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S A F E T Y   N E T S   F O R   A L L

# **Comprehensive Climate Risk Management Not without Climate Insurance**

**Insights from an on-ground pro-poor pilot**

**Rupalee Ruchismita,**

**21st May, 2016**

**Bonn Climate Conference, MCII @ UNFCCC-2016**

# WHO ARE WE

# How

## Innovation

Product /  
Process  
Design

Market  
Research

Rough to right loop

## Market Creation

Data  
Warehousing

Capacity  
Building

Impact  
Research

Policy  
Advocacy

Longevity

Metrics

Safety

Nets

For

All

# How

## Innovation

### Product Features

Greater Product Coverage

Risk Reduction

### Processes

Transaction Cost

Adverse Selection

Risk Valuation

Risk Identification

# How

## Market Creation

**Capacity Building**

**Data Warehousing**

**Impact  
Research**

**Policy Advocacy**

**Insurer / Regulator  
/ Multi-lateral /  
Aggregator  
Training**

**Rigorous  
Academic  
Research**

**Knowledge Synthesis Reports**

**Live  
Industry  
Databank**

**Influence Govt. and Multi-  
lateral Policy**

# Safety nets for all *in collaboration with*



# AGENDA

# MAKING CLIMATE INSURANCE HAPPEN

## Areas of Intervention

### Business Models

#### RISK POOLING

- Risk layering
  - National
  - International
- PEER to PEER Insurance

### Processes

#### DIGITISATION of

- Risk assessment (Modeling)
- Partnership
- Claim Distribution

**MOBILEs for SALES and  
SERVICING**

### Product Features

- Personalized
- Simple
- Inexpensive
- Easily accessible claims



# DATA: Defining the **Client** for Climate Insurance

WHO

		Target Client			
		Urban		Rural	
		Non-LIG	LIG*	LIG	Non-LIG
Product Filing (Regulator)	Products under 'Rural and Social Sector' Obligation	1	2	3	4
	Products under 'Microinsurance Act 2005'	5	6	7	8

1. MiM relies on Industry data reported under IRDA regulation (as under **MI Act 2005** and under the **Rural and Social Obligations**)
2. Under the IRDA regulations, reported data includes products served to **RED PLUS GREEN**
3. Hence, Microinsurance Maps also presents data for **RED PLUS GREEN**
4. Ideally it should report for products offered to **GREEN**

