JAMAICA

Agricultural Insurance:
Scope and Limitations for Weather Risk Management

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LATIN AMERICA AND THE CARIBBEAN REGION
AGRICULTURE AND RURAL DEVELOPMENT TEAM
THE WORLD BANK

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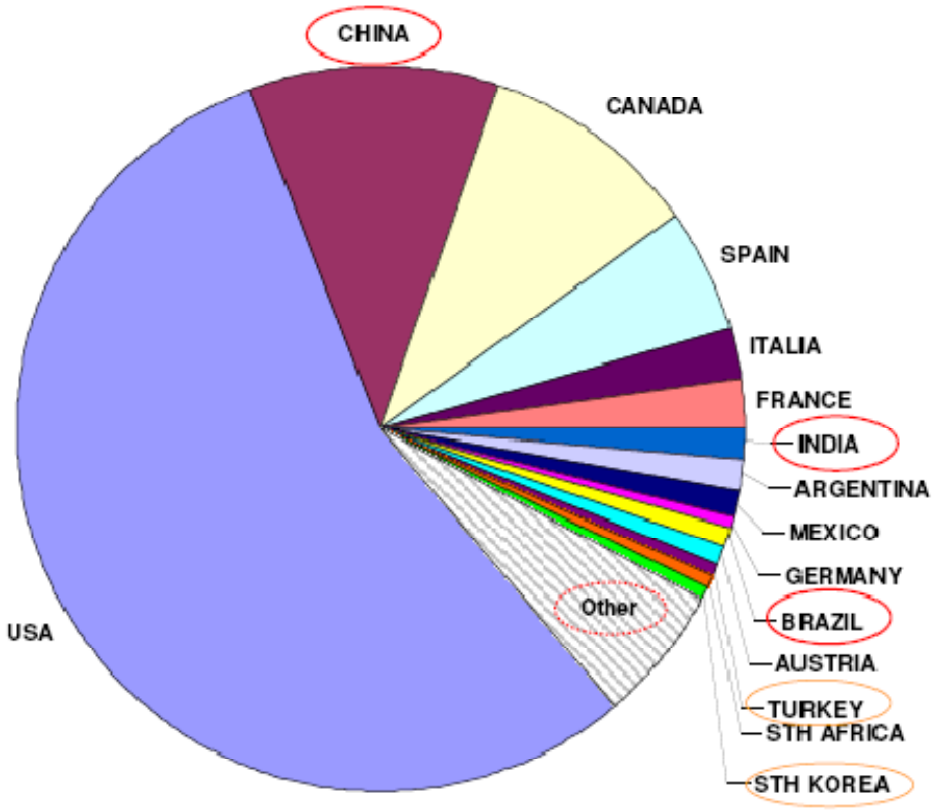
Agenda

- The global market
- Products
- Organisation of agricultural insurance
- Government intervention
- Public-Private sector partnerships
- Lessons learned

Global agricultural insurance market

Agricultural Production
Direct Insurance Premium
€ 16,5 Billion Worldwide estimated Volume



