON SOLUTIONS, BUNDLING, AND INTERMEDIARY BUSINESS MODELS



THE 2018 STARTING POINT

In 2018, the agricultural insurance sector considered products mostly in terms of the index used, the specific agricultural value chain, and the type of data used for the loss assessments (e.g., AWS, satellite imagery, etc.). In our previous report, we identified an intensified transition from indemnity to parametric products, especially in markets without strong public welfare systems. The most commonly used indices were weather index, area yield index, and normalized difference vegetation index (NDVI). We also identified product gaps related to revenue cover and meso-level cover for organisations serving smallholder farmers, as well as the challenge of high costs associated with providing microinsurance directly to farmers.

NEW INSIGHTS, TRENDS, AND WAYS OF THINKING

Since 2018 there have been significant advancements in the diversity of indices used to support agri-insurance products and in the sophistication of prediction models. There are now a number of indices that are scientifically tested and recommended for use by public entities, such as Relative Evapotranspiration (RE) and Cold Cloud Duration (CCD) indices developed with funding from the Government of Netherlands and the Standardised Precipitation-Evapotranspiration Index (SPEI) recommended by WMO. At the same time, commercial providers continue to innovate and develop their own in-house indices, sometimes derived from the publicly recommended ones. This proliferation of indices has sparked a need for independent quality assurance. Governments and independent institutions are beginning to assume this function; for example, University of California-Davis is working on Quality Index Insurance certification (QUIIC) to offer voluntary quality certification for index insurance products.

Overall, there is movement away from a single weather index toward more reliable, tailored indices that can address issues of basis risk and overall accuracy. To name a couple of examples: eLeaf is using the WMO-recommended evapotranspiration index, while Global Parametrics is using an in-house water retention index. Both players have made a conscious decision to move away from narrow precipitation parameters or NDVI while still providing cover for farmers against weather-related events.

At the same time, new technologies, data sources, and indices are being tested and mixed to improve overall insurance modelling and monitoring. Insurance models are increasingly utilizing triangulated data, including remote weather sensing, satellite imagery, on-the-ground weather data, crowdsourced data, and imagery. Providers are also using a combination of indices for a single product. For example, ACRE Africa is combining a weather index with area yield, picture-based, and soil moisture indices to increase the accuracy of replanting guarantee insurance cover.

A NEW PRODUCT SEGMENTATION

With these advances in the design and use of indices we believe it is time for the sector to move from defining insurance products solely by the selected index used to a more informed understanding of the product offering and how it relates to farmer realities—in particular, the types of risks covered and the insured amount (Figure 4).

Applying these primary dimensions to understand different types of products in the market (Figure 5 below) reveals a product map that is heavily skewed toward “entry level” input cover for smallholder farmers.

FIGURE 4: DEFINING ASPECTS OF INSURANCE

PROPOSED PRODUCT TAXONOMY APPROACH			
TYPE OF PRODUCT DISTINCTIONS (WHAT)		PRODUCT DESIGN APPROACHES (HOW)	
1. TYPE OF COVER	2. RISKS COVERED	3. ASSESSMENT USED	4. DISTRIBUTION APPROACH
DESCRIBES THE TYPE OF COVER FROM THE CLIENT PERSPECTIVE	DESCRIBES THE SPECIFIC RISKS COVERED	DESCRIBES THE APPROACH TO ASSESSING CLAIMS (INDEX)	DESCRIBES THE DISTRIBUTION MODEL USED
CAR INSURANCE EXAMPLE			
Allianz motor accident cover	Motor vehicle accident	Third party assessment	Brokers and direct retail

FIGURE 5: A NEW APPROACH TO PRODUCT SEGMENTATION

AGRI-INSURANCE PRODUCT MAP FOR SMALLHOLDER FARMERS								
		RISKS COVERED					OTHER...	
		DROUGHT/TEMP	EXTREME PRECIPITATION	TYPHOON/CYCLONE	PESTS AND DISEASES	PRICE VOLATILITY		
TYPES OF COVER COVER VALUE, COST AND COMPLEXITY ↓	LOWER	INPUT COVER (Cost of seed/fertilizer)	Seedco/ACRE; Kenya (P: Rainfall)			N/A	<i>Many other events may be covered in addition to the major categories depicted here</i>	
			Pula input subsidy scheme; Nigeria (P: Area Yield)			N/A		
		PRODUCTION EVENT COVER (Cost of alternatives, e.g. animal fodder)	Pula IBLI Kenya (P: NDVI)	MiCRO catastrophic event protection; Latin America (P: weather)				N/A
		LABOR COVER (Cost of labor)	PepsiCo India (P: humidity and temperature)			Risk Shield trial (P: area yield index + price)		
		REVENUE PROTECTION (Revenue below expected threshold)	OKO revenue protection; Mali (P: Rainfall)	Vision Fund (P: Portfolio default rate; Yield index)				Value chain contract alternatives (e.g. floor prices)
	HIGHER	ASSET PROTECTION (Livestock death)	IBLI Mongolia (P: Regional livestock mortality rates)			N/A		
		MANY EXAMPLES	SOME EXAMPLES	FEW EXAMPLES	P: KEY PARAMETER			