\* **LIG: Low Income Groups**

\* **IRDA: Insurance Regulatory and Development Authority**

# HOW

# Piloting Climate Insurance

Floods in Bangladesh

Need for a Comprehensive Disaster Risk Management

The case for ex ante strategy: Risk reduction (resilience) and Transfer

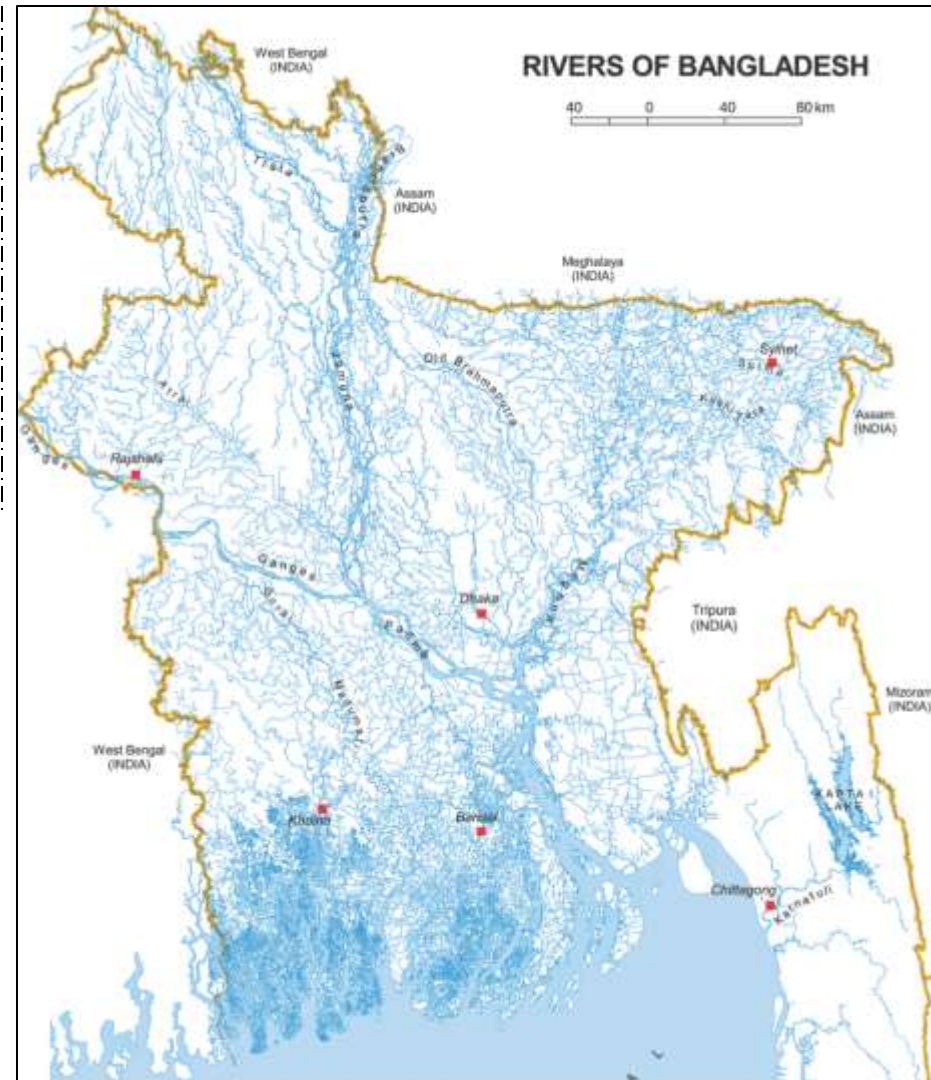
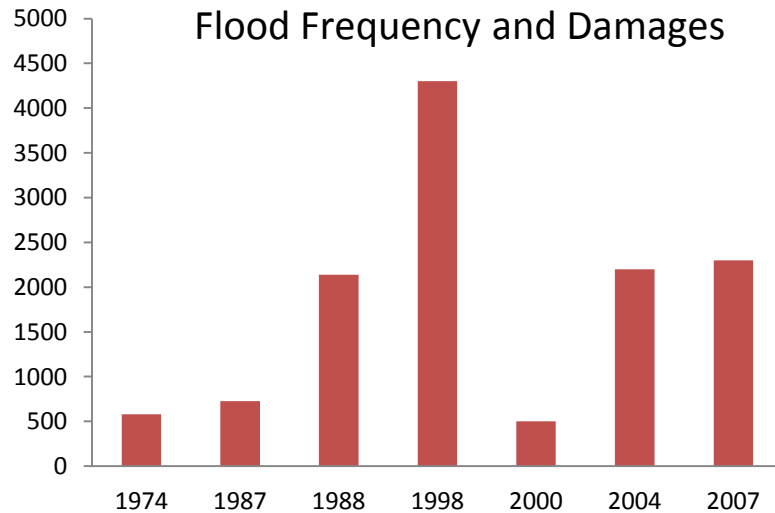
1. Why Insurance
2. **Why Meso- level cover and micro-level distribution?**
3. Why index-based contract?
4. **Designing with multiple partners**

# Piloting Climate Insurance: Catastrophic Floods in Bangladesh

## WHY

Ganges, the Brahmaputra, and the Meghna —annually drain a vast basin **12 times Bangladesh's area**

Flood (*Bonna*) is an annual recurring phenomenon beneficial for Bangladesh



# Piloting Climate Insurance: Catastrophic Floods in Bangladesh

Coping mechanisms: Increased severity due to climate change?

Traditional coping mechanisms	Ex post	Impact	Ex ante	Impact
Household	Migration	<ul style="list-style-type: none"> <li>Loss of property, homestead, life</li> </ul>	Reduced investment (livestock agriculture, home construction)	Lower income, prone to accidents and health shocks
NGO	Relief Rehab Reconstruction	<ul style="list-style-type: none"> <li>Financial cost,</li> <li>Delay in response due to donor dependence,</li> <li>Low regional devpt.</li> </ul>	Teaching women to swim, improving pooling of group practises	<ul style="list-style-type: none"> <li>Limited awareness of degree of loss</li> <li>Limited predictable access to funds</li> </ul>
Input Output providers, credit providers	No business	Reduced business growth, limited portfolio	Reduction in provision of credit, seeds, vaccination	Reduced business growth, limited portfolio
State/ Funder	Financing Relief Rehab Reconstruction	Loss of GDP	Embankments	<ul style="list-style-type: none"> <li>Cost, embankment breach loss</li> <li>Limited awareness of degree of loss</li> </ul>

