Disaster Risk Finance for Agriculture

Module 6

Risk Finance Instruments 1 – Agricultural Insurance

Disaster Risk Financing & Insurance Program

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MAYFAIR INSURANCE

Structure of Webinars

Total of 8 Factsheets & 90-minute Webinar for each Factsheet

Different guest speakers

Live audience polls & interactivities: Please participate

Q&A: Please share your questions via chat

Breakout sessions at the end of each Webinar: Please register

Certificate of participation from the World Bank*

* Based on attendance & participation.

Certificate from World Bank

Participants will have an opportunity to obtain "Certificate of Informed Policymaker" from the World Bank on successful completion of following criteria:

Participation Certificate:

Participants need to attend 4 out of the 8 webinar sessions and complete a short survey/quiz.

Program Completion Certificate:

Participants need to attend 7 out of the 8 webinars and complete a short survey/quiz.

Webinar Road Map

SESSION

1. Introduction to DRFA
2. Reducing & Preparing for Risks in Agriculture
3. The Role of Financial Market Solutions for Building Resilience to Shocks in Agriculture
4. Structuring an Agriculture Financial Protection Scheme
5. Implementing an Agriculture Financial Protection Scheme
6. Risk Finance Instruments 1 – Agricultural Insurance
7. Risk Finance Instruments 2 – Macro and meso-level Risk Transfer for Agriculture
8. Risk Finance Instruments 3 – Risk Retention Mechanisms for Agriculture

Overview of fact sheets

FACT SHEET #

1

- Four core principles of DRF, risk layering, and types of DRF instruments
- How agriculture fits in the broader DRF picture

2

- Introduction to risks facing rural households and agri sector
- How farmers, businesses, govts can reduce risks
- How farmers, businesses, govts can prepare for risks
- Outline a comprehensive approach to reduce and prepare for risks

3

- Benefits of greater access to finance including: enhanced resiliency of the agricultural sector, rural livelihoods, and economies
- Financial tools available including: credit, savings, insurance, transfers, climate-smart agriculture financing, and value-chain finance and when to use these tools

4

- Different aims of DRF and who to protect
- Potential objectives and priorities for covering certain risks
- Disaster risk financing instruments in agriculture sector – what exists
- importance of pre-planning the financed disaster response and delivery channels

5

- Different stakeholders in implementing a DRFA scheme
- Typical roles and responsibilities of the public and private sector in supporting and developing DRFA
- Importance of monitoring and evaluation

6

- Policy objectives of agriculture insurance
- Agricultural insurance products – key features, benefits, constrains of index insurance
- Public-private partnership in agriculture insurance – Overview and delivery models

7

- Overview and objectives of macro-level risk transfer for agriculture
- Structuring a macro or meso-level risk transfer solution – alignment with other financing instruments and other things to consider

8

- Sovereign risk retention mechanisms for agriculture
- Structuring risk retention instruments – key features and things to consider

Key Statistics (Feb-July 2021)

5 Webinars

5 Fact sheets

16 Speakers

140 Average Attendees Per Webinar

Attendee Feedback

93% Rated overall quality of the webinars as good

89% Would recommend this webinar series to their counterparts

96% Rated overall quality of the factsheets as good

22 participants qualified for a certificate from the World Bank

* Based on attendance & participation.

For more information and regular updates… Join our

COMMUNITY OF PRACTICE

SCAN ME

Scan the QR code to join the Disaster Risk Finance Community!

Word Cloud 1: What types of Agricultural Insurance have you heard of?

Go to www.menti.com

(or prepare the QR scanner on your phone)

QR:

Use the code: 3297 2073

RECAP OF

Module 05

Key takeaways of Module 5

- **Designing and implementing programs and DRFS can take time**, important to have strong governance, stakeholder engagement, procedures set up, and time taken for capacity building of key personnel
- **Strong government involvement and support at all stages of the operational framework is vital**, this ensures buy in and that the program continues to meet the objectives
- **Programs are not a one-time activity, needs regular review and refinement** – Importance of M&E in ensuring impact has been met and learnings are taken on board
- **Designing a way to measure policy quality in a program is important** - Monitoring and evaluation looks to assess whether a program is of economic value for the audience

Content

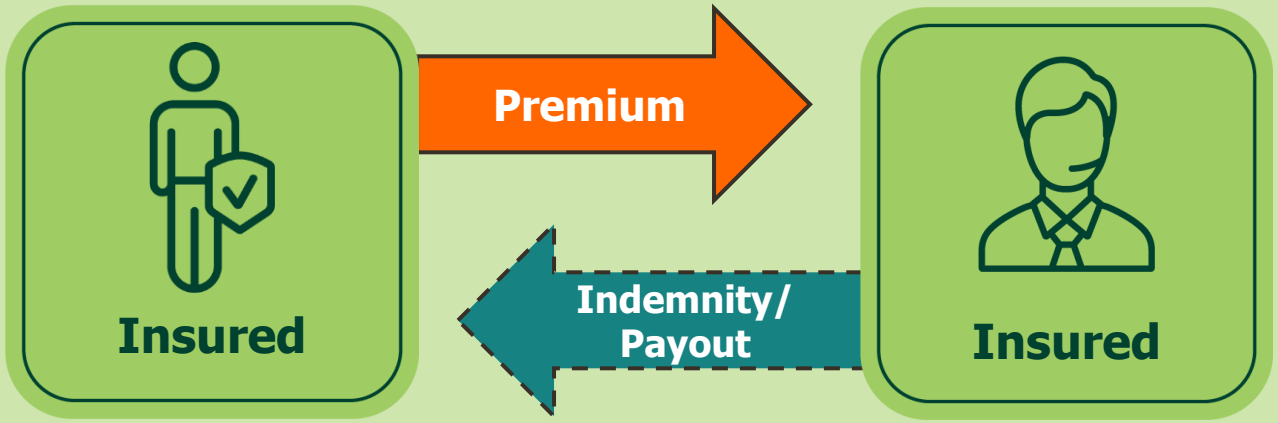
1. What is agricultural insurance
2. Overview of the Global Agricultural Insurance Markets
3. Different classes of agricultural insurance and indemnity vs index-based insurance
4. GIIF experience with micro-crop weather index insurance for Small farmers
5. Area Yield Index Insurance for Small Farmers
6. Government Support to agricultural insurance
7. Lessons and Conclusions

WHAT IS

Agriculture Insurance?

What is insurance?

In an insurance transaction, the «**premium**» is the upfront price that the insured pays to purchase an insurance policy from the insurer.



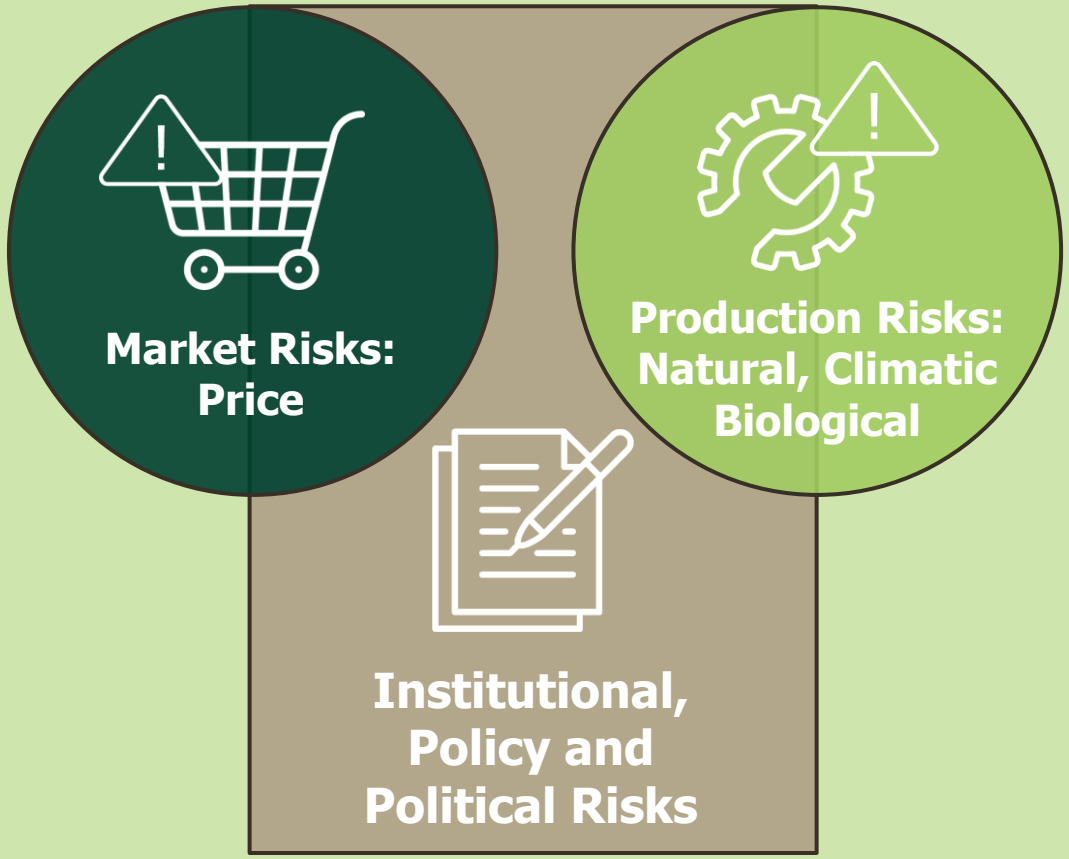
The «**indemnity**» or «**payout**» is the payment provided by the insurance company to the insured party (in case the events covered by the insurance policy occur!)

Indemnity: *Is used when actual physical losses are assessed and compensated, i.e. indemnifies the insured's position prior to the loss*

Payout: *Is usually used in the case of parametric (index based) products (more on these products later)*

Source: Boulder Institute for Microfinance

Which risks can insurance address for agriculture?



Classification allows a systematic approach to risk management and development of tools

Production risks are the main focus for agricultural insurance

Market risks are rarely covered by insurance markets

Institutional, Policy and Political risks at farm level are not insured

Source: Boulder Institute for Microfinance

How can Index Insurance be used?

Type of insurance	Who?	How?
Micro	• Individuals are policyholders • Usually smallholder farmers • Often grouped in farmer organisations	 Policyholder: **Farmer** → ←  **Distributor** → ←  **Insurer**
Meso	Aggregator as policyholder (MFI, co-operative, input supplier…)	 **Farmers** → ←  Policyholder is the **Aggregator (e.g. processor, bank)** → ←  **Insurer**
Macro	Policies issued to governments as the policyholder	 **Beneficiaries (Farmers)** → ←  Policyholder is **National or State Government** → ←  **Insurer**

OVERVIEW OF

Agricultural Insurance Markets

Poll 2:

Go to www.menti.com
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How many countries offer agricultural insurance products and services?

- Less than 25
- About 50
- About 75
- About 100
- About 125
- About 150
- More than 175

Poll 3:

Go to www.menti.com
(or prepare the QR scanner on your phone)

QR:

Use the code: 3297 2073

What was the total volume of Global Agricultural Insurance Premium in 2019?

- ☑ USD 15 Billion
- ☑ USD 25 Billion
- ☑ USD 35 Billion
- ☑ USD 45 Billion
- ☑ USD 55 Billion

Evolution of Agricultural Insurance

18th Century

Origins date back to farmer **mutual insurance** companies in Europe in the mid-18th Century for livestock mortality and crop hail

20th Century

Emigrating farmers took crop hail to North America, Latin America, South Africa and Oceania at the start of the 20th century.

1945

Post second world war, many governments formed **public sector crop insurers** to offer subsidised crop insurance to small farmers. Most of these programs failed with high underwriting losses (see Hazell et al. 1986).

1990s

Since the 1990s there has been a proliferation of **public private partnerships** PPPs for agricultural insurance (See Mahul & Stutley 2010).