Source: Paris Re, 2008

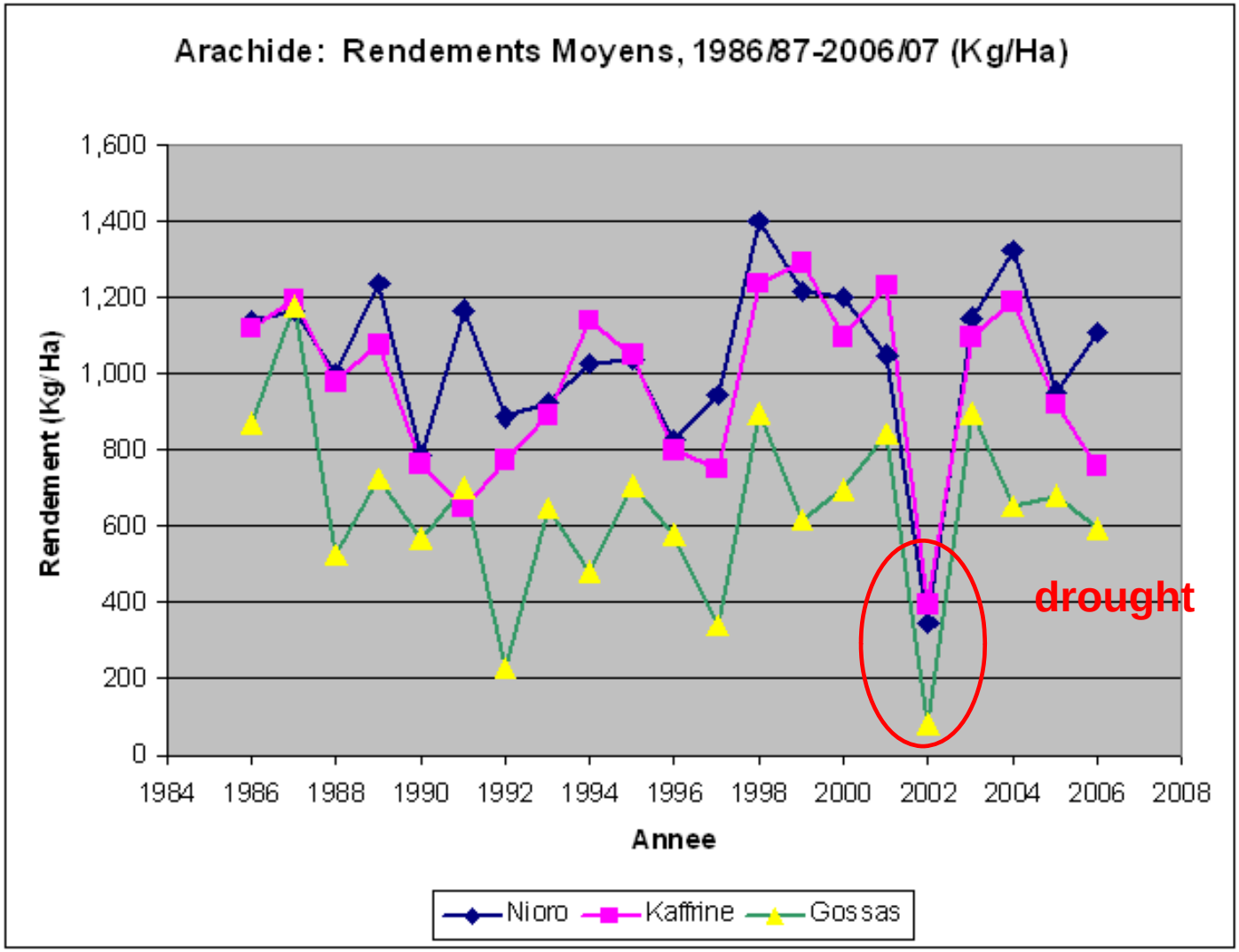
Rural insurance constraints in developing countries

- Highly challenging environment for insurers
  - Insurers lack rural networks, expertise, data
  - Technically complex to insure crops and livestock
  - Catastrophe risk exposures
  - High transaction and loss assessment costs
  - More profitable opportunities exist in commercial and urban areas
- Clients
  - Small size, geographically spread
  - Lack insurance awareness
  - Lack capacity or willingness to pay premiums
  - Lack incentives to insure if there is government disaster assistance
- Inadequate data and infrastructure
  - Poor statistical base (crop production, risks, losses)
  - Poor rural services including credit
  - Difficult to establish distribution channels and linkages

Agricultural insurance – product range

- Traditional crop and livestock indemnity products
  - Named peril crop insurance (e.g. hail)
  - Multiple peril crop insurance (yield guarantee)
  - Revenue insurance (yield and some price protection)
  - Livestock mortality insurance
- Index-based products
  - Weather index products
  - Area yield index products
  - Livestock index products
- Rural insurance products
  - Health, life, property, motor…
  - Microinsurance a growing sector enabling rural households to access simplified policies