As illustrated, many providers are gradually expanding the **range of risks that are covered** by a single policy and improving the accuracy of remote assessments, while keeping the amount of cover relatively low (e.g., cost of a seed package). In refining covers, most providers work first with “primary risks.” Primary risks differ by geography: for example, drought is the main risk in Africa, while typhoons are a major risk in the Pacific. Providers gradually include secondary risks, improving accuracy over time with different risk modelling, index, and validation approaches. Of note is that area yield indices have gained momentum, as they are perceived to cover a larger number of risks throughout the farmer production cycle.

At the same time, few insurance providers are working toward models that increase the **level of cover** for the farmer (and consequently the value of insurance). While OKO is using satellite data only, without in-field crop cutting, they are offering cover for 80% of the revenue the farmer would generate in a good scenario. Blue Marble’s project with Nespresso in Colombia was able to evolve the product to more holistic cover based on feedback from farmers; this project is now covering cost of inputs, labour costs, and a margin of projected revenue. While very few insurance products have attempted to cover the risk of price fluctuation, there is an existing alternative insurance mechanism via a guaranteed minimum price set in the farmer-buyer contract.

KEY INDUSTRY CONSIDERATIONS

Given the trends and approaches detailed above, the agri-insurance industry should consider further action and innovation along the following lines:

- **Revisiting the innovation frontier:** As core technologies and approaches have matured to support entry-level insurance products, there is an opportunity to invest in the next frontier of product ideas and approaches to increase value, levels of cover, and efficiency of delivery. Many ideas came up in our research, including: integrating macro-level policies with meso/micro-level policies; deferring premium payments to the end of the season; exploring index-linked savings and credit products alongside insurance; using derivative alternatives; and more comprehensively bundling value chain development approaches. Based on global learnings, we believe the time is ripe to collectively revisit these ideas and opportunities, bringing to bear the full weight of collective industry knowledge that has been developed over the past decade of experimentation.
 - *Key question: What new product and distribution innovations should be prioritised next to continue to push the innovation frontier?*
- **Managing complexity:** With the increased complexity of technology there is a gap in decision makers’ capacity to differentiate between back-end technology, assessments, actual cover, and its value for smallholder farmers. Without certification, standards, or a common framework for quality assurance, the ecosystem challenges are likely to remain.
 - *Key question: What new models and industry-shared lexicon is needed to continue to keep complex, technology driven advances accessible and broadly understood (particularly for regulators)?*
 - *Key question: What sectors and initiatives should inform the roadmap to certification in index insurance and how best to support this effort without creating a multitude of certification standards?*
- **Client centric products and approaches:** Few players are adopting holistic approaches to overall risk reduction, starting from understanding farmer realities on the ground. Thus, there is an opportunity to streamline best practice. For example, One Acre Fund offers pre-financing, inputs, training on climate mitigation and adaptation, storage, and market facilitation, which decreases farmers’ overall risk while insurance plays a role of residual risk transfer. In addition, defining products by index as opposed to cover contributes to the lack of transparency from the farmer’s perspective, requiring further consideration around the service design in line with responsibility towards the consumer.
 - *Key question: How can human-centered design and a more specific understanding of farmer needs continue to drive product design and innovation?*

- **Premium constraints:** High premiums are a key barrier to increasing the level of insurance coverage for smallholder farmers. Solving this will likely require at least partial cost-share with other stakeholders, such as government or value chain players with dedicated funds for reinvesting into farmer communities. As the scale challenge continues to evolve, the industry needs to continue to grapple with when, where, how, and most importantly why subsidies are applied.

- *Key question: What new forms of capital are needed to continue to support the right blend of insurance at the macro, meso and micro levels and facilitate further crowding-in from the private sector, while absorbing a certain rate of failure?*



DEEPER DIVE 3: REFINING A VIEW ON THE ROLE OF TECHNOLOGY AND DATA



THE 2018 STARTING POINT

In 2018, the role of technology and data was mostly to enable the transition from traditional to index-based insurance. In the decade prior, technology allowed insurance providers to reduce the cost of serving rural customers by replacing in-person registration and farm assessment with digital channels and automated loss assessment models. In addition, with the increasing availability of global datasets on multiple environmental parameters, it became possible to create predictive environmental models for entire regions and countries at a granular level. While much was made of the potential for new technologies—such as AI, blockchain, drones, and remote sensors—to reduce the cost and complexity of operations, few examples were found at any real scale at the time.