When public sector insurance fails

Post second world war, many governments formed **PUBLIC SECTOR CROP INSURANCE COMPANIES** to offer subsidised crop insurance to small farmers. Most of these programs failed with high underwriting losses. Key reasons for failure included:

Premiums were often fixed at **below actuarially correct** rates to be affordable to small farmers;

Losses were often **poorly adjusted** and subject to political influence

Administration and operational **overhead costs** were often very **high**

The programs were **not implemented on commercial principles** and were regarded more as social protection schemes.

Solution:
Today most governments in low and middle income have terminated their public-sector agricultural insurance program and replaced these by PUBLIC-PRIVATE PARTNERHIPS (PPP), which are underwritten by private commercial insurers and governments provide legal, financial and other form of support to these PPP programs

Agricultural Insurance: Institutional Frameworks: The past 50 years has seen a shift away from Public Sector only agricultural insurance provision to Public-Private Partnerships (1)

Source: Iturrioz 2010

Fully Intervened Public Sector Systems

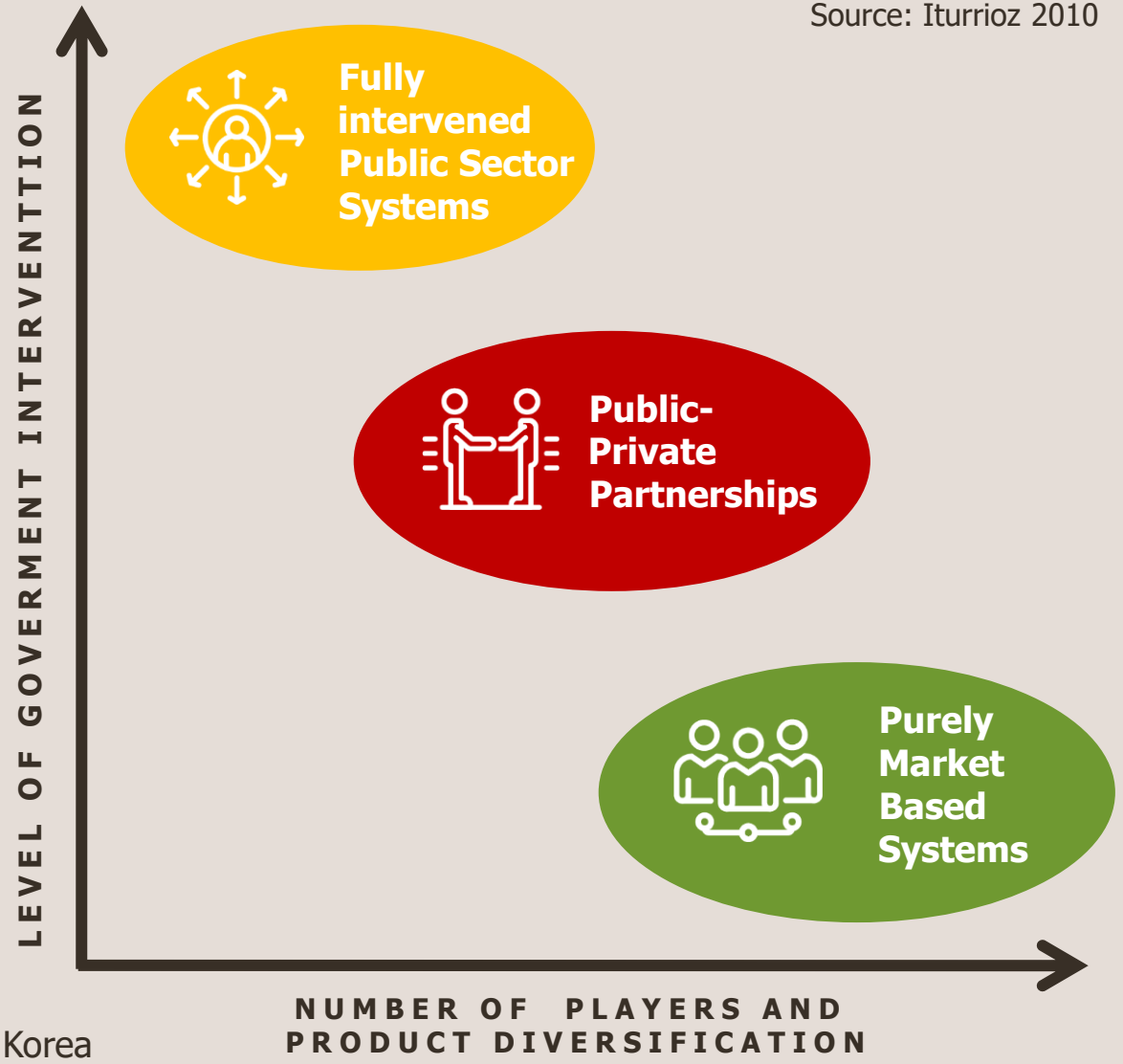
- ✓ High Level of Penetration of Agriculture Insurance
- ✓ Well Diversified Portfolios
- ✓ Social Criteria prevails over the technical and commercial criteria
- ✗ Poor services to the farmers (usually monopoly)
- ✗ These systems are usually not reinsured. Governments assume full liability
- ✗ High Fiscal Cost for Governments

Examples: India (former NAIS); Mexico (former ANAGSA); China (former PICC); Panama (ISA); Philippines (PCIC); Canada (several provinces), Brazil (former COSEP)

Public-Private Partnerships

- ✓ High Level of Penetration of Agriculture Insurance
- ✓ Well Diversified Portfolios
- ✓ Technical Criteria prevails over the Social and Commercial criteria
- ✓ Pool sets terms and conditions, Insurance companies competes for service
- ✗ Public sector provides the plans /guidelines and financial stability
- ✗ Private sector provides know how and operations

Examples: Spain, Turkey, Italy, Mexico, Brazil, USA, China, India, South Korea



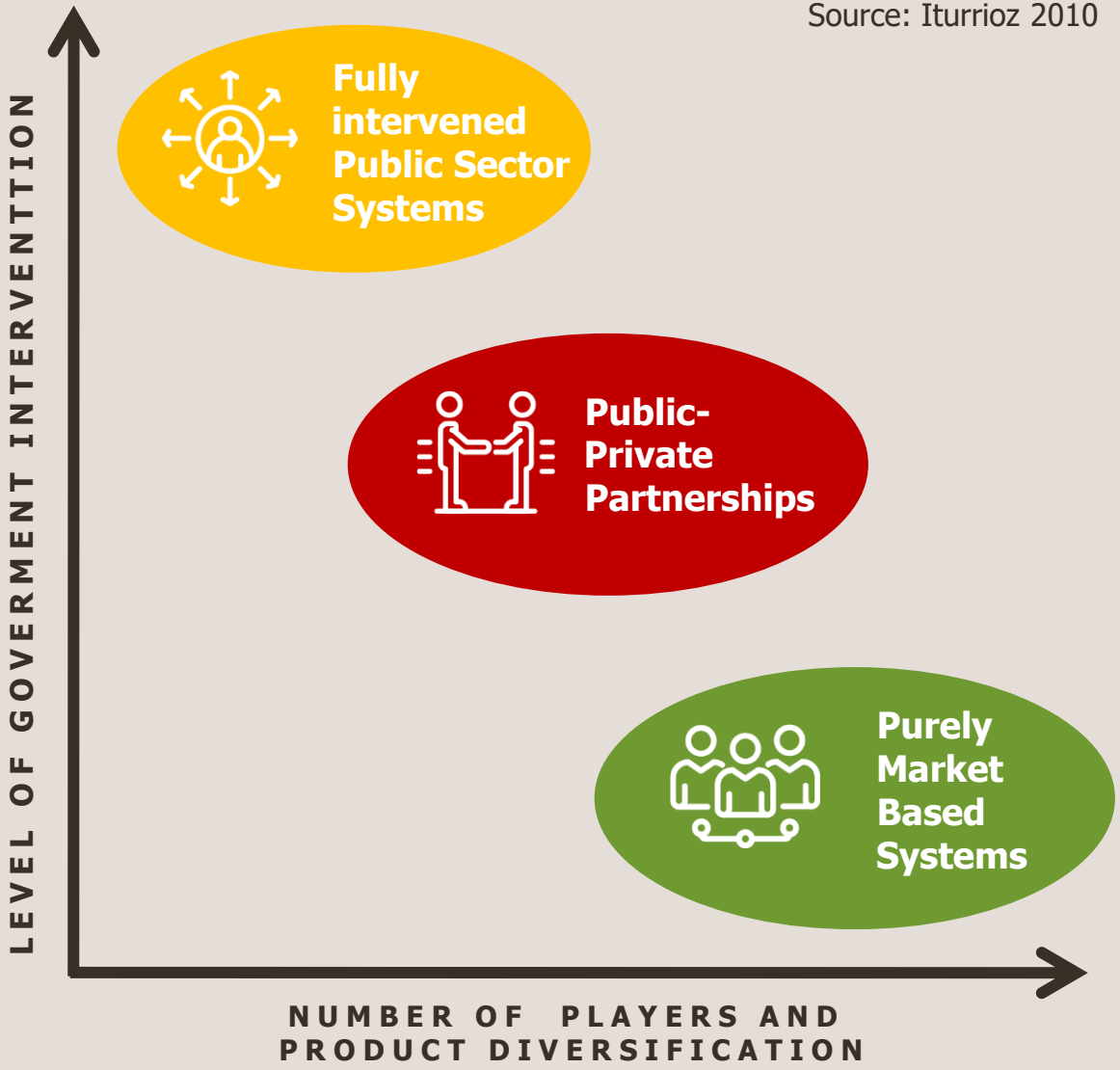
Agricultural Insurance: Institutional Frameworks: The past 50 years has seen a shift away from Public Sector only agricultural insurance provision to Public-Private Partnerships (2)

Source: Iturrioz 2010

Purely Market Based Systems

- ✓ No fiscal Cost for Governments
- ✗ Low to moderate levels of penetration.
- ✗ Low risk diversification.
- ✗ Usually these markets offer named-peril crop hail
- ✗ Commercial Criteria prevails over technical and social criteria (price war)

Examples: Germany, Austria, Netherlands, Sweden, Argentina, Uruguay Australia, New Zealand, South Africa



Agricultural insurance has huge global coverage and is available in about 125 countries in 2021