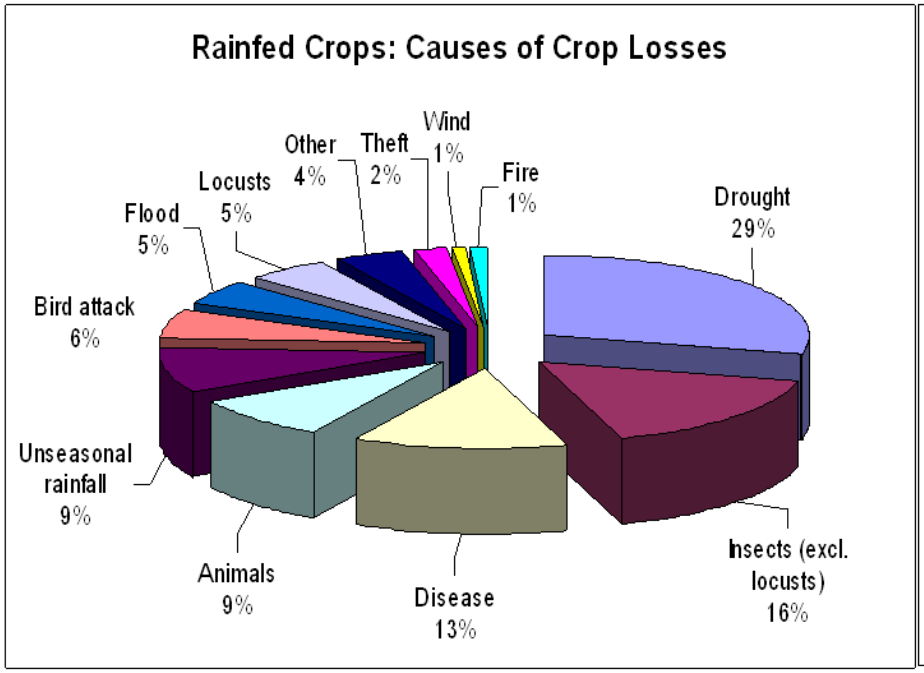
Risk assessment – analysis of yield volatility