NEW INSIGHTS, TRENDS, AND WAYS OF THINKING

Since 2018, new datasets and indices have improved the accuracy of prediction models, increased quality and/or reduced the cost of assessments, enhanced the ability to accurately profile customers, and reduced overall basis risk. **At the same time, the insurance value chain has evolved to include a number of steps requiring specialised data, technological capabilities, and use of digital channels to reach customers at scale.**

As depicted in Figure 6 below, the creation of an index insurance model requires historical data, such as a range of weather and environmental parameters, as well as data on yields and pest/disease outbreaks (Step 1.A.). Analytical and data processing capabilities are needed to develop predictions around the future behaviour of key parameters and the probability of various scenarios, including catastrophic events (Step 1.B.). While there are off-the-shelf indices that can be customised and validated

for each market context, some players are developing their own or combining multiple indices (Step 1.C). Defining the triggers and payout logic for different agro-climatic zones and value chains is essential to pricing the insurance policy. For the index-based product to be operational (Step 2) requires a continuous assessment of key parameters, which involves data collection and analysis (2.A.). This step will vary in frequency and may require crop cutting (e.g., for area yield index), data crowdsourcing (IBISA networks model), or automated near-real-time analysis of environmental parameters, coming from a single or a mix of sources.

CONTINUED AREAS OF INNOVATION

Figure 6 also shows the data, technology, and capabilities needed at each step of the insurance value chain and reveals areas of continued innovation. Various types of remote sensing and remote data collection, including via drones, are being used to collect historical (1A) and real-time data (2A) to complement and strengthen traditional data sources. The Internet of Things (IoT) supports data collection, primarily around weather parameters. It is also used for collecting ground-truth data, including soil conditions. Innovation in IoT is mostly led by established weather data providers.

Artificial Intelligence (AI), meanwhile, supports predictive capabilities (1B and 2A) necessary for accurate modeling of events. AI has also been used to improve accuracy of farmer profiling (3B) and to enhance customer support (3D). AI innovations related to insurance have primarily been led by insur-techs. Blockchain remains at the pilot level (e.g., GIZ, IBISA network), but is considered to be a disruptive tech in the long term, even in high-income markets. **Overall, while there is more use of new technologies, they are not challenging established business models.**