82%

Of countries have **Crop & livestock insurance** available

22%

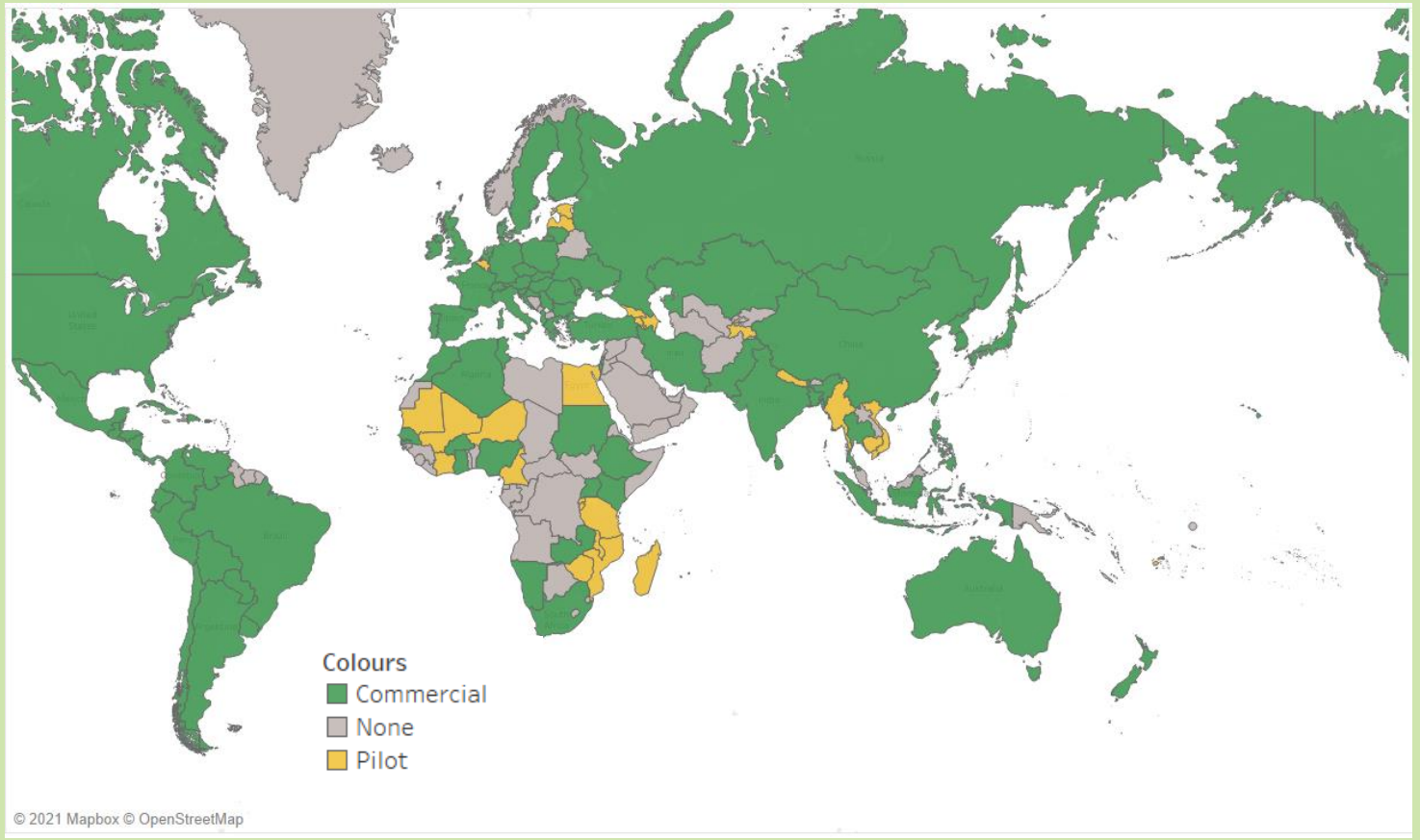
Of countries have **Crop & livestock Index insurance** available (>40% in 2020)

40%

Of countries have **Forestry insurance** available

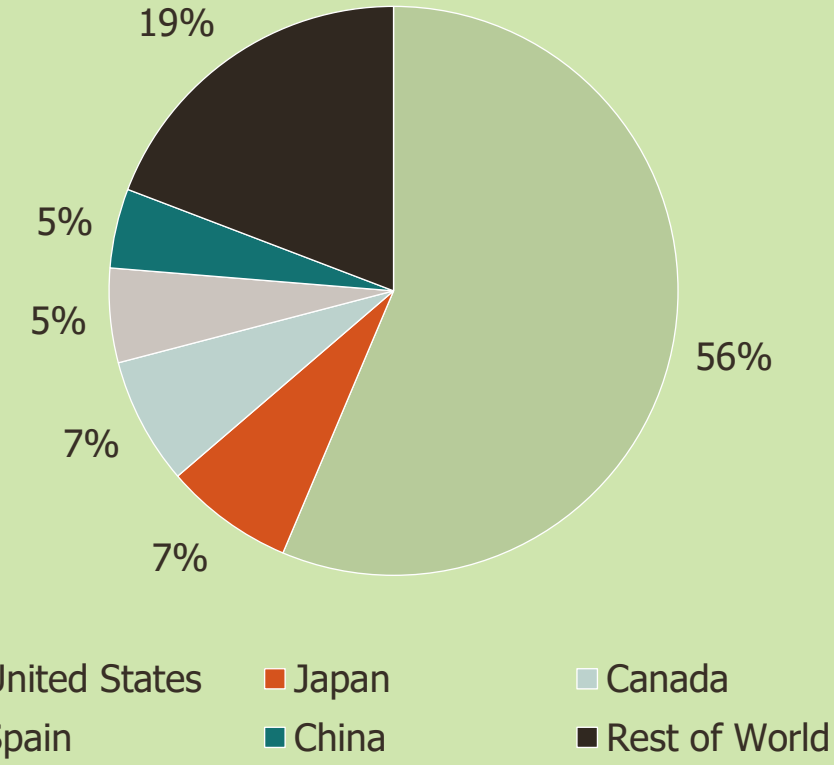
31%

Of countries have **Aquaculture Insurance** available



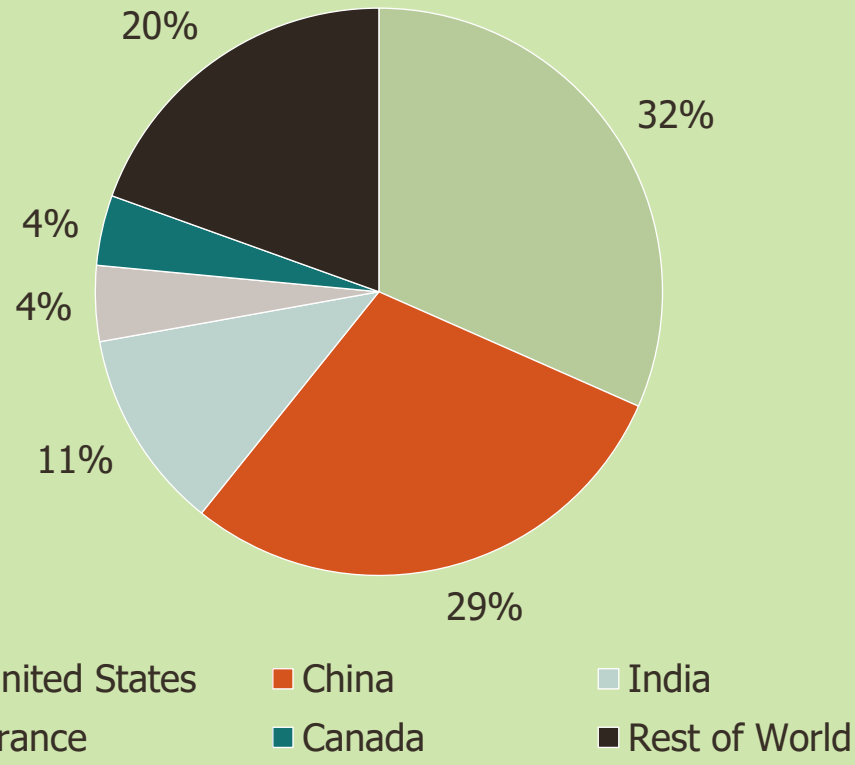
Agricultural insurance is expanding rapidly in Asia

5 Largest Agricultural Insurance Markets by Premium volume in 2007 (US$15.1 billion)



Source: Mahul & Stutley 2010

5 Largest Agricultural Insurance Markets by Premium volume in 2019/20 (US$ 35.0 billion)



Sources: Various web reports

DIFFERENT CLASSES OF

Agricultural Insurance and how this can be suitable for small scale farmers

There is wide a range of agricultural insurance products available for different needs

Differences between Indemnity Insurance and Index Insurance

Indemnity insurance: compensation is based on measured loss or damage

Index insurance: payments are made based on an indirect indicator intended to be a "proxy" for loss or damage

Crop & Forestry Insurance Covers	Livestock & Poultry & Aquaculture Covers
Indemnity-based	Indemnity-based
Named-peril Crop Ins. (NPCI) - hail + allied perils	Named-peril Accident & Mortality
Multi-peril Crop Ins. (MPCI) All natural, climatic and biological perils	All Risks Mortality including diseases
Crop Revenue Insurance (CRI) - loss of yield & price	Epidemic disease/ Business Interruption
Other specialist covers (e.g. Aggregate Production shortfall cover)	Bloodstock

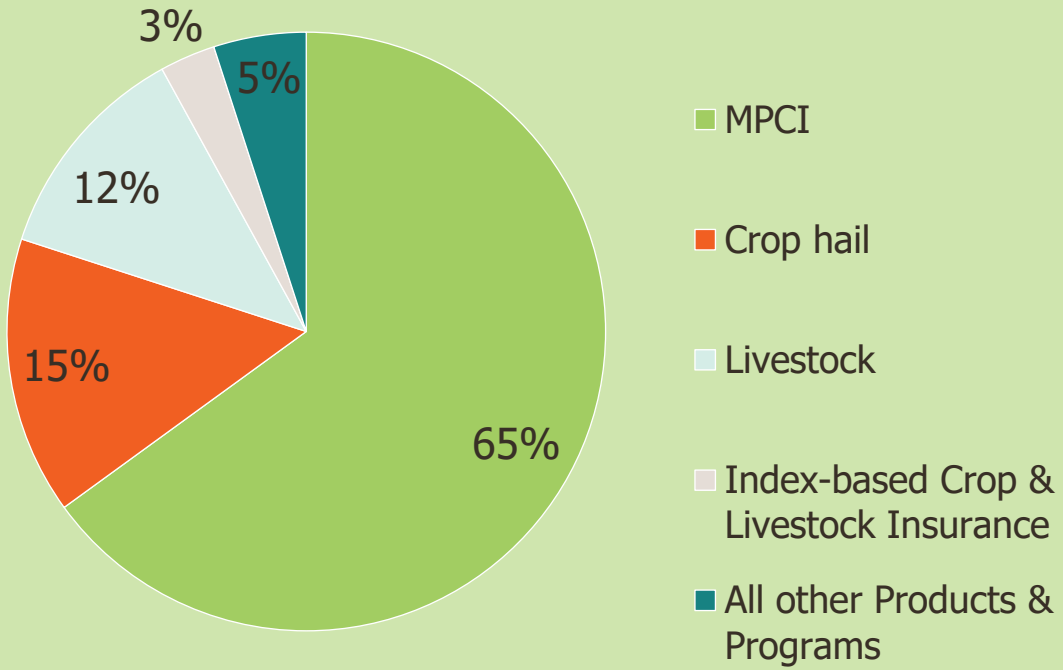
There is wide a range of agricultural insurance products available for different needs

Differences between Indemnity Insurance and Index Insurance

Crop & Forestry Insurance Covers	Livestock & Poultry & Aquaculture Covers
Index-based	Index-based
Weather-Index Insurance (WII), based on Ground Weather Stations	Index-based livestock Mortality Insurance (IBLI)
Weather-Index Insurance (WII), based on Remote Sensing/Satellite Indexes	Satellite Index Insurance (NDVI for loss of pasture/grazing). Also termed IBLI
Crop Area Yield Index Insurance (AYII)	
Other (e.g. specialist Flood Index insurance)	
Other Crop	Other Livestock
Greenhouse (crops + buildings)	Aquaculture Insurance (fin fish) (Named-Peril and All Risks)
Forestry Insurance (Fire/wind, allied perils)	Aquaculture (shell fish) (Named-peril and All Risks)
Plantation/ Tree Fruit Insurance ((Fire/wind, allied perils)	Bee Insurance