WHY

# Piloting Climate Insurance: Catastrophic Floods in Bangladesh

## Comprehensive Disaster Management strategy

### Need for ex ante strategies:



Combining

- **ex ante efforts (risk reduction and risk transfer) with**
    - ex post strategies (relief, rehab, reconstruction)
- help build a comprehensive risk management strategy

# Piloting Climate Insurance: Catastrophic Floods in Bangladesh

## Ex ante strategies

### Flood risk reduction: Structural approach

#### Embankments:

- Costly in terms of construction and maintenance
- Increases erosion, inhibiting silt deposition
- Increases the risk for low income households living inside the embankment zone
- Tend to increase height and speed of river flow
- Recent embankment breach



# Piloting Climate Insurance: **Catastrophic Floods in Bangladesh**

## Ex ante strategies

### Flood risk reduction: **Community approach**

- **Managing effects of flood** instead of attempting to prevent it
- Focus on household **resilience** building in the context of **climate change** induced erraticity
  - Dredging rivers to increase the capacity of rivers
  - Improved preparedness
    - **Flood warning: Improve Flood monitoring, measurement, zoning and forecasting**
    - **Shelters and stronger houses**
    - **Increased height of water sources**



# OXFAM's strategy in Bangladesh

## Community Resilience Building

**RISK** ➡ Increased flood intensity and longevity

### Raising Homes:

Higher and stronger foundations help protect homes



**RISK** ➡ Floods contaminate water supply

### Raised Tubewells:

Raising tubewells potentially preventing health epidemics during severe floods



# OXFAM's strategy in Bangladesh

## Community Resilience Building

**RISK** ➡ Changing farming calendars, Sudden floods due to embankment breach.

### Radio Forecast and Warning:

Weather forecasts, Special broadcasts alert



**RISK** ➡ Severe and widespread floods

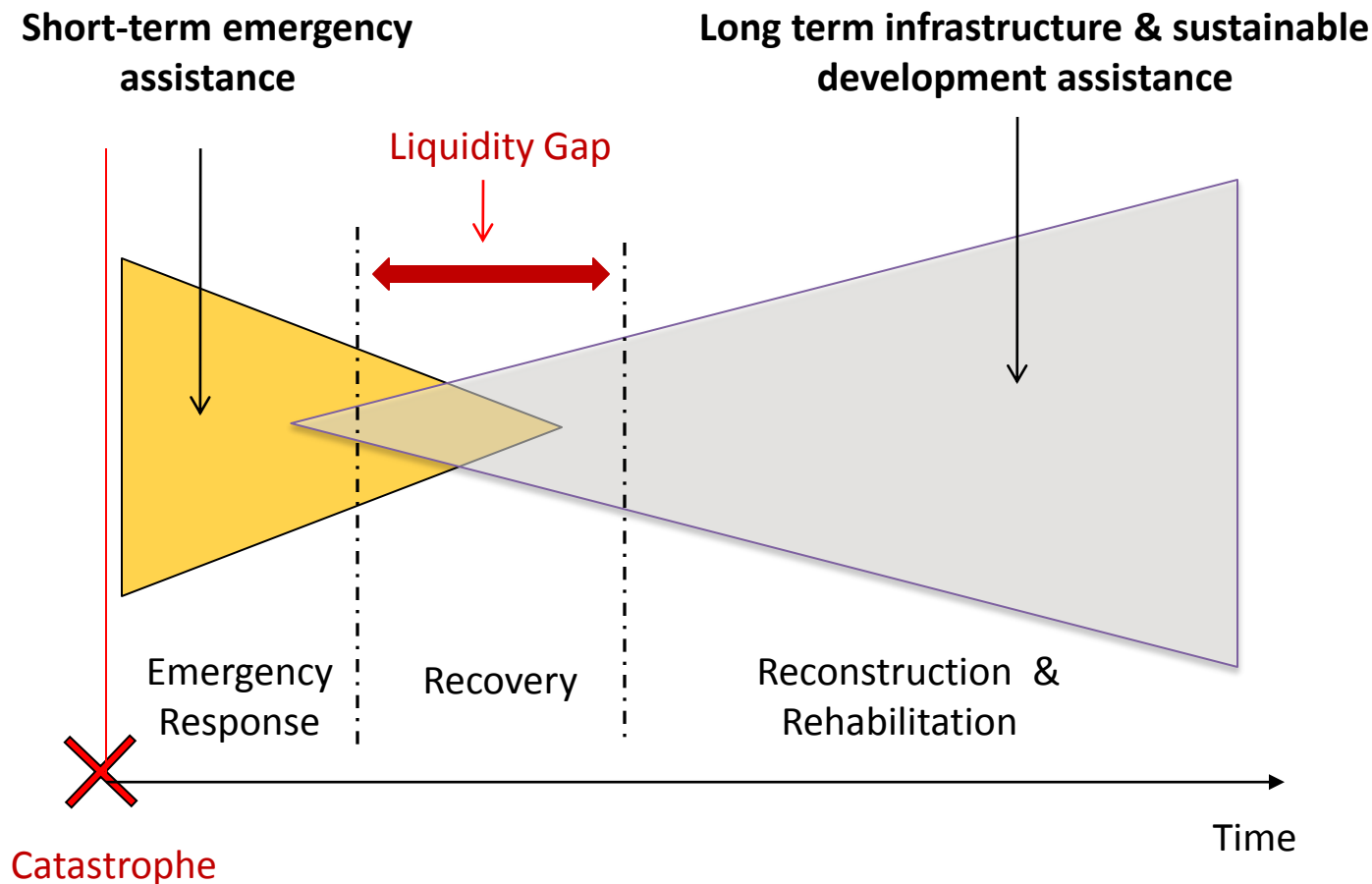
**Rescue rental Boats, free access to poly covers**