FIGURE 6: DATA AND TECHNOLOGY IN THE INSURANCE VALUE CHAIN

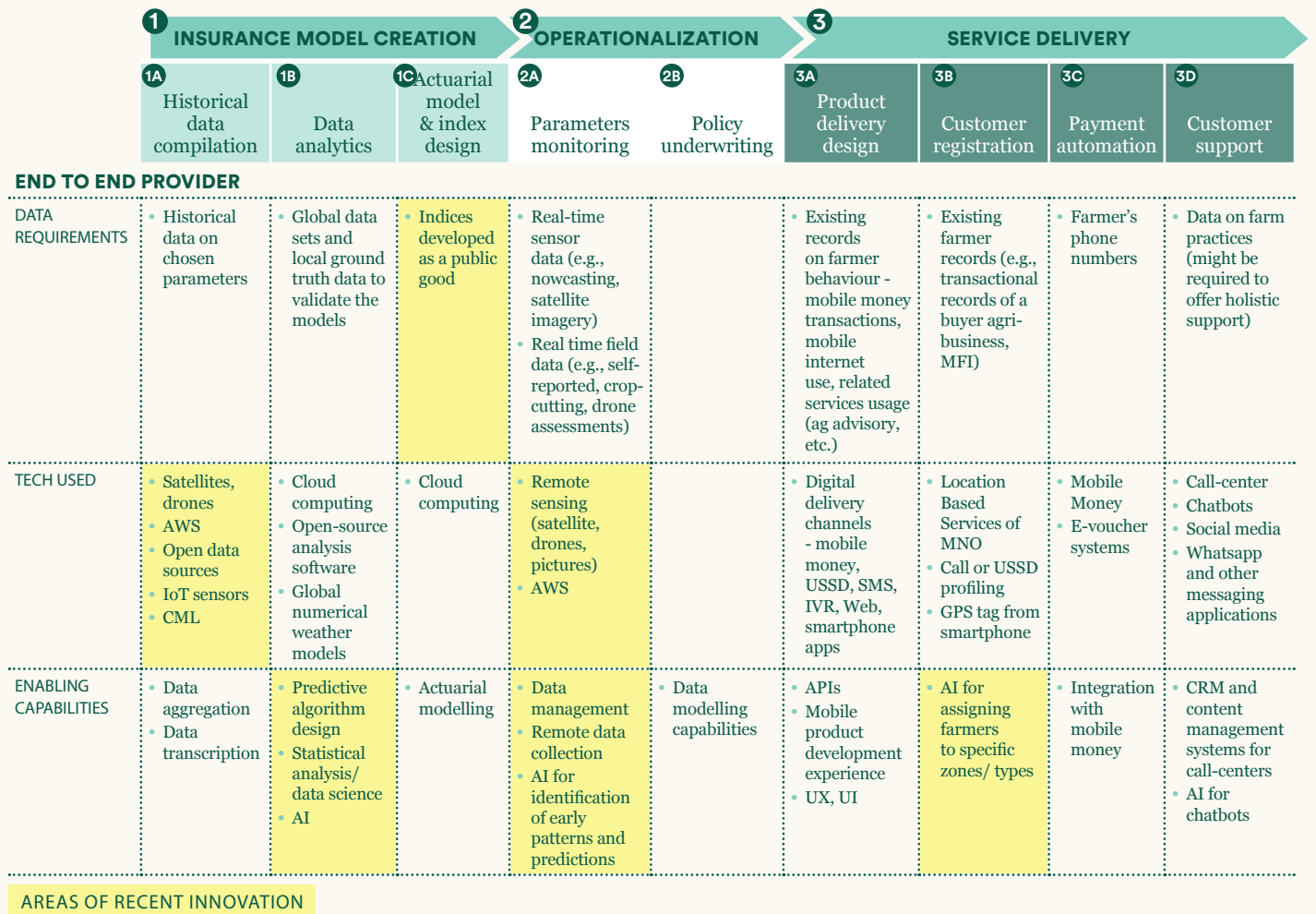
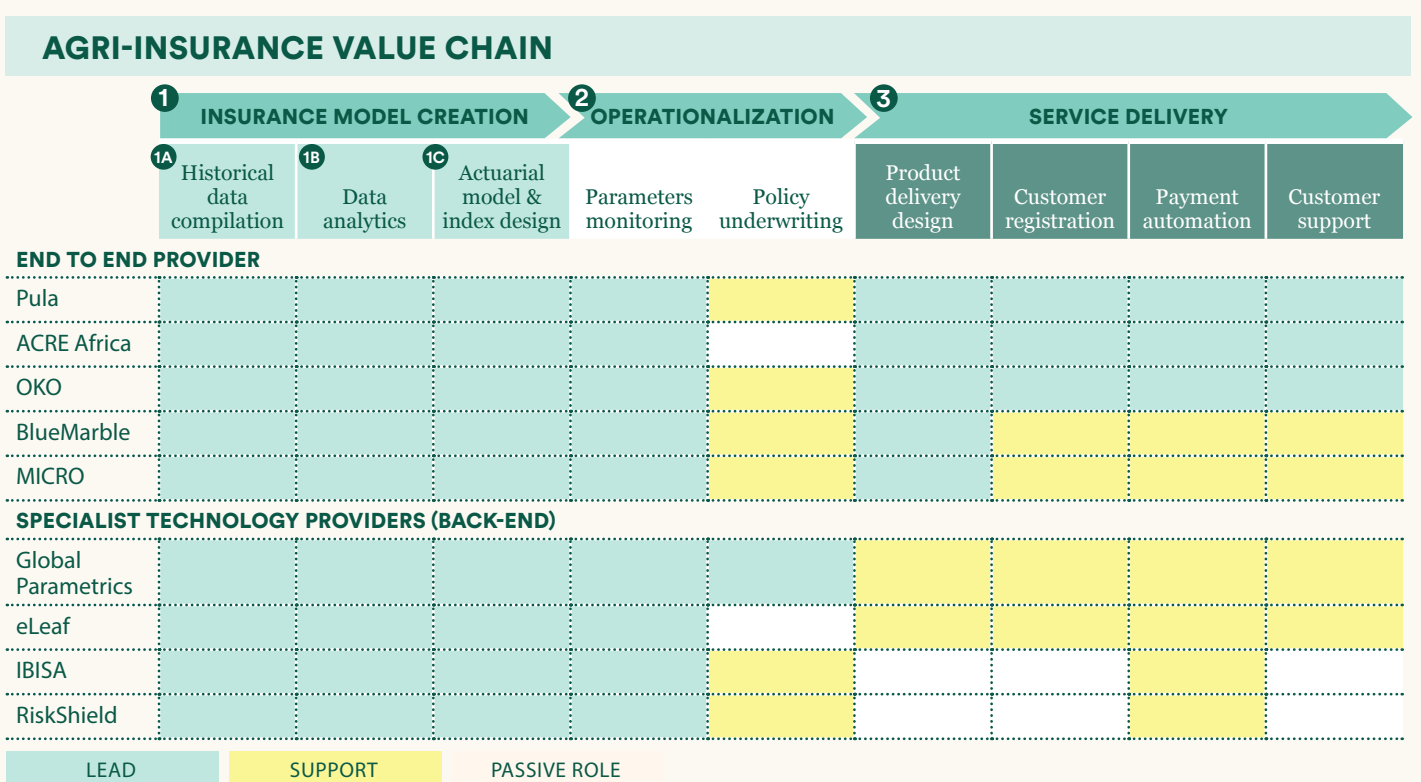