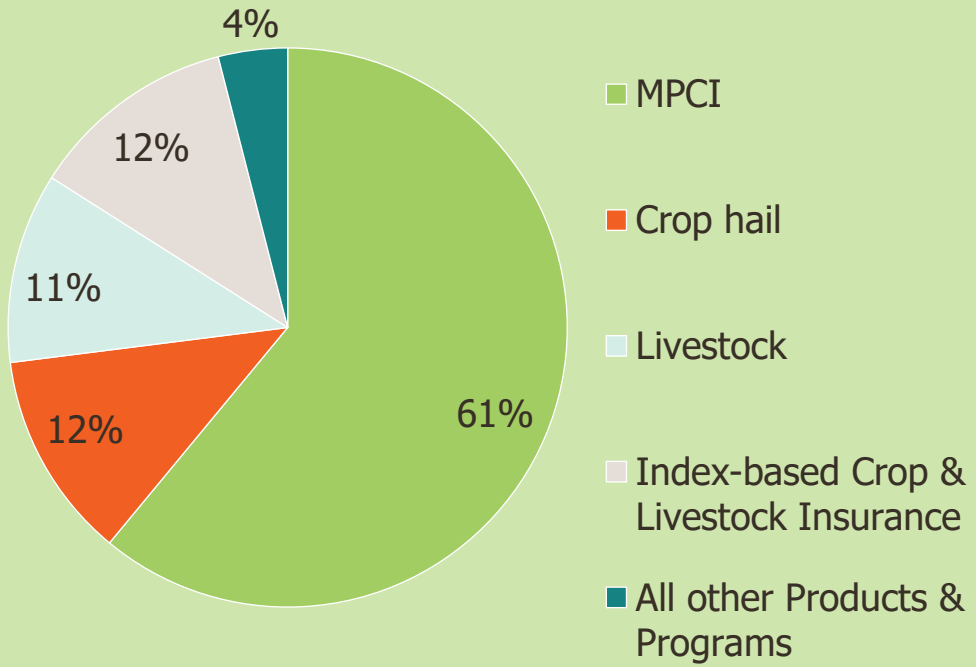
MPCI dominates agriculture insurance markets, but index-based crop and livestock insurance are growing rapidly

2009 Global Agricultural Insurance Premium by Class of Business (US$19.4 billion)



2009 Estimates Iturrioz & Stutley

2019 Global Agricultural Insurance by Class of Business (US$35.0 billion)



2019 figures based on Authors' best estimates

What is crop indemnity insurance?

Insurance where compensation is based on measured loss or damage to crop production and yields.

Type of indemnity product	Basis of indemnity
Named peril crop insurance (NPCI) (single peril, e.g. hail, or several named perils, e.g. hail + frost + wind)	% damage assessment
Multiple Peril Crop Insurance (MPCI)	Loss of yield
Crop Revenue Insurance (CRI)	Loss of yield and price

Source: Boulder Institute for Microfinance

Indemnity insurance (especially MPCI) is often unsuitable for small scale farmers

Pre-conditions required for indemnity-based crop insurance	Issues facing provision of indemnity-based crop insurance in developing countries
Yield or loss/damage data	• Historical time-series **crop yield data is usually not available** at individual farmer level
Costs and practicality of in-field inspections and yield-based loss adjustment	• Small farm size and **high costs of yield-based loss adjustment** • In order to minimize **moral hazard**, a minimum of 3 field inspections are needed at planting, mid-season and pre-harvest
Operational capacity of insurers	• Knowledge is needed to set up and manage policies. • Insurers are often not involved in rural sectors and suffer from **asymmetric information** • MPCI programs often suffer from **adverse selection**
Costs of insuring farm yields	• MPCI offers all risk loss of yield protection and is generally expensive (average premium rates 5% to 10% or higher) • Affordability/willingness to pay is an issue for farmers • **MPCI programs require government premium subsidies to achieve scale**

If traditional (indemnity) insurance is not feasible, can index insurance fill the gap ?

An index insurance contract pays out based on the value of an "index" that is highly correlated with yields, and not on losses measured in the field

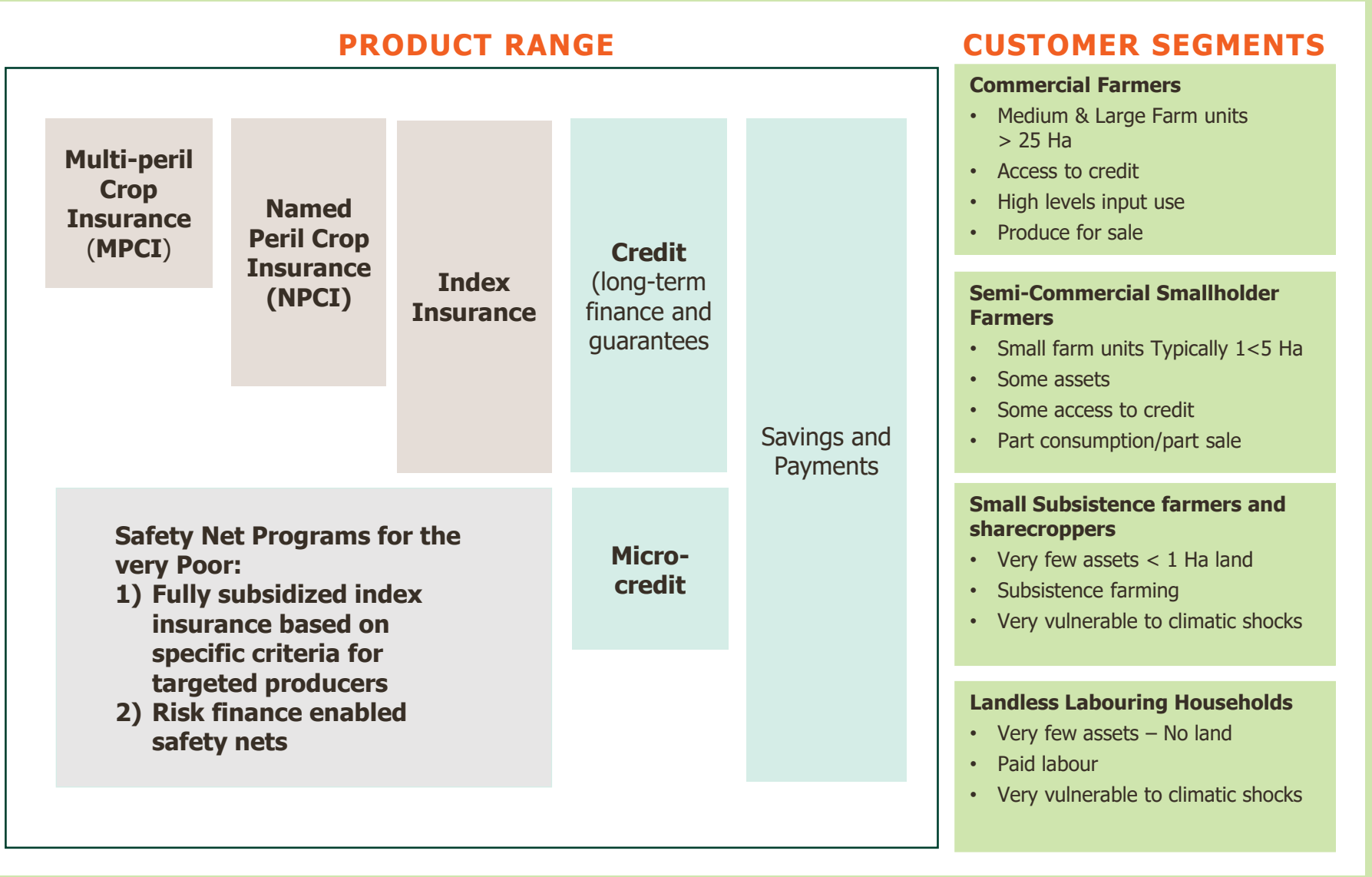
Example indexes: rainfall, temperature, regional yield, river levels, NDVI

Advantages of index insurance	Disadvantages of index insurance
• Overcomes most of the supply side problems of MPCI (moral hazard, adverse selection) • Objective and transparent • Simplified claims process - reduced costs as no loss assessment required; permits timely payout • Facilitates risk transfer outside of the local community (insurance/reinsurance) • Improved access to insurance to benefit smallholders	• Basis risk – the potential mismatch between losses and payouts • Development costs and replication: products need to be specifically tailored to each location and crop • Insurance awareness and understanding amongst partners and farmers • Limited quantity and quality of on-the-ground weather and yield data

Source: Boulder Institute for Microfinance

One size does not fit all

Products and services should properly target specific segments of users (farmers)



GIIF EXPERIENCE WITH

micro-crop weather index insurance for small farmers

What is the Global Index Insurance Facility (GIIF)?

A multi-donor program managed by the World Bank Group and established in 2010.

Key objective: To develop insurance markets for climatic and catastrophic risk insurance for smallholder farmers and other agri MSMEs. Focus on emerging/developing markets.

Typical GIIF implementation partners:
(Re)Insurance Companies, Insurance Regulators, Insurance Intermediaries, Ministries of Agriculture, Other farmer aggregators (e.g., MFIs)

To date, over **9.6 million insurance contracts** facilitated with approx. $2 billion in sums insured

Funded by

InsuResilience GlobalPartnership

Federal Ministry for Economic Cooperation and Development

Typical GIIF Interventions

Market Assessments
- Feasibility studies
- Impact studies
- Agricultural value chain analyses

Operational/ Technical Support
- Product development
- Distribution channel development
- Awareness raising

Capacity Building
- Strengthening insurers' capacity to develop/evaluate products
- For regulators as well

Knowledge Products
- Index Insurance Forum
- Risk modeling handbook, etc

Overview of Weather Index Insurance (1/3)

How it Works

- Compensation is **based on weather parameters**, e.g., rainfall, temperature, wind speed, etc.
- Insurance contract clearly states the conditions under which compensation will be made, e.g.
  - If total rainfall in area X is below a certain threshold (*indicative of insufficient rainfall/drought for particular crop*)
  - If the windspeed in area Y is above a certain threshold (*could be indicative of a cyclone/typhoon*)
- Weather data usually obtained from **satellites**, also automated **weather stations.**
  - Lots of freely available data from satellites but care should be taken to select that which is correlated with local experience.

Example	
Cover Period	April 1 to July 31
Risk Covered	Drought
Reference Weather Data	Rainfall data estimated by ARC2 satellite (downloaded from online database)
Conditions for Payout	Total Rainfall below 100mm
Payout if Condition is Met	1% of the value insured, for every mm below the above threshold
Rainfall in the current season, ended July 31, was 70mm. Compensation: (100mm – 70mm) x 1% = 30 x 1% = 30% of value insured.	

Overview of Weather Index Insurance (2/3)

Key Pre-Requisites

- **Correlation**: The selected weather parameter (and data) must be strongly correlated with the risk to be insured.