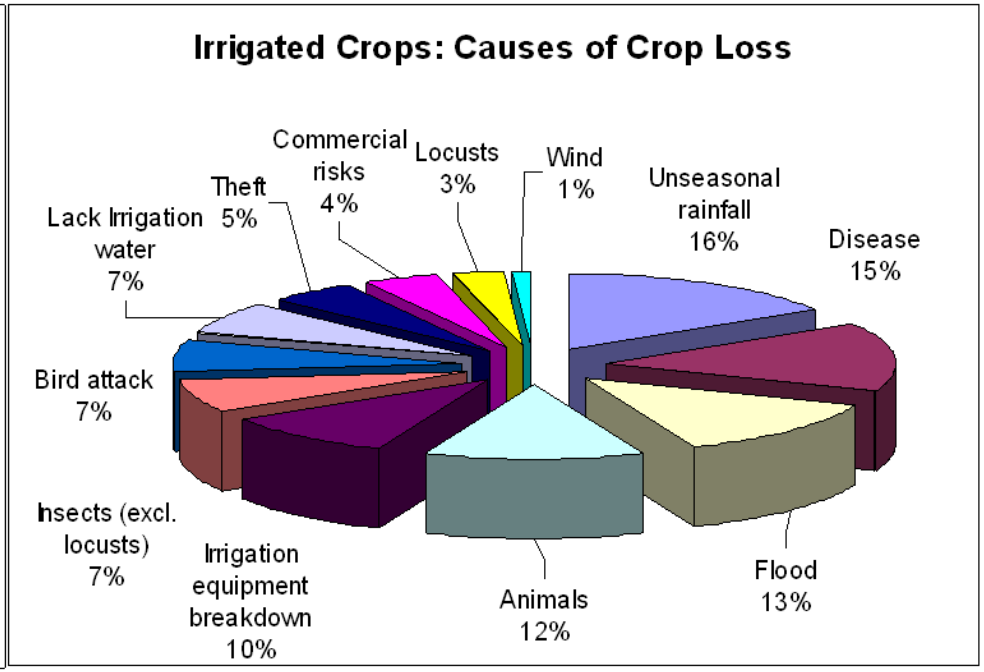


Senegal – groundnut department level yields

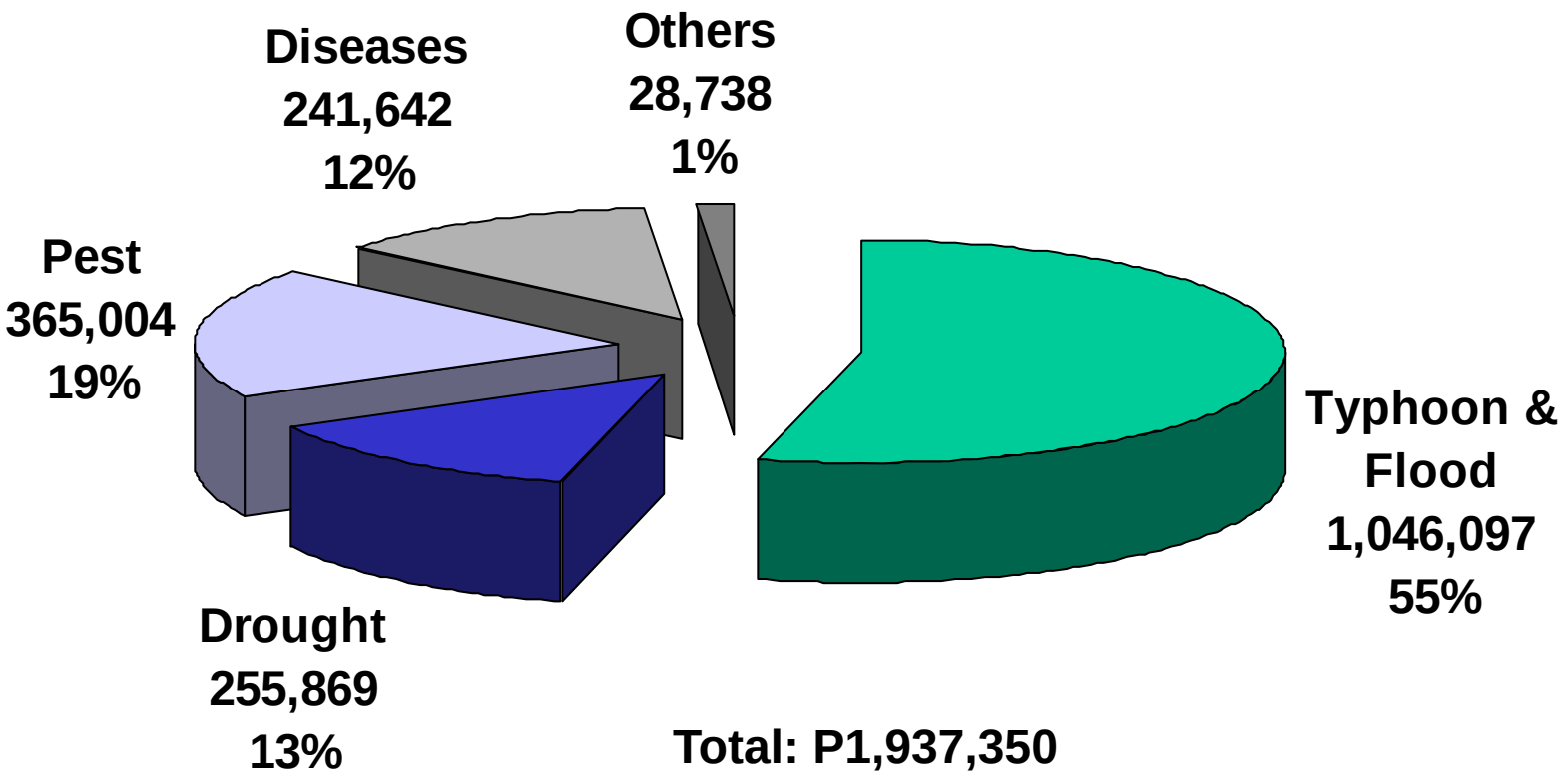
Risk assessment

Senegal: Causes of Loss in Rain-fed and Irrigated Crops





Philippines - Rice Crop Insured Causes of Loss
1981 to 2006 (26 years) (P.Pesos '000)