FIGURE 7: INSUR-TECH ROLES ALONG THE INSURANCE VALUE CHAIN



ENABLING DATASETS AND CRITICAL GAPS

As described earlier, ground-level data—such as yield, pest and diseases information, farm geotags, and even climatic historical data—represent a significant and persistent gap. This is due to two key challenges:

- **Challenge 1: Insufficient public sector infrastructure for data collection and monitoring leads to significant costs for providers requiring granular data to operate indices.** In order to reduce the cost (and, consequently, the barriers to market), funders are supporting efforts to create global and regional datasets, such as the GARDIAN platform by CGIAR. Innovators, meanwhile, are finding new ways to collect and validate data—for example, Pula is using drones for field assessments—and creating an opportunity for specialised proprietary data providers to step-in. An emerging number of commercial providers collect and integrate weather data, and sell historical data, nowcast, and forecasts. For example, private provider aWhere's weather forecast is used by Kenya's Agriculture Observatory Platform, as well as by the governments of Uganda and Zambia. Additionally, aWhere partners with several digital agricultural service providers, including DigiFarm, Arifu, and Esoko. While ground-level weather data is more reliable than remote sensing sources, there are very few initiatives for scaling up AWS. One notable example is a recent investment into SkyMet by InsuResilience Investment Fund.
- **Challenge 2: The lack of streamlined data-sharing approaches, standards, and incentives.** Due to a lack of high quality data for specific value chains in a given location, individual insurance providers resort to collecting data in-house—often through a network of field agents or by allowing farmers to self-report. When such datasets are established at organisational level, providers are hesitant to share data with competitors. As a result, the industry operates with fragmented datasets and no consensus around who should own farm-level data.

INTERMEDIARY CAPABILITIES AND POSITIONING

When considering the introduction of index products, a traditional insurance player would need to either build the required digital capacity in-house or find a technology partner. Most agri-insurance solutions for smallholder farmers are critically supported, if not driven by, specialist intermediaries. Intermediaries are continuously investing in new technology, data, and processes. This helps them evolve their products to stay ahead of the innovation curve and create a competitive advantage, which unlocks new distribution agreements with governments and private sector aggregators and allows replication across markets. **Partnering with an insur-tech provider which has tested its indices and product design over several seasons and has easy access to the right datasets dramatically reduces time-to-market for players who wish to introduce insurance to their network of farmers.** As illustrated in Figure 7, mapping the capabilities and scope of services offered by different intermediaries reveals key insights on this part of the market.

In response to digital capability gaps of traditional insurance players, a number of back-end players, end-to-end providers, and consultants have emerged. Back-end technology providers like eLEAF, GuyCarpenter, and RiskShield focus on providing services to the insurer or offering a meso-level cover. They offer index, index customization, pre-selected global data sources, and sourcing of ground-truthing data for creating and validating models. They also support parameter assessments and model updates into the future.

Pula, ACRE Africa, OKO, Blue Marble, and MiCRO offer back-end and front-end solutions to support design and delivery of services to farmers or aggregators. This business model requires continuous adaptation of the product and pricing based on unique client context, which results in more proactive feedback loops. Some end-to-end players provide customer helplines and engagement functions, including farmer training (3.D.). End-to-end insur-techs often engage re-insurers in advance of market entry, reducing time to market.

Specialised consultants, such as Inclusive Guarantee, are available for providers determined to build an in-house insurance product. These consultants support insurers and development sector partners in finding appropriate indices, data sources, actuarial modelling, and best practices in delivering to the end customer. There is, however, a trend in which consultancy is offered by insur-techs as a diversification strategy and to acquire additional revenue sources while building up core business.