- **Data**: Sufficient historical data (at least 15 years' worth) is required to accurately assess the risk – to set the right thresholds, charge fair insurance premium
  - Insurer should also have access to (near) real-time data going forward - to determine if compensation is due and make quick payouts.
  - Location data for the insured/beneficiary farmers (e.g., GPS coordinates, administrative unit within which they fall) to ensure use of weather data for correct location(s)

- **Expertise**: Range of skills needed to design the right product (choosing suitable data for the index, establishing relationship between crop performance and weather parameter and setting payout thresholds, pricing)

Overview of Weather Index Insurance (3/3)

Advantages

Covers farmers at all production scales

Wide range of data sources, some freely available

Quick transparent payout

Disadvantages

Data intensive

Basis risk

Product design expertise required

Cover limited to risks correlated with underlying weather data

Many lessons can be drawn from several GIIF projects involving weather index insurance (WII)

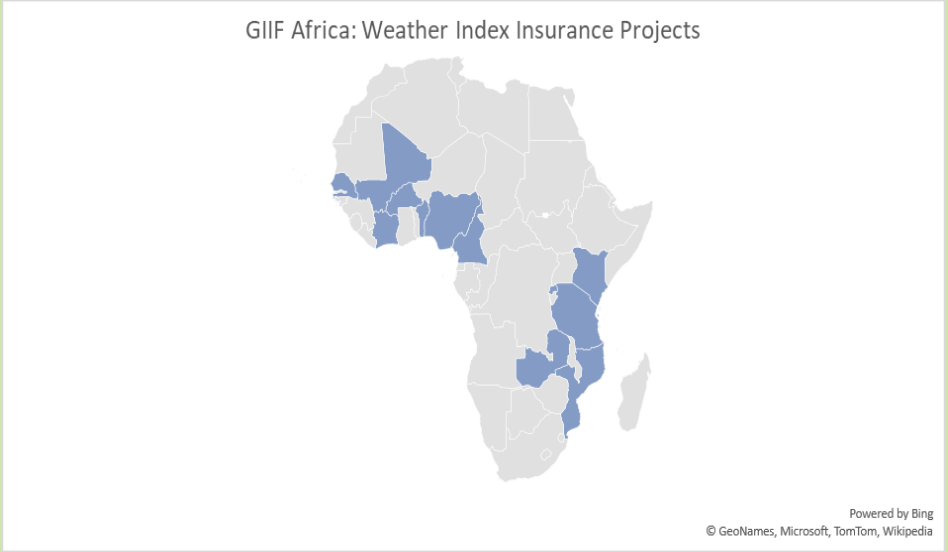
WII can work well where particular weather-related risks are the main concern, for example:

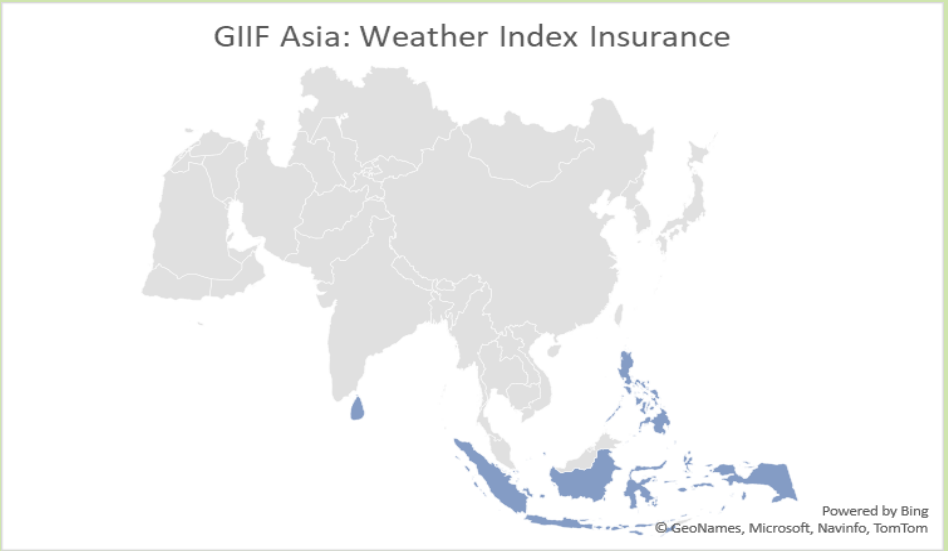
Drought and/or Excessive Rainfall(*Senegal, Zambia, Mozambique*)

Typhoon/Cyclone (*Mozambique, the Philippines*)

Usually, the first product that GIIF implementation partners roll out; other products with greater risk coverage added on with experience and client demand

In countries where weather risk is main concern, **more partners now starting to consider soil moisture indices over traditional rainfall indices**. More intuitive, potentially lower basis risk as it considers moisture available to crop.





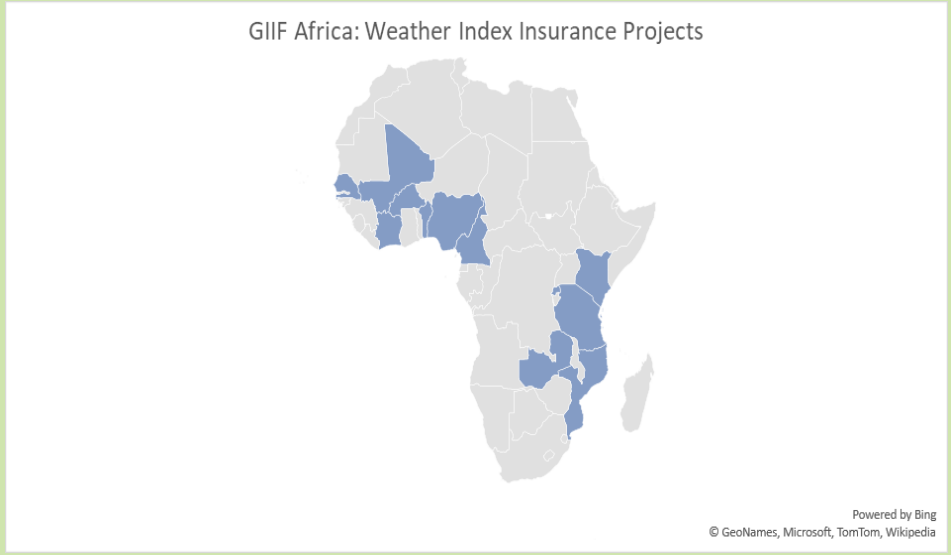
Many lessons can be drawn from several GIIF projects involving weather index insurance (WII)

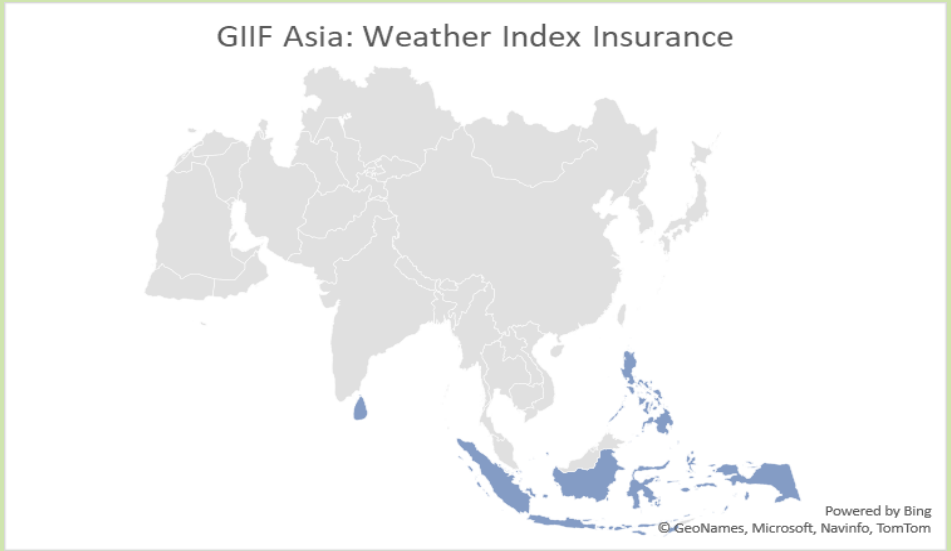
Most partners leverage partnerships to achieve scale sustainably e.g., making use of meso-level (partner with MFIs, agribusinesses, farmer unions/cooperatives, development organizations/NGOs) or macro-level distribution models (with governments). Digital channels are also becoming increasingly important.

Partnership also required for sustainable risk sharing, e.g., through;

Co-insurance (seen in Cameroon, for instance) – also good for knowledge sharing/transfer, cost sharing for awareness raising

Reinsurance – implementing insurance partners tend to work with a range of reinsurers active in the index insurance space. Greater participation by regional reinsurers has been seen over the last 5 years (e.g., Africa Re and ZEP Re in Africa)





Weather Index Insurance Experience: Zambia

Implementing Partner Background

Mayfair Insurance

- A General Insurance Company which began accepting insurance business in March 2010 (licensed in 2009)
- Leading agriculture underwriter in Zambia
- GIIF implementing partner since 2015/16 season
- Offers a range of agriculture insurance products including MPCI and index insurance. Agriculture insurance makes up 33% of total Gross Written Premium.

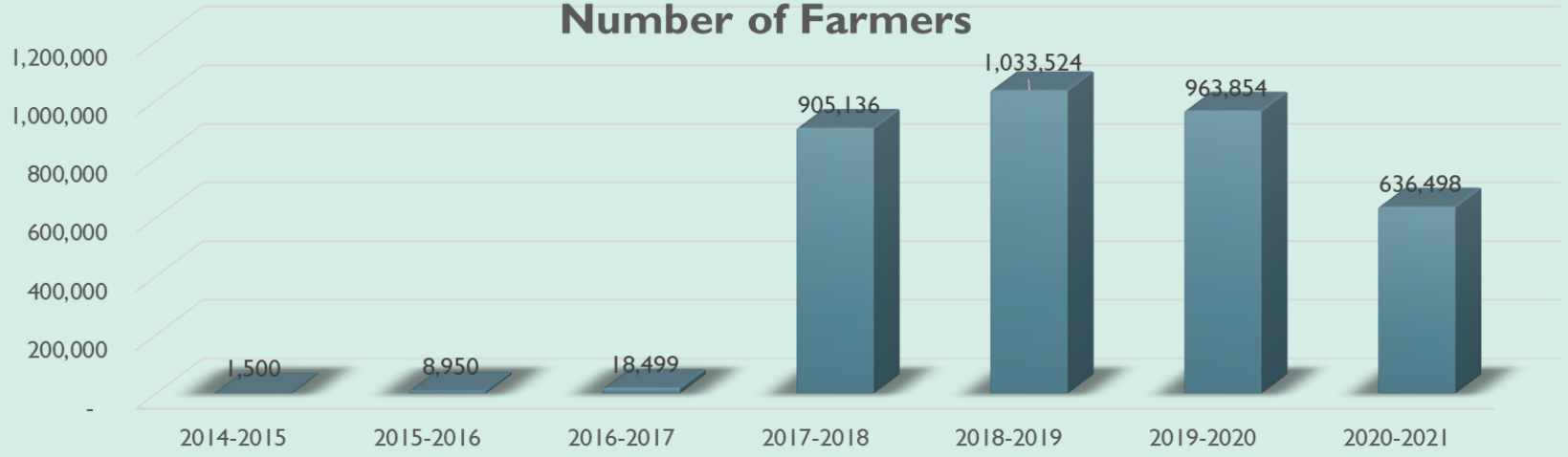
Weather Index Insurance Product Line

- First pilot in 2014, covering 1,500 farmers.
- Crossed the 1-million farmer threshold in 2018/19

- **Aim**: Provide more inclusive insurance products to critical agri sector - tailor-made products suited to small and medium farmers, who mainly practice rainfed agriculture

- **Key Product Features:** WII against early season drought, late season drought, and excessive rainfall towards the end of the season. Using satellite-based rainfall data (CHIRPS & ARC2, previously TAMSAT). Livestock index product for pastoralists introduced in 2020

Weather Index Insurance Experience: Zambia



Main Success Drivers and Challenges of Mayfair's WII Program

Success Drivers	Challenges
Partnerships and Product Bundling: • **Public Private Partnerships (PPPs)** with common goals and shared vision • **Aggregators** • **Reinsurance partners** - Swiss Re, Munich Re, Allianz Re, Zep Re etc. • **Product development specialists** • **Insurance regulator** • Providing insurance as a value addition to farmers practicing **Conservation Agriculture** and farmers seeking **access to credit** resulting in farmer loyalty.	**Awareness :** • Pre and during COVID-19 pandemic • During the pandemic we are targeting our sensitization more to end-users (farmers) as opposed to training of trainer who may face challenges with logistics
Sensitization: • Through meetings with field staff, farmers etc. • Distribution of flyers and radio spot adverts in 7 major local languages	Difficult to deploy insurance as **stand-alone product**
Digitization for premium collection and claims payouts via Mobile Money	**Digitization** for end-to-end policy management to capture all the steps in the customer journey. *Registration of farmers > Premium Collection > Sensitization > Claims Distribution*
Customer Centric Approach to product development and improvement. • Carried out limited field verification • Use of automated weather stations and rain gauges for product validation • Exploring different product types to suit changing client needs	**Basis Risk**

Key Pillars of Mayfair's Approach to WII

Client Value

Feedback from clients has helped us improve on the product and address basis risk.

