

**11th University Meets Microfinance (UMM) - Workshop
of the e-MFP Action Groups “University Meets Microfinance” and
“Microfinance & Environment”**

Value Chains in Agricultural and Green Microfinance
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**Risk management on the supply side of the
value chain**

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Risk management in value chains



Weather-related risks	Periodic deficit and or excess rainfall or temperature, hail, storms
Natural disasters (including extreme weather events)	Major floods and droughts, hurricanes, cyclones, typhoons, earthquakes and volcanic activity
Biological and environmental risks	Crop and livestock pests and diseases, food contamination
Market-related risks	Changes in supply/demand that impact domestic / international prices of inputs and/or outputs, changes in market demands for quantity and quality, changes in food safety requirements
Logistical and infrastructural risks	Changes in transport, communication, energy costs, degraded and or undependable transport, or infrastructure, labor disputes
Management and operational risks	Poor management decisions in asset allocation and livelihood/enterprise selection or input use, poor quality control, forecast and planning errors, breakdown of farm equipment, use of outdated seeds
Public policy and institutional risks	Changing or uncertain monetary, fiscal, tax, financial policies, changing or uncertain regulatory, legal policies, trade and market policies, land policies. Governance related uncertainty, weak institutional capacity
Political risks	Security-related risks and uncertainty with domestic or external politico-social instability, interruption of trade

Risk Management Instruments

- **Technology development and adoption** (R&D, postharvest technology, software development, IT, education programs)
- **Enterprise management practices** (e.g. farm diversification, certification, Just-in-time management, inventory control, food safety practices, logistics planning, early warning systems)
- **Financial instruments** (e.g. credit, insurance, warehouse financing)
- **Investment in infrastructure** (e.g. transport / communication, energy, informatics and knowledge transfer, storage and handling, processing facilities, weather stations)
- **Policy and public programs** (regulatory measures, agricultural policies, property rights, labor laws, disaster management, safety nets)
- **Private collective action** (action by cooperatives, industry associations)

Financial risk management tools

Weather related risks

- Weather Derivatives
- Disaster insurance (CAT Bonds, Loss and Damage instruments)