KEY INDUSTRY CONSIDERATIONS

Given the trends and approaches detailed above, the agri-insurance industry should consider further action and innovation along the following lines:

- **Public good investments:** The consistent gap in ground-level data series across LMIC necessitates dialogue between commercial investors, donors, and governments around creating critical infrastructure required for climate adaptation.
 - *Key question: What are the most impactful enabling investments by the public sector in data to unlock agri-insurance?*
- **Data sharing:** While the data-sharing protocols in agriculture remain unresolved, other industries and sectors—such as healthcare systems—could be mined for relevant lessons around data sharing.
 - *Key question: What models for data sharing can be explored to enable the use of a broader range of data by different actors?*
- **Scaling the potential of new technologies:** With decreasing technology costs, there is an opportunity to further innovate around operational cost reduction, which would improve reach and increase the quality of insurance products. New technologies can also improve the quality and reduce the risk of overall farmer-level product bundles. This highlights the need for further risk capital—for example, exploring the potential to combine data-driven advisory with insurance products.
 - *Key question: What investments should be made in new enabling technologies over the next 3-5 years?*
- **The end game for an intermediary driven market:** With intermediaries enabling the majority of agri-insurance products, the long-term trajectory and industry structure is up for debate. Will local insurers continue to play a largely passive role until premium volumes get to a certain level? Will some intermediaries acquire independent insurance licenses? Will acquisitions or mergers reshape the market in the future? Particularly for donors, who are actively supporting the development of this market, it is important to consider how different scenarios will help or hinder the achievement of their social or environmental goals.
 - *Key question: How should donors think about the trajectory of this market and how it should shape their public-good based investments?*

DEEPER DIVE 4: CONSIDERING THE CRITICAL ONGOING ROLE OF GOVERNMENT



THE 2018 STARTING POINT

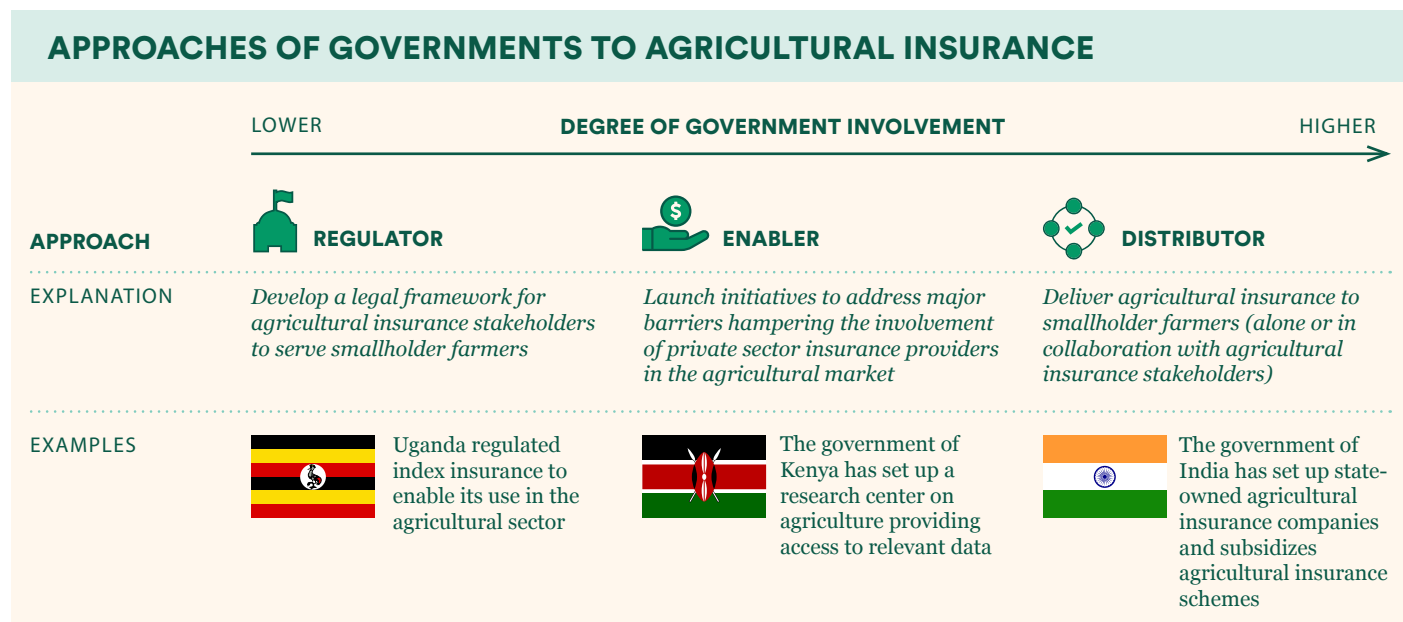
Our review of the market in 2018 highlighted the critical role that governments play in enabling insurance, particularly through policy, regulation, and investments in infrastructure. Government subsidisation of insurance premiums was also identified as one of the critical routes to scale. At the time, the largest example of this was India's Crop Insurance programme. Our analysis explored the opportunity for agri-insurance to support multiple national agendas, as well as cross-government collaboration between ministries of agriculture, finance, and planning. At the same time, governments faced challenges to supporting the agri-insurance sector, including low capacity and expertise, competing resource priorities, and a need to align insurance with existing national plans.