The product has become accessible to clients owing to the partnerships with PPPs whereby even in our absence, the training of trainers enables the Field Officers to sensitize the farmers on our behalf.

Business Viability

Working with PPPs has provided ease for achieving scale and geographical diversification.

By achieving diversification, inclusive insurance has now proved to be profitable.

Now innovating and launching other product lines: NDVI Livestock Index and Area Yield Insurance.

Snapshots from the Field

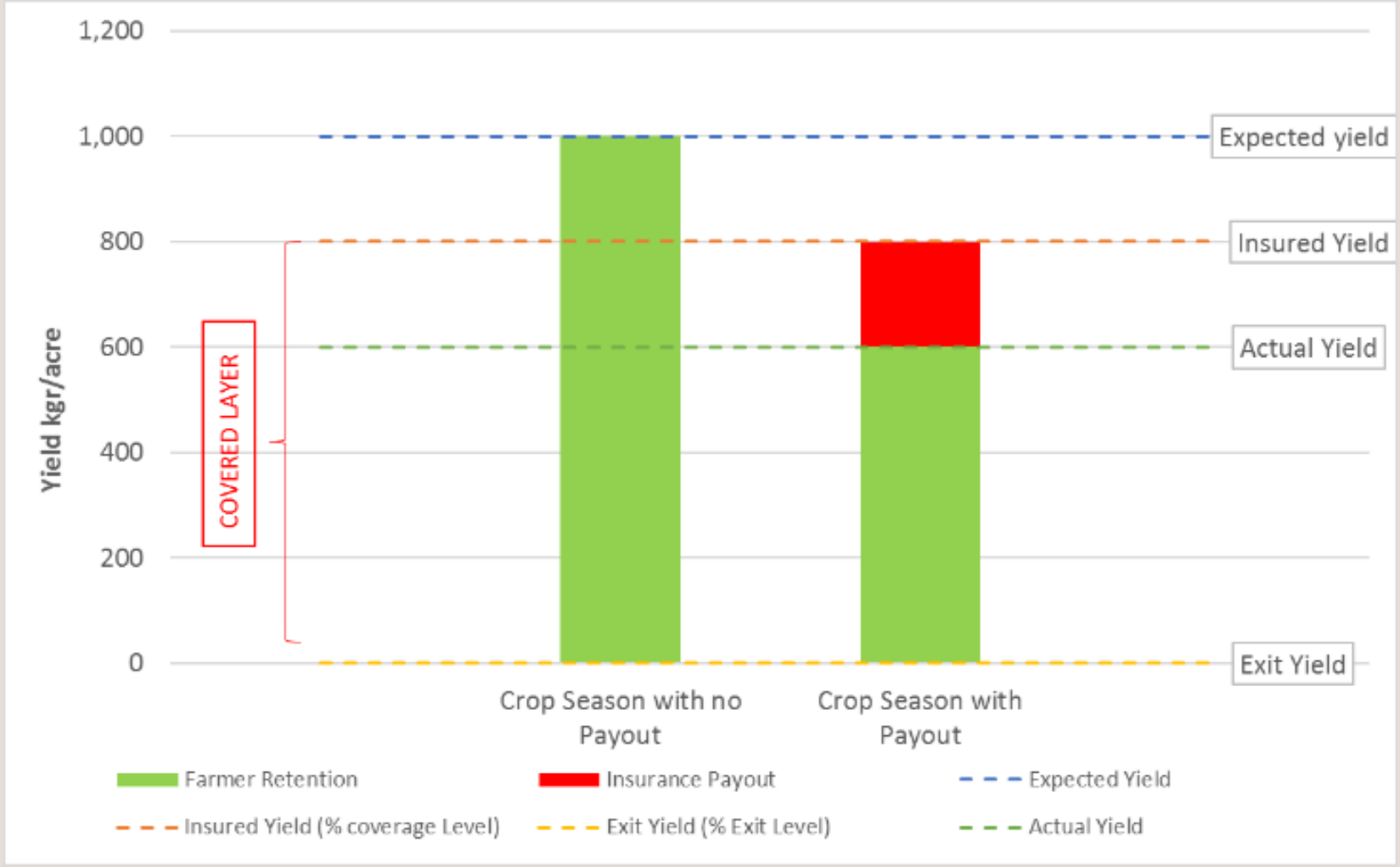
Area Yield Index Insurance (AYII) for small farmers

AYII (index) has similar objectives to MPCI (indemnity) and WII (index) but different features

Multi-peril crop insurance	**Farm**	• Multi-Peril Crop Insurance (MPCI) is a traditional indemnity insurance product against all perils • Payouts are determined through a farm-level loss assessment process
Area-yield index insurance	**Village**	• Area-yield index insurance is based on average losses at the regional-level, rather than farm level • It is often based on crop cutting experiments
Weather index insurance	**Village**	• Weather index insurance is based on weather parameters (such as rainfall, temperature, or soil moisture) correlated with farm-level yields or revenue outcomes

Source: World Bank

AYII provides payouts when the yield of an area falls below a predetermined percent of the expected yield



In this example the Insured Yield is set at 80% of the Expected Yield (or normal average area yield)

What is needed to implement crop Area Yield Index Insurance (AYII)?

- **Homogeneous crop producing areas can be defined** with low yield variation between farmers in that area (termed the Unit Area of Insurance or UAI);
- **Production and average yield data** for the past 10 to 15 years: to establish the insured yield and technical premium rates for the policy, and
- An independent and statistically accurate system of **measuring actual average area-yields**: to trigger claims payments where actual yields fall short of the insured yield

Yield estimation through sample crop cutting experiements (CCEs)

India's Area Yield Index Insurance Program: Pradhan Mantri Fasal Bima Yojana (PMFBY)

Challenges:

- 138 million farm households (2010-11 census)
- Very small farm size - Average 1.15 Ha.
- 85% of farmers are Small & Marginal (S&M) < 2 Ha.
- Low levels of financial literacy
- S&M farmers lack access to credit and inputs

Objectives of national crop insurance scheme:

- Provide S&M farmers access to seasonal crop loans (compulsory crop-credit insurance)
- Reduce levels of indebtedness/default
- Smooth consumption, increased crop productivity and incomes

India's Solution since 1980:

- Area Yield Index Insurance (AYII) to overcome issues of offering individual MPCI policies to S&M farmers
- Area yield estimation and settlement of payouts is based on State-level system of Crop-Cutting Experiments (CCE's)
- Former public-sector monopoly insurer
- Today operated as a partnership between public and private sector

PMFBY: What worked and what were the challenges

What worked

- **40 years of national crop insurance scheme.** Nearly 60% of Indian farmers have access to formal crop credit;
- PMFBY was launched in Kharif 2016 season and in year 1 (kharif & rabi seasons) **insured 57.3 million farmers**
- **3rd largest scheme** in the World by premium volume – US$ 4 billion 2018/19
- **Affordability/accessibility**: Premium rates paid by farmers for most crops are capped at 2.0% (Kharif) and 1.5% (Rabi)
- **Subsidies**: GoI and the state governments fund premium subsidies of about US$ 3.3 billion on a 50:50 basis

The Challenges

- **Basis Risk:** Solutions – reduce size of UAI to Village
- **Quality of CCEs has deteriorated** over time
- **Major delays** (6-12 months) in finalising CCEs and settling claims payouts
- **Very high premium rates**: Average >12%
- **Compulsory insurance for loanees** is very unpopular with farmers and state governments. In 2020 GOI amended PMFBY to be voluntary
- **Sustainability of Premium Subsidies**? Cost of premium subsidies has doubled in 3 years – >US$3.3 billion

Source: IRDAI , 23/06/2019

Conclusions on Area Yield Index Insurance

- AYII product is much more suited to small farmer conditions than MPCI
- AYII offers advantages over WII as it is a multiple-peril yield shortfall cover (e.g. insures against pests and diseases)
- However, AYII must be carefully designed to minimise basis risk
- Area-yield estimation is costly and time-consuming and subject to moral hazard. Much research is being conducted into use of Smart phones to improve timeliness and accuracy of CCE's and Remote Sensing solutions for area yield estimation (e.g. RIICE program in Asia)

LINKING AGRICULTURAL INSURANCE

to other services and products

Experience shows that the most effective small-holder crop insurance programs are bundled with other input and output services: R4 Case Study

R-4 approach to bundling Micro-level Crop Index Insurance with Credit and Savings and Risk Reducing measures

Initiative between Oxfam America and World Food Program, starting in Ethiopia in 2009.

R4 aims: Build the resilience to climatic shocks of food-insecure smallholder farmers through integrated risk management combining 4 strategies:

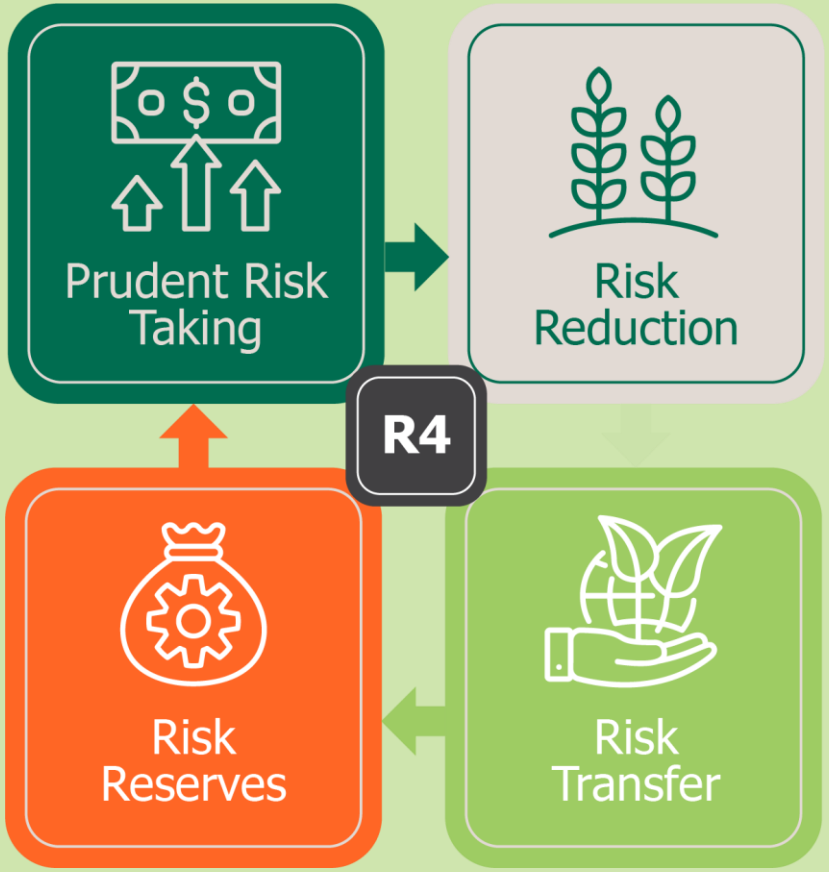
1. Risk reduction works – soil and water management, improved agricultural practices;

2. Group Savings: to enabling farmers and communities to absorb low impact climatic shocks

3. Credit: prudent-risk taking / easier access to credit to enable better investments.

4. Risk transfer: Transferring the risk of potentially catastrophic climate hazards to private insurance markets: (R4 offers - WII, AYII, NDVI + Flood index insurance).