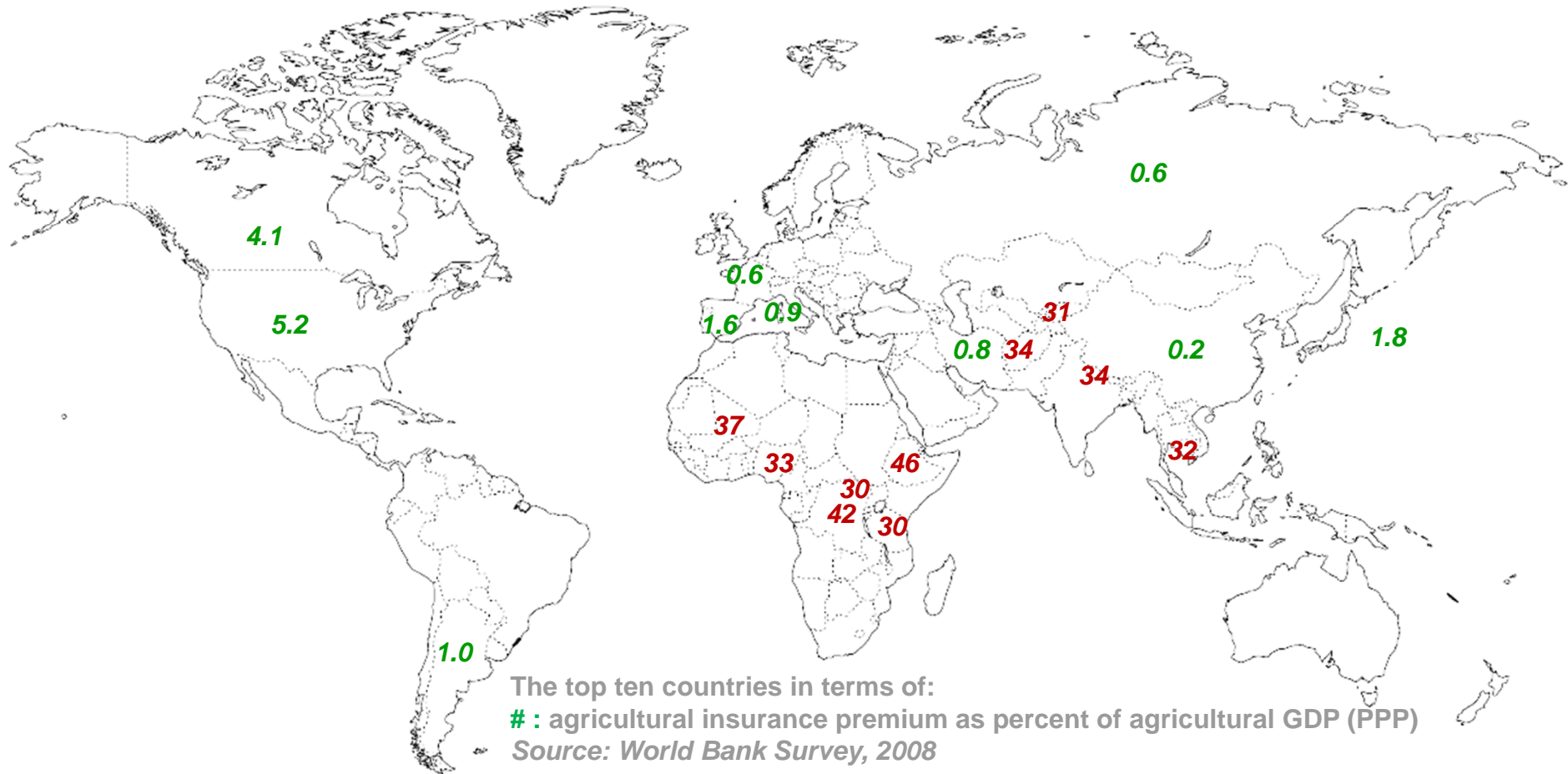
Market related risks

- Price index insurance
- Area index insurance
- Warehouse receipt

Operational risks

- Guarantee banking, focused on SMEs in value chains can ease the process of acquiring mainstream credit
- Contract farming hedges price risks
- Traditional insurances (e.g. hail)
- Savings and credit
- Micro-insurance for life and endowment to focus on the risks of the producer

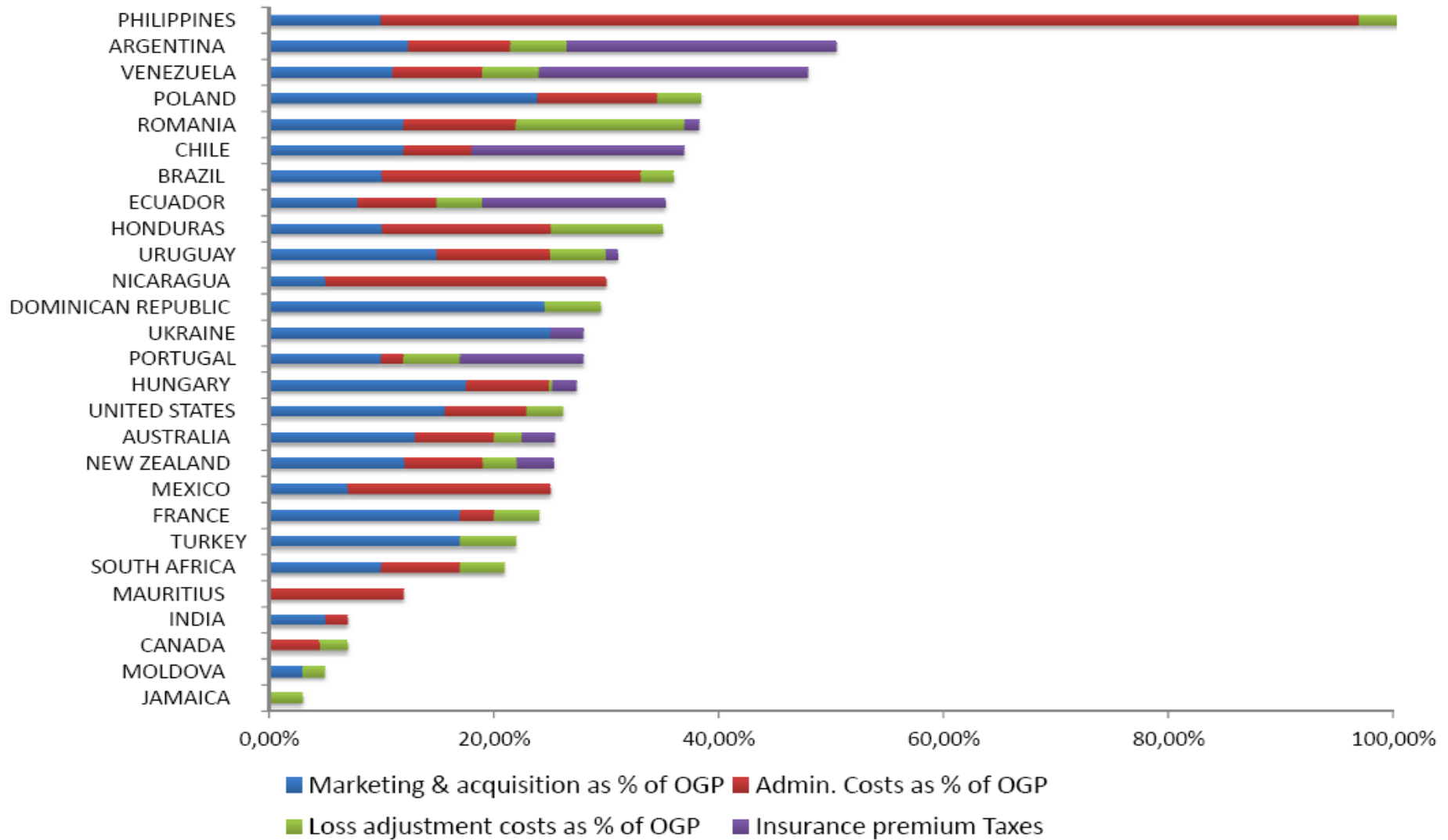
Global situation: growth potential for agricultural insurance