Source: Philippines Crop Insurance Corporation

Traditional Indemnity Crop Insurance

NAMED PERIL

- Assess loss from specific perils
- Requires loss adjustment (percentage damage assessment)
- Suitable for perils causing measurable, sudden-impact damage to crops.
  - Not drought, pest, and disease.
- Hail is the most common because:
  - Damage is easily identifiable
  - Field assessments can be accurately carried out
  - Losses are typically localized rather than widespread

MULTIPLE PERIL

- Assess loss as deviation from historical yield
- Requires loss adjustment (yield loss assessment)
- Contributing causes to yield loss are not differentiated
  - Difficult differentiate weather event vs poor management practices
- Suffers from:
  - Adverse selection
  - Moral hazard and high costs of loss assessment
- Base product for the subsidized federal crop insurance program in the USA and most of Canada, and China

What are index insurance contracts ?

- An index insurance contract pays out based on the value of an “index”, not on losses measured in the field
- An index is a variable that is highly correlated with losses and that cannot be influenced by the insured
- Example indexes - rainfall, temperature, regional yield, river levels etc.
- Key strengths
  - Index insurance overcome most of the supply side problems of MPCI
  - Objective and transparent
  - Provides timely payout
  - Reduce administrative costs
  - Facilitates international reinsurance
- Constraints
  - **Basis risk** – the potential mismatch between losses and payouts
  - Provides single-risk protection
  - High inputs required during development phase
  - Requires local adaptation – slows the scaling up

Index Based Products

AREA YIELD

- Assess loss based on estimates of the area yield.
  - Threshold is established less than the expected county yield
  - Indemnities paid when area average yield is < than threshold.
- Products date to the 1950s (Sweden) and has since been offered in Canada (since 1977) and the US (since 1992).
- India's national crop insurance program is area yield
  - Mixed social and market goals
  - Actuarial performance is quite poor
  - Average loss ratios exceed 400 percent