Rescue boats provided to the NGO Disaster Management Cell



# Piloting Climate Insurance: Catastrophic Floods in Bangladesh

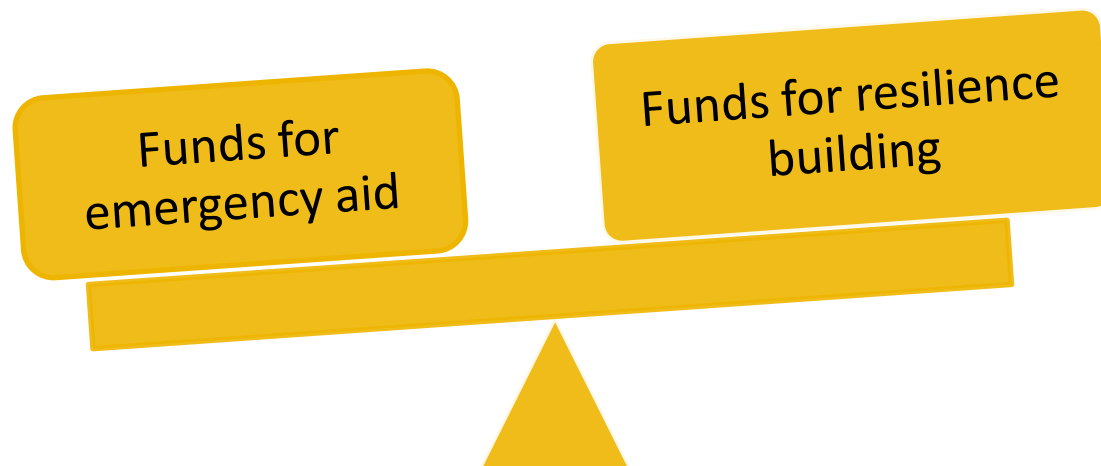
## Financing immediate Disaster Relief



Adapted from [CCRIF: Application of risk analysis & modeling in insurance sector](#)