NEW INSIGHTS, TRENDS, AND WAYS OF THINKING

Governments across LMIC are increasingly shifting their approach to adopt more holistic approaches to supporting smallholder farmers—for example, through building resilience against agricultural and non-agricultural shocks, fostering financial inclusion, or expanding agricultural output. Insurance is just one of the tools available to achieve these holistic objectives.

As noted in Figure 8, we have identified three main roles that governments play in relation to agri-insurance: regulator, enabler, and distributor (or a combination thereof).

FIGURE 8: ROLE AND POSITIONING OF GOVERNMENT



As a regulator, governments of LMIC are increasingly looking for ways to modernise the insurance sector and define standards and requirements around the use of index products. This is largely driven by private sector demand for clear guidelines, licenses to operate, and/or product approvals. Overall, insurance regulatory authorities in developing countries lack the technical expertise to draft regulations on innovative agricultural insurance solutions—this is an even bigger challenge given the new complexity of indices and technologies. This causes significant misalignment between regulations and commercial product requirements. For example, a government might prefer an index they know and understand, while the service provider needs to improve accuracy by adding new indices and data types.

More governments, including Kenya and Colombia, are utilizing a sandbox approach as a compromise solution. This approach allows for testing of innovative insurance solutions in a controlled environment while identifying regulatory best practices. Even so, across the board, agricultural insurance providers are facing major regulatory challenges resulting in difficulties obtaining licenses, lengthy and burdensome approval processes, and direct and indirect taxes on index insurance (further hampering product affordability). In fact, according to a recent survey, only 60% of studied countries allow index insurance.

In addition to providing a legal framework for agricultural insurance, **a few proactive governments are playing an enabling role**. This entails removing bottlenecks for the private sector, offering critical support, and maintaining physical and digital infrastructure. Governments can facilitate access to data through investments in meteorological services, census and farm-level data collection, data infrastructure, and the enactment of policies to promote data sharing (e.g., farmer data portability). For example, the Kenyan government offers KALRO dashboard, while Brazil's Agropensa platform offers public data and services for agricultural and insurance sectors. Governments can further mitigate risk exposure by providing re-insurance services and setting up co-insurance pools. In some cases, governments have implemented awareness campaigns to reduce barriers to uptake.

In recent years, more governments are playing the **role of distributor or farmer aggregator**, entering into partnerships with private sector providers and adding insurance to the portfolio of public services available to farmers. For example, Nigeria's agricultural subsidy programme offers insurance alongside input subsidy or loans. Some LMIC governments follow the example of developed markets by setting up public insurance companies and/or subsidising premiums. Macro-level insurance schemes—where the government acts as the policy holder by contracting directly with an insurer on behalf of the farmer—have been adopted in Peru and Mexico. But some still require the beneficiary to contribute, as in India's PMFBY scheme where farmers pay 1.5%-5% of the premium. Kenya's Livestock Insurance Programme (one of the first macro-level insurance schemes in Africa) is an example of phased-out premiums, where the initial full subsidy was reduced to 50%. Macro-level schemes have been quite successful in reaching scale, raising questions about the future balance between private and public roles in LMIC in closing the insurance coverage gap, especially for the most vulnerable segments.

KEY INDUSTRY CONSIDERATIONS

Given the trends and approaches detailed above, the agri-insurance industry should consider further action and innovation along the following lines:

- **Continued focus on regulation and capacity:** Despite increased regulatory involvement from governments, a significant number of markets across Asia and Africa still lack an adequate regulatory environment. This leads to major hurdles for insurance providers—and, in turn, causes delayed access to essential climate adaptation services for vulnerable populations.
 - *Key question: How can governments be most effectively supported to develop the right enabling environment for agri-insurance based on the learnings from the last 10-15 years?*
- **Refining the case for subsidies:** While subsidies have been shown to cause higher uptake of agricultural insurance, they can also cause market distortions by benefiting specific groups of stakeholders along the value chain. Focusing on the catastrophic layer to

provide some form of premium subsidy may be less distorting (e.g., funding a social program that protects against the most extreme layer of risk). Insurance ecosystem actors are generally willing to explore ‘smart’ subsidies, with a clear phase-out/exit plan or long-term financing arrangement identified in the design phase.