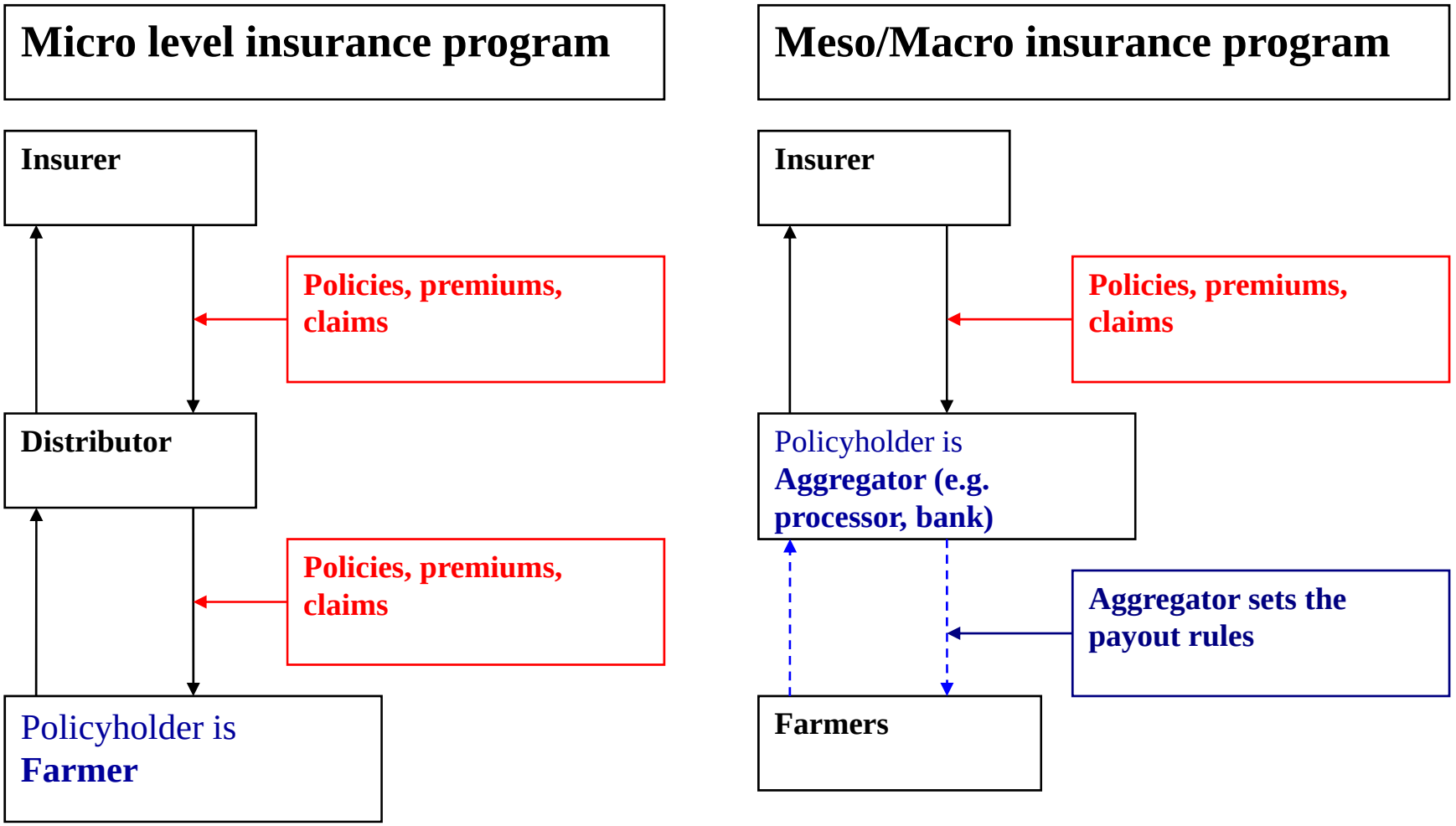
WEATHER INSURANCE

- Assess loss based on the changes in a weather index over a pre-specified period of time at a particular weather station.
- Appropriate for highly correlated weather risks
  - excess and deficit rainfall
  - excess and deficit temperature.
- Strong, quantifiable relationship, must exist between weather risk and yield loss in order to establish the index on which the contract will be based.
- Relatively low administrative costs and does not face moral hazard issues.

Stakeholders in rural insurance

Category	Potential stakeholders	Role
Insurers	Insurance companies Insurance association	Underwriting of the risk
Reinsurers	Reinsurance companies	Acceptance of transferred risks
Delivery Channels	Agricultural banks Rural Service organizations NGO's MFI 's Input suppliers	Distribution channel of insurance to farmers Farmer education and extension
Farmers	Farmer Association Co-operatives	Representing farmers, as buyers and beneficiaries
Government Departments	Meteorological Service Regulator of Insurance Ministry of Finance Ministry of Agriculture Planning Ministries	Representation of government organizations at policy, research or operational level. Possible subsidy and/or ongoing support to the program.
Donors	Technical assistance	Support (financial and/or consultancy) mainly during design and implementation phases

Insurance structures



Some public sector interventions in agricultural insurance

- Premium subsidy
- Administrative subsidy
- Reinsurance
- Legal and regulatory
- Loss assessment resources
- Data collection, weather services
- Government compensation systems or safety nets often operate in parallel with agricultural insurance

- *Public-private partnerships are needed to engage the private insurance sector*
- *Insurance is supportive to, but not a substitute for, investments in rural finance and services, supply chains, infrastructure…*