R4 Resilience Building Components



R-4 achievements 2009 to 2020

Planting year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Payouts			US$17,000	US$320,000	US$24,000	US$38,000	US$450,000	US$74,000	US$1.5m	US$590,000	US$109,000	US$394,000
Value of premiums	US$2,500	US$27,000	US$215,000	US$275,000	US$283,000	US$306,000	US$362,000	US$770,000	US$1.1m	US$1.7m	US$1.6m	US$2.6m
Total sum insured	US$10,200	US$73,000	US$940,000	US$1.3m	US$1.2m	US$1.5m	US$2.2m	US$4.9m	US$6.6m	US$10.3m	US$12.2m	US$25.4m
Cash contribution							US$38,000	US$71,000	US$68,000	US$114,000	US$43,000	US$53,000
R4 Farmers insured through WFP (percent of women)	200 (38)	1,308 (39)	13,195 (33)	19,407 (21)	20,015 (31)	24,970 (33)	29,279 (32)	37,419 (40)	51,955 (50)	87,661 (55)	88,790 (60)	173,279 (55)
Non-R4 Farmers insured*							3,918	4,448	6,603	5,659	5,036	3,429
Countries	Ethiopia	Ethiopia	Ethiopia	Ethiopia Senegal	Ethiopia Senegal	Ethiopia Senegal	Ethiopia Malawi Senegal Zambia	Ethiopia Malawi Senegal Zambia	Ethiopia Kenya Malawi Senegal Zambia	Ethiopia Kenya Malawi Senegal Zambia Zimbabwe	Burkina Faso Ethiopia Kenya Malawi Senegal Zambia Zimbabwe	Bangladesh Burkina Faso Ethiopia Kenya Madagascar Malawi Mozambique Senegal Zambia Zimbabwe

- Started in Ethiopia 2009
- In 2020 R-4 programs in 9 countries in Africa and 1 in S. Asia
- In 2020, 173,279 farmers insured under R-4 (55% women)
- 2020 R-4 benefitted 900,000 people
- 2020 – 4,000 savings groups supported (85,000 farmers)
- Over 12 years, US$4.2 mio paid claims (loss ratio 45%)

Source: R-4 Annual Report 2020

GOVERNMENT SUPPORT TO

agricultural insurance

Why is Government Support to Agricultural Insurance needed?

Market failure: limited availability of private-sector agricultural crop & livestock insurance especially for small farmers.

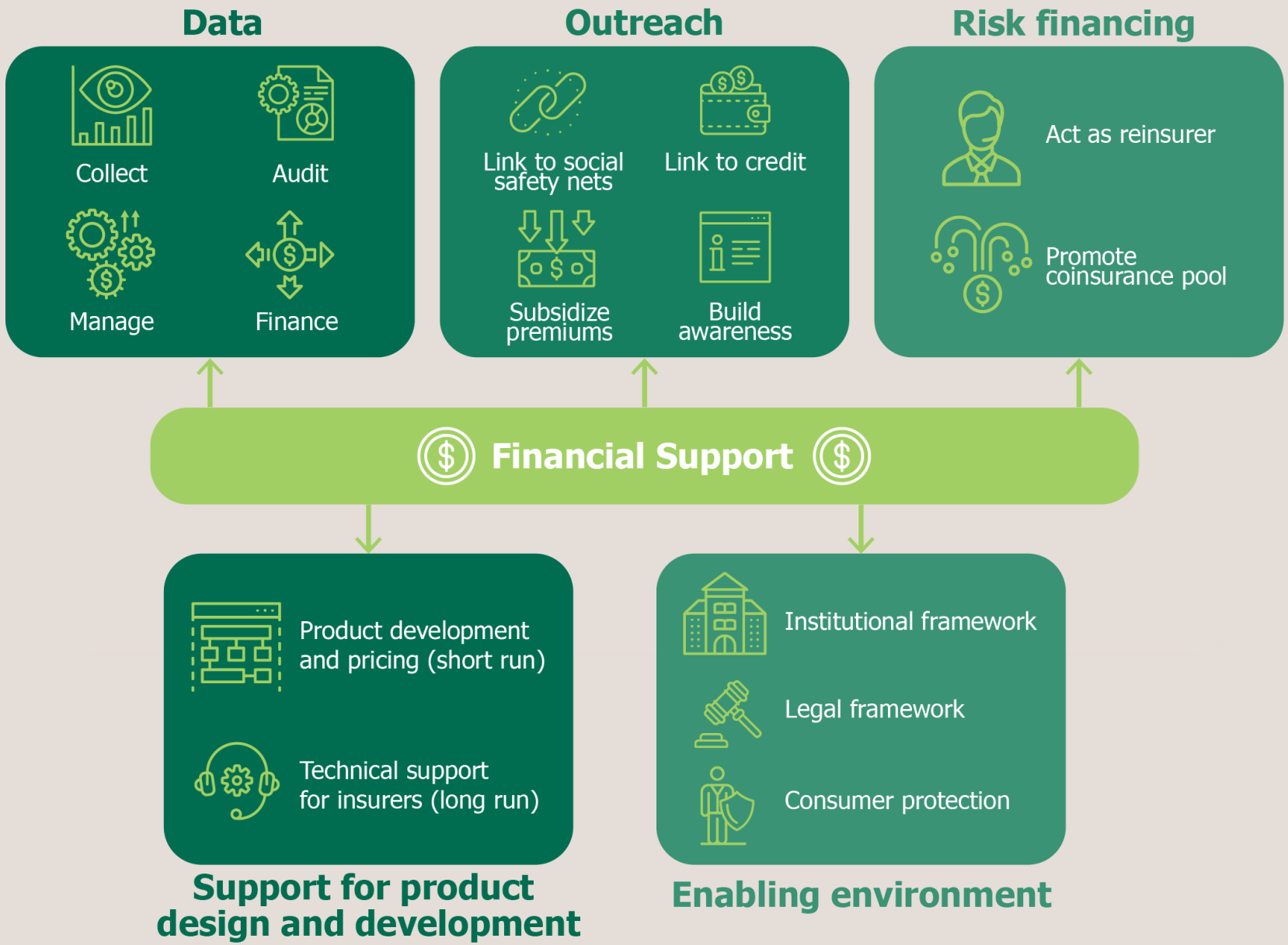
Capacity constraints: of private commercial insurers, particularly for systemic risk (drought, flood, epidemic diseases, etc).

High start-up costs of agricultural insurance: rural infrastructure is often poorly developed; costs of establishing insurance systems and procedures is therefore costly.

High costs insurance administration: for small farmers.

Affordability: Inability of small farmers to afford agricultural crop & livestock insurance premiums.

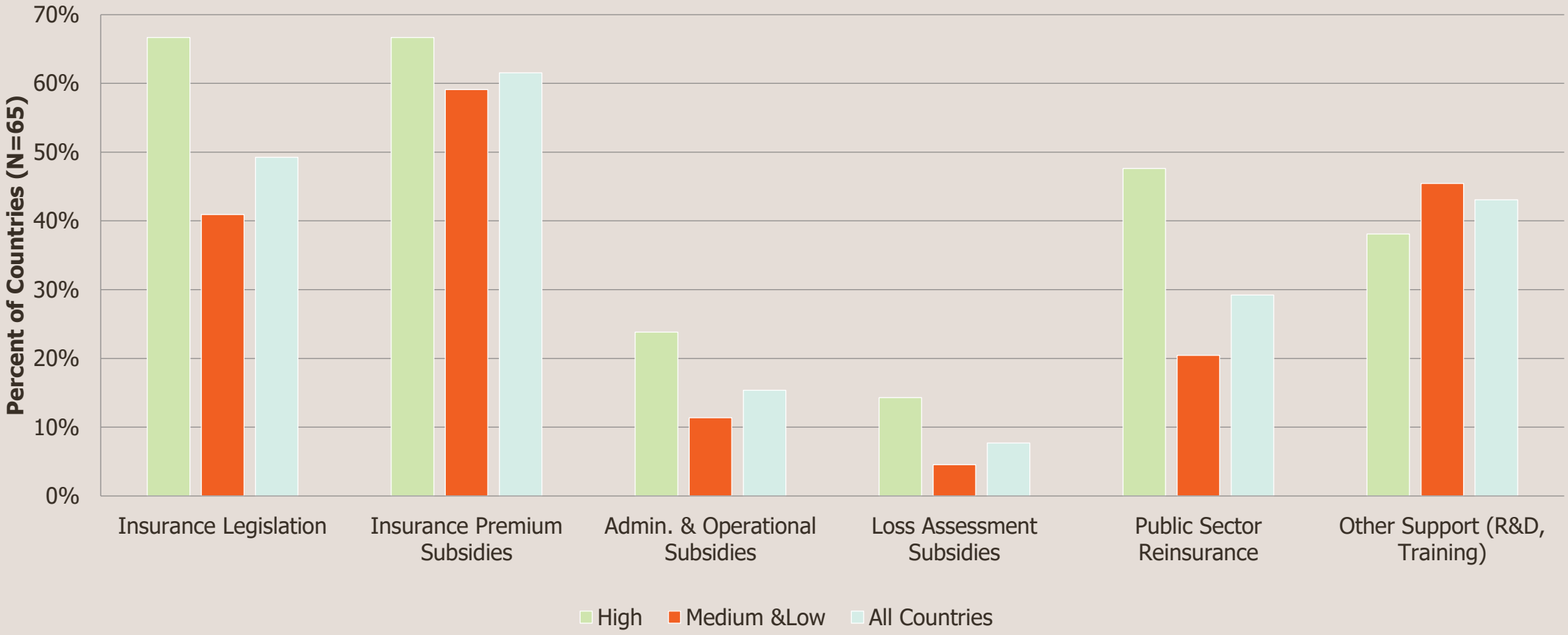
Potential Roles of Government in providing Support to Agricultural Insurance



Source: AIDP/DRFIP/WBG

What are the most popular types of Government support to agricultural insurance? (Results of a 2007 survey)

Types of Government Support in 2007 to Agricultural Insurance by Development Status of Country



SOURCE: World Bank Survey Results 2007-08 reported in Mahul & Stutley 2010

Why subsidise agricultural insurance premiums?

Arguments used to justify premium subsidy provision

Farmers	• Improves access to agricultural insurance (affordability) • Improves access to agricultural CREDIT (replaces collateral) • Stabilises consumption & incomes in event of crop failure • Improved ability to repay agricultural CREDIT (remain credit worthy)
Insurance Companies	• Enables Insurers to charge actuarially based rates • Increased adoption/uptake of insurance (higher premium volume) • Improves risk spread (dispersion) of agricultural insurance portfolio • Reduced levels of adverse selection by farmers
Government	• Provide incentives to farmers to purchase agricultural insurance • Provide an objective mechanism to finance natural disasters • Permits a better allocation of government budgetry resources • Stabilises agric. incomes / reduced need for ad hoc disaster relief • Social objectives (reduces rates of rural-urban migration)

NOT WITHSTANDING,

- **ADOPTION:** Subsidies on agricultural insurance premiums are not necessarily a pre-condition for achieving high rates of adoption & uptake, especially in the case of crop hail program
- **SCALE:** Even in highly subsidized markets it can take many years to reach SCALE
- **SUSTAINABILITY:** Currently, almost all large-scale PPP multi-peril crop insurance (MPCI) programs are totally dependent on premium subsidies to make them attractive to farmers