– *Key question: What is the “smartest” use of different types of subsidy - e.g., innovation grants, proof of concept grants, premium subsidies?*

- **Government taking the lead on climate adaptation planning:** As the climate crisis unfolds, governments will be largely forced on addressing displacement, food insecurity, and social unrest. However, there is an opportunity for governments

to act early on these issues by investing in localised data intelligence, regional planning, and resilience investments that can drastically reduce the impacts of the climate crisis on rural farming populations. While insurance is only a small part of this potential solution, it can help governments adopt a proactive position on climate adaptation planning and resilience.

– *Key question: What blueprints and case studies can support governments in effectively planning for climate effects on rural populations and understanding the critical role of the private sector?*



APPENDIX A: LIST OF INTERVIEWED ORGANISATIONS



N	ORGANISATION	INDIVIDUAL	POSITION
1	Access to Insurance Initiative	Regina Simoes	Regional Coordinator for Latin America
2	ACRE	George Kuria	CEO
		Muthithi Kinyanjui	Partnerships and Program Manager
3	Acumen Fund	Rebecca Mincy	Investment Director
4	Blue Marble Insurance	Jaime de Piniés	Head of Africa and Europe
5	BRAC	Tanvir Rahman Dhaly	Head of Business Development
6	Ceniarth	Harry Davies	Investment officer
7	CGIAR	Brian King	Coordinator of the CGIAR Platform for Big Data in Agriculture
8	eLeaf	Joost van der Woerd	CEO
9	FSD Africa	Elias Omondi	Senior Manager, Risk Regulation
		Kelvin Massingham	Director, Risk and Resilience
		Thomas Wiechers	Assistant Director, Insurance
10	Bill & Melinda Gates Foundation	Stewart Collis	Senior Program Officer, Agriculture Development
		Samuel Ssenyimba	Senior Program Officer, Agriculture Development
11	GIIF	Panos Varangis	Global Lead for Agricultural Finance and Agricultural Insurance, Finance, Competitiveness & Innovation
		Fatou Assah	Program Manager
		Shadreck Mapfumo	Senior Financial Sector Specialist
12	GIZ	Jimmy Loro	Senior Advisor
13	Global Parametrics	Jerry Skees	Chief Strategy Officer and Director
14	GSMA	Daniele Tricarico	Director of Research and Insights
15	Ibisa Network	Maria Mateo Iborra	Co-Founder
16	IDH	Iris Van derVelden	Director Learning and Innovation
17	Inclusive Guarantee	Vance Abissa	CEO
18	InsuResilience Investment Fund	Annette Detken	Head, Funds Management
19	Mercy Corps Agrifin	Leesa Shrader	Director
20	MiCRO (Microinsurance Catastrophe Risk Organisation)	Carlos Boelsterli	CEO
21	Ministry of Agriculture, Peru	Ronald Alexei Gil Ramirez	Agricultural Insurance Professional
22	Munich Climate Insurance Initiative	Jennifer Cisse	Senior Research Manager
23	Nasa Harvest	Inbal Becker	Director
24	OKO Insurance	Simon Schwall	Founder & CEO
25	Pula	Rose Goslinga	CEO
26	Risk Shield Ltd	Agrotosh Mookerjee	Managing Director and Chief Actuary
27	Swiss Capacity Building Facility	Dana Ellis	Senior Operations Manager
28	Swiss Re	Jerry Gidion	Senior Underwriter - Vice President at Swiss Re
29	Swiss Re Foundation	Elodie de Warlincourt	Philanthropy portfolio management
30	Syngenta Foundation	Olga Speckhardt	Head of Global Insurance Solutions
		Rao Srinivasa	Asia Insurance Coordinator
31	Tetra Tech	Richard Choularton	Director, Agriculture and Economic Growth Sector
32	UC Davis	Michael Carter	Director, Feed the Future Innovation Lab for Markets, Risk and Resilience
33	World Food Program – R4 Rural Resilience Initiative	Michael Goode	Consultant
34	Yayasan Agri Sustineri Indonesia	Mori Prananto	Agricultural Insurance Solutions Manager
		Andra Daniswara	Actuarial Analyst