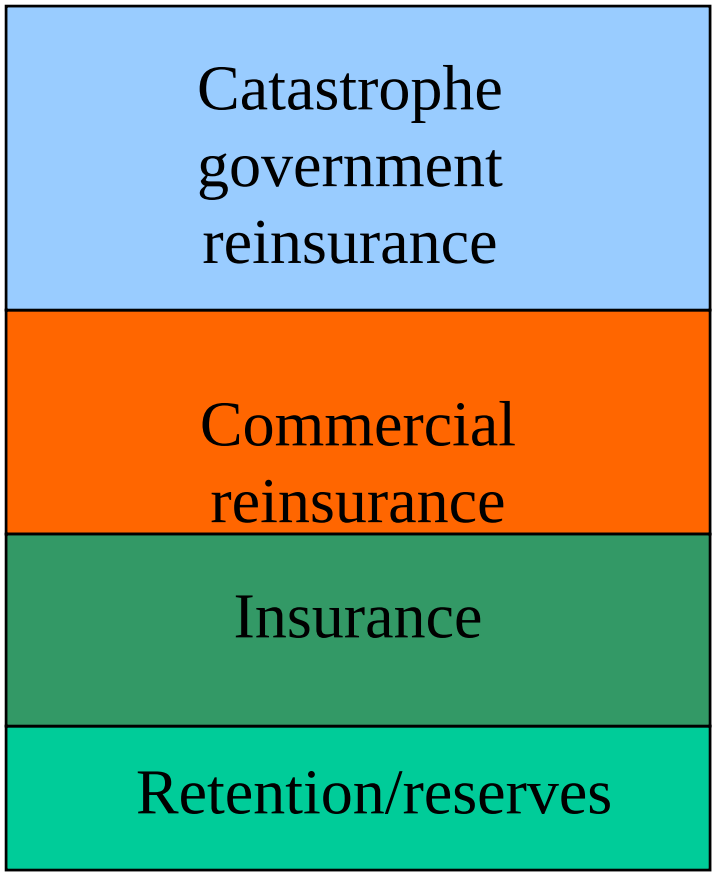
Layered risk transfer structure

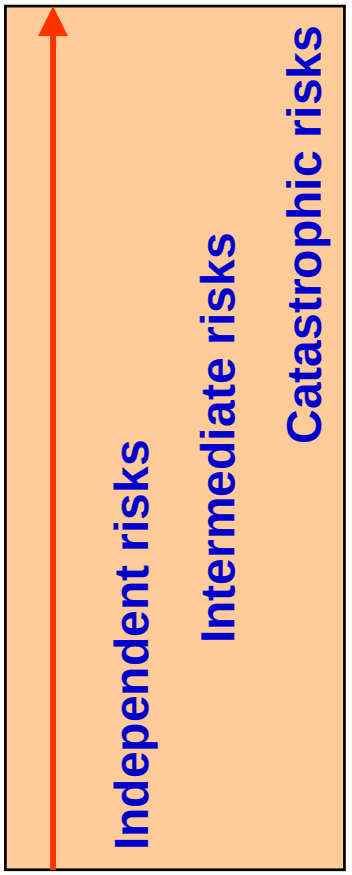
Return Period

20-30 years

5-7 years

3-5 years





Country Agricultural Risk Management Model

Institutional capacity building

- Data management
- Regulatory/supervisory framework
- Information and education
- Technical expertise
- Program administration and monitoring

Agri-business segmentation

- Social vs commercial insurance
- Traditional farming sector
- Emerging farming sector
- Commercial farming sector

Agricultural risk financing

- Risk layering
- Insurance index
- Insurance pool
- Insurance and rural finance

Agricultural risk assessment

- Risk identification
- Risk quantification
- Probabilistic agricultural risk model

Scope, limitations and lessons

- Opportunity to embed weather insurance into larger development projects and lending
  - An integrated approach is needed linked to other rural services
  - Natural linkage to improved availability of agricultural credit
- Climate adaptation and role of insurance
  - Insurance plays a supportive but not a leading role
  - Insurance is not a substitute for climate adaptation measures
  - Increased risk from climate change is a challenge to insurers
- Lessons learned in agricultural insurance
  - Technically demanding and sometimes infeasible or costly
  - There is no universal insurance product
  - Public-private partnerships are needed for agricultural insurance
  - Devil is in the detail
  - Insurance is only one component of risk management
  - Insurance is not a panacea
  - Practice may differ from theory