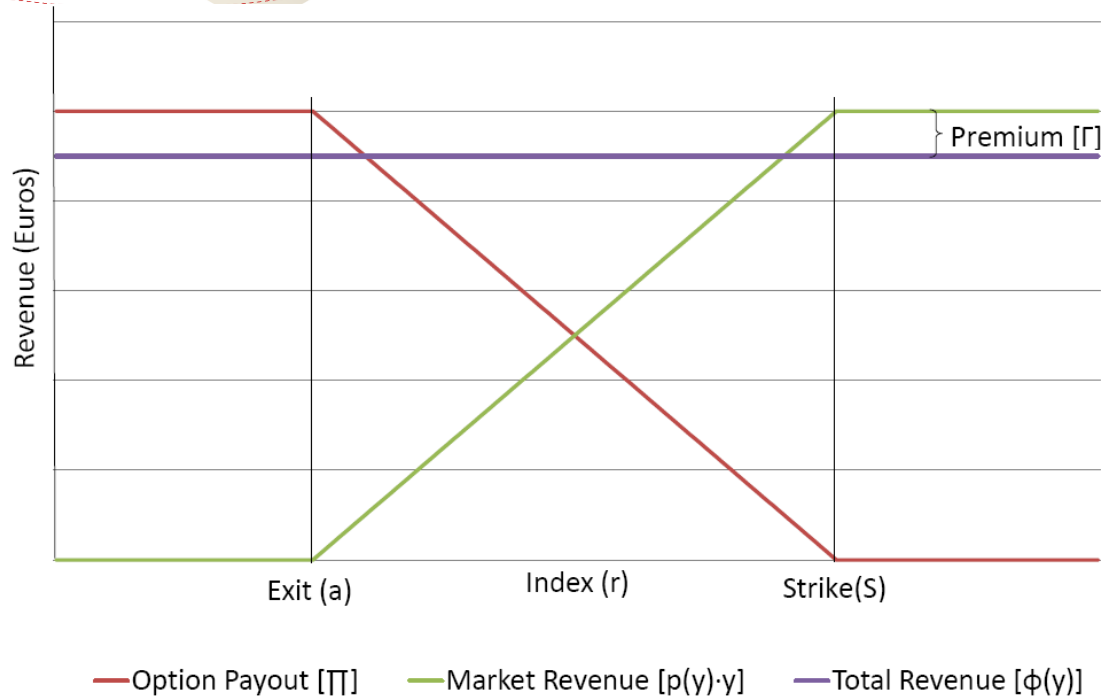
: agricultural GDP as a percentage of total GDP (PPP)
 Source: FAOSTAT, 2007

(GDP: Gross Domestic Product; PPP: Purchasing Power Parity)

Global situation: cost of delivering insurance in selected countries



Weather Derivatives



$$\phi(y) = p_y [\hat{y}_{max} + e_B] - \Gamma$$

Example of indices - rainfall, wind speed, temperature, regional yield, river levels etc.

- Low cost of loss assessment and administrative costs;
- “Presumably” no Adverse Selection and no Moral Hazard;
- Speed of loss assessment and indemnification

Problems



- Low participation
 - High basis risks
 - High costs
 - High ambiguity
- Systemic risks
- Problematic post disaster assistance programmes „samaritan‘
dilemma“
- Limited access to international reinsurance markets
- Limited agricultural risk market infrastructure
- Low risk awareness
- Lack of financial literacy and insurance culture
- Regulatory impediments



GIZ risk management strategies

Holistic approach towards risk management;

Knowledge management as well as exchange of expertise internally and externally;

Key aspects are identification, quantification, and mitigation. This calls for research and dissemination as well as assimilation of existing knowledge;

Early Warning Systems and other Technical measures are integral part of effective risk management;

Remittance systems and off-farm activities are risk management measures;

Insurance tools such as weather derivatives should be consciously implemented where it is most effective, like hedging supply and demand side risks of renewable energy sector;

Building social infrastructure as local safety nets;

Enabling policy environment is necessary for effective risk management;

Investment in financial literacy;