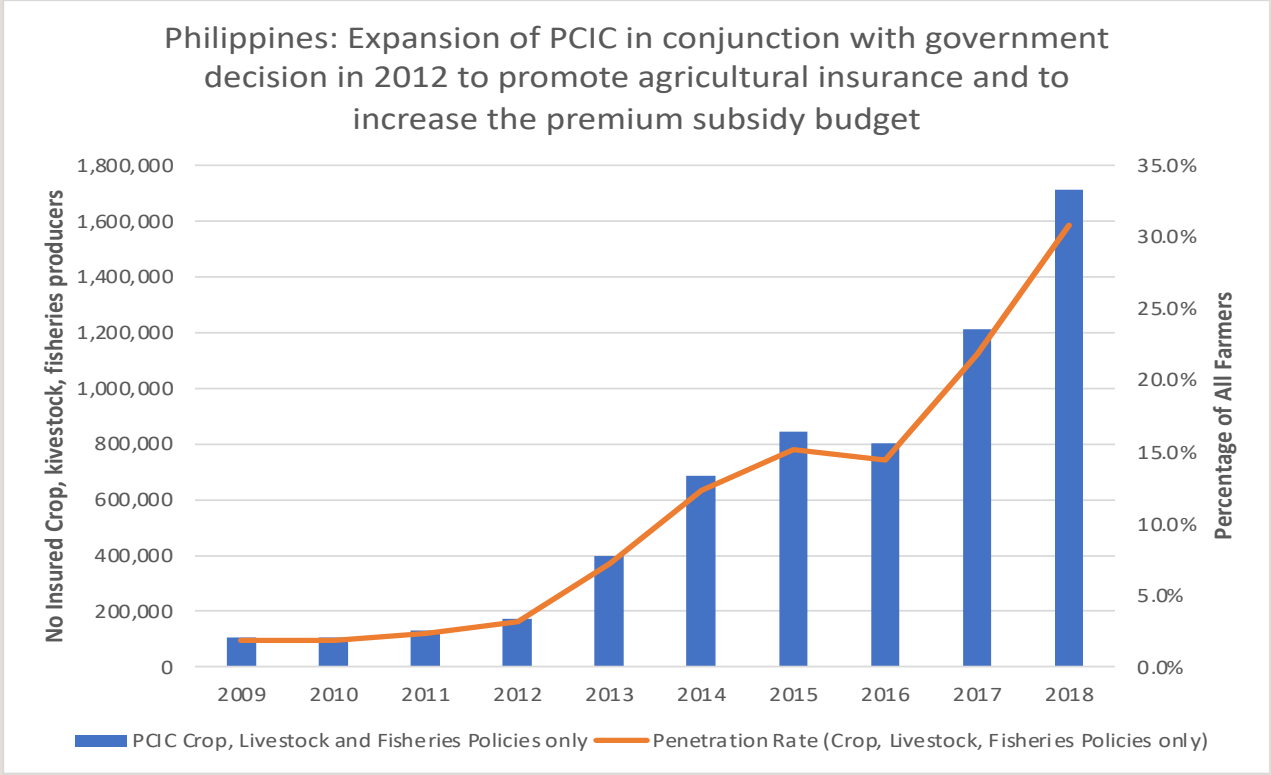
Premium subsidies can lead to scaling up of Agricultural Insurance, but need to be carefully planned to be financially sustainable

However, premium subsidies need careful planning and budgeting if they are to be sustainable:

- The costs of premium subsidies to governments can be extremely high and increase over time as uptake increases
- Premium subsidies are very difficult to reduce or withdraw once introduced by governments
- Governments need to consider long term affordability (sustainability) of premium subsidies
- Need to target smart premium subsidies at those most in need:
- Differential premium subsidy levels for small, medium, large farmers;

Cap the maximum amount of subsidy any one farmer can qualify for to avoid large farmers disproportionately capturing subsidies.

Source: PCIC Annual Reports



E.g. Philippines: The demand for and uptake of agricultural insurance has coincided with a huge increase in premium subsidy budget allocation by government (>US$100 million in 2019)

Many governments have signiciantly increased their support to agricultural insurance premium subsidies in recent years

Agricultural Insurance Premium & Subsidies 2007					Agricultural Insurance Premium & Subsidies 2019/20				
Country	Total Agricultural Insurance Premium (US$ Million)	Global market share %	Total Premium Subsidies (US$ Million)	% Premium Subsidy	Country	Total Agricultural Insurance Premium (US$ Million)	Global market share %	Total Premium Subsidies (US$ Million)	% Premium Subsidy
United States	8,511	56%	3,823	45%	United States	11,063	32%	7,191	65%
Japan	1,111	7%	549	49%	China	10,200	29%	8,160	80%
Canada	1,090	7%	546	50%	India	4,000	11%	3,400	80%-90%
Spain	809	5%	581	72%	France	1,509	4%	906	60%
China	682	5%	283	41%	Canada	1,400	4%	840	60%
Italy	383	3%	280	73%	Japan	1,200	3%	600	50%
Russia	315	2%	156	50%	Spain	910	3%	287	32%
France	241	2%	146	61%	Italy	665	2%	399	60%
Mexico	142	1%	62	44%	Brazil	**571**	2%	166	29%
South Korea	93	1%	34	37%	South Korea	468	1%	383	82%
Top Ten Countries	**13,375**	**89%**	**6,460**	**48%**	**Top Ten Countries**	**31,986**	**91%**	**22,331**	**70%**
Other 55 Countries	1,727	11%	135	8%	Other 115 Countries	3,014	9%	n.a.	
Total World	**15,102**	100%	**6,595**	**44%**	**Total World**	**35,000**	100%	**0**	**n.a.**

LESSONS LEARNED AND

final conclusions

Lessons: Insurance products for smallholder farmers

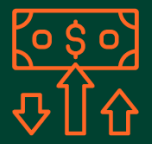
Agricultural Insurance is not a solution to small farmer development problems. It is a tool to transfer unmanageable risk from farmers to insurers.

Agricultural Insurance works best when bundled with other "value-added" interventions for farmers e.g. credit, input supply, output marketing

Traditional Indemnity-based crop and livestock Insurance is very difficult to implement with small-holder farmers due to:

Lack of data at the individual farmer level to design and rate products

Very high costs of individual farmer pre-inspections and in-field loss assessment



Low premium and very high transaction costs per insured farmer

Issues of moral hazard and anti-selection on voluntary programs

Index Insurance represents a major technological breakthrough for small farmers, but faces several challenges:

Generally insures one or two perils only (i.e. it does not guarantee yield shortfall)

Basis Risk – the difference in the value of the index variable (e.g. rainfall) recorded at the weather station and on individual farmers' fields

High design costs and often requires major awareness & education to gain farmers' trust

Lessons: Public and private support to agriculture insurance

In low- and middle- income countries, agricultural insurance markets tend to be poorly developed and government support through PPPs can stimulate market development

Underwrite agricultural insurance through Private Commercial Insurers wherever possible

Promote agricultural reinsurance through local and global international reinsurance markets

Important areas of government support:

Creation of enabling legal & regulatory framework

Awareness, education and training

Data & information enhancement and dissemination

Product design & rating (technical support)

Promote / capitalize PPP Coinsurance Pools

Governments should exercise fiscal prudence over premium subsidy support to ensure sustainability / scalability

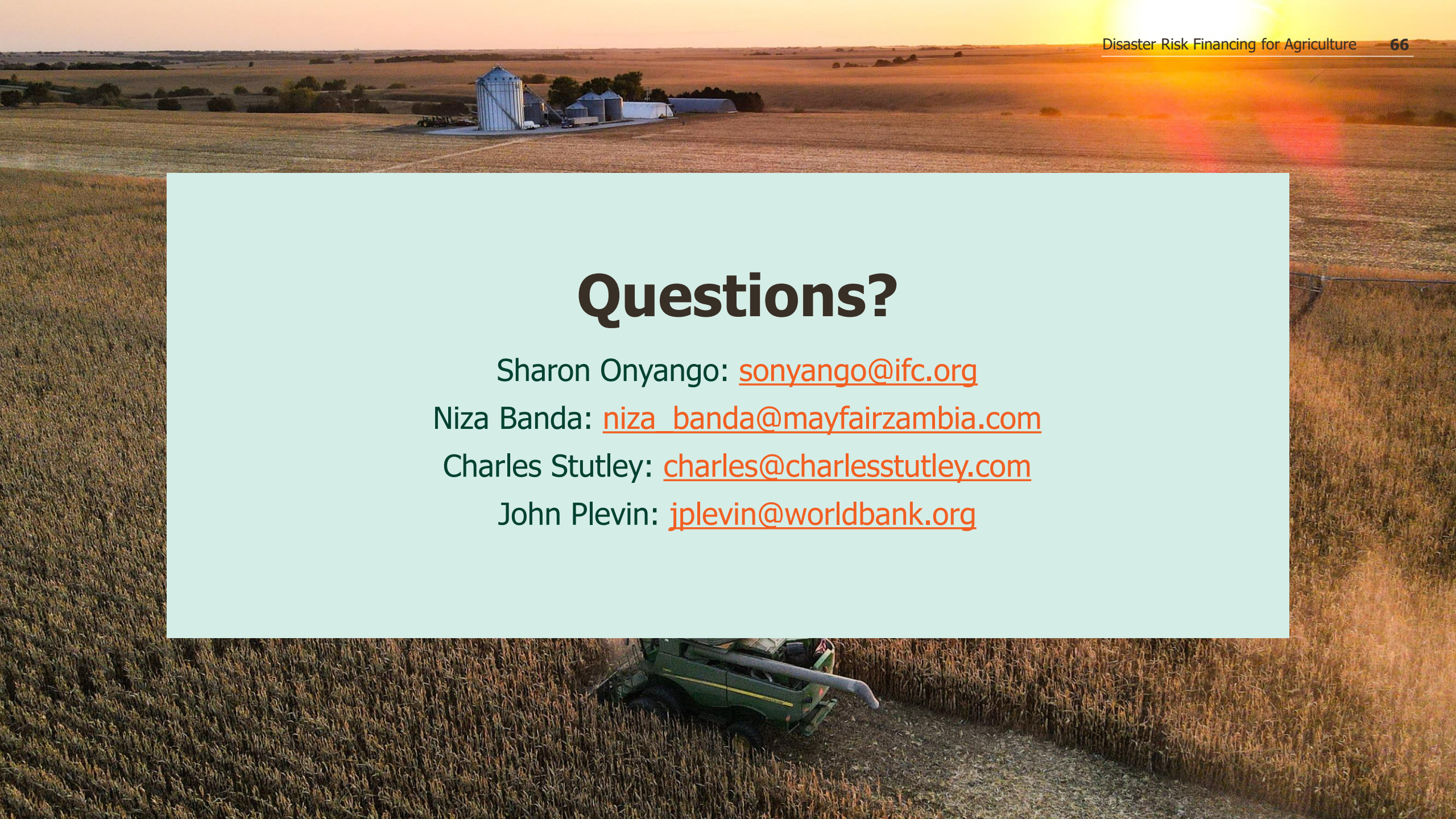
In some circumstances, government support as a reinsurer of last resort may be justified

Donors and development agencies are increasingly providing technical assistance and financial support for agricultural insurance in LICs/MICs.

Optimal Insurance Organizational framework for PPP: Should be structured according to local market conditions. Coinsurance agreements are well worth considering in start-up years of a new program.

Key takeaways of Module 6

- Crop and Livestock Index Insurance products are often more suitable to small farmer conditions than indemnity-based products, but basis risk continues to be a problem;
- PPP frameworks appear to offer a more sustainable solution than private only or public only agricultural insurance programs in low and middle income countries
- Strong government involvement and financial support is crucial to the scale-up / sustainability of agricultural insurance in low and middle income countries
- Premium subsidy support is a feature of most programs in developing and developed countries alike which have scaled-up, but should be prudently planned.



Questions?

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Next session

SESSION

1. Introduction to DRFA
2. Reducing & Preparing for Risks in Agriculture
3. The Role of Financial Market Solutions for Building Resilience to Shocks in Agriculture
4. Structuring an Agriculture Financial Protection Scheme
5. Implementing an Agriculture Financial Protection Scheme
6. Risk Finance Instruments 1 – Agriculture Insurance
7. Risk Finance Instruments 2 – Macro and meso-level Risk Transfer for Agriculture
8. Risk Finance Instruments 3 – Risk Retention Mechanisms for Agriculture