# Piloting Climate Insurance: Catastrophic Floods in Bangladesh

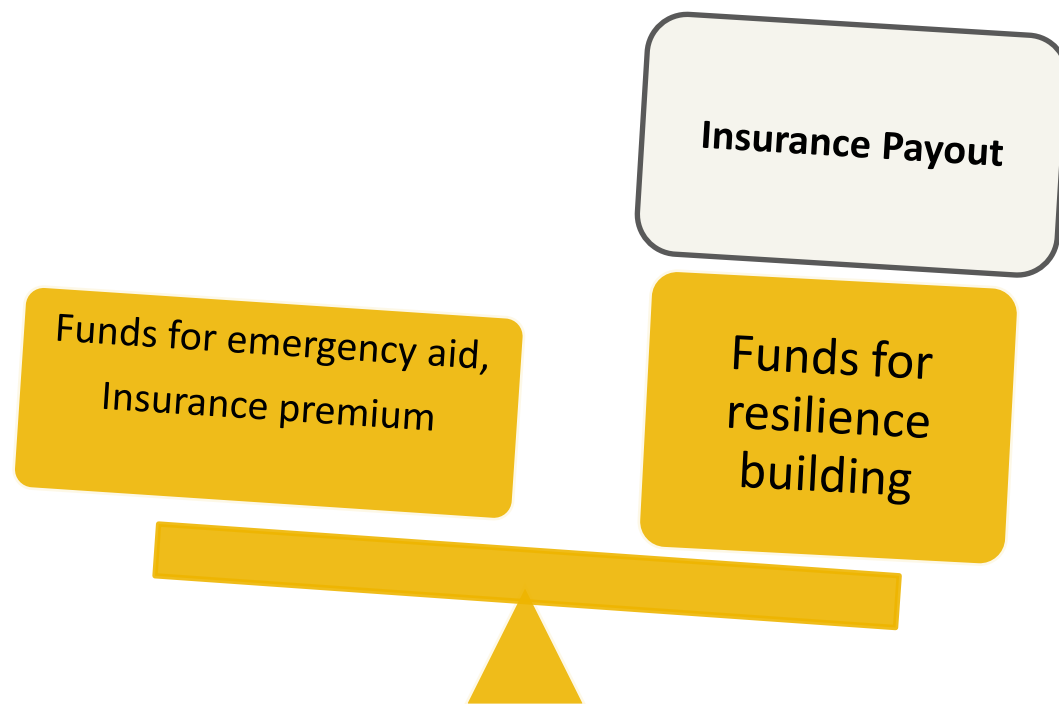
## Unlocking finances for Resilience Building



*Significant amount of money locked in disaster relief funds need to be unlocked for resilience building*

# Piloting Climate Insurance: Catastrophic Floods in Bangladesh

## Unlocking finances for Resilience Building



*Insurance can help unlock the money that is kept for relief and use it for climate change adaptation and mitigation*

# Coping with residual risk

1998:

- *2/3<sup>rd</sup> of Bangladesh flooded for almost 13 weeks*
- *¾ million hectares of agri - land submerged ruining most of the autumn rice crop*
- *1.2 million of Grameen Bank's 2.3 million customer affected*



People and animals sharing the same room as well as same fate.

Photo - Salahuddin Azizee

Source : Grameen Bank

- Embankment Breaches
- Recurring Floods – 1962 (3 floods in July, August, September)
- Intense Local Floods – Sylhet (1966),

**Inadequate funds for ex-post relief & rehabilitations (1963,1988,1998, 2007)**



# Coping with residual risk

Increased frequency and severity strain all reduction and coping strategies  
**Embedding insurance within specific risk verticals help in:**

- **No white spaces in risk coverage continuum**
- **Lower probability of loss and improved affordability**
- **Improve product designing capability – coverage,**
- **Platform for Distribution**

# Operation Challenges

- Need to insure public finances – donors and state
  - **Increased severity of recent events lead to aggravated financial loss**
  - **Household premium financing impractical**
    - Inability of households to premium finance severe shocks) and
    - Low demand (unwillingness to allocate budgets for low or no probability catastrophe)
  - Need for predictability in disaster preparedness and relief financing for NGOs
- Need for regional risk zoning
  - **Non availability of reliable individual loss data correlated to severe floods**
- Inability to access damage in real time
- Inability to reach the insured in real time
  - Identification and targeting challenges
- **Adverse selection**

**Hence meso level contract**



# Design Challenges

- Post disaster ground level loss assessment impractical, costly and cause time delay
- Need for relief financing 'immediately' for reduction in losses
- Index contract based on historical data which also helps predict probability and improve forecasting
- Poor Data Quality and Availability at higher resolution
  - Flood Impact Data wasn't available
  - Historical data on flood depths no available
  - DEM not updated

**Hence Index Based Insurance**

# Meso-Level Flood Index Insurance

## Project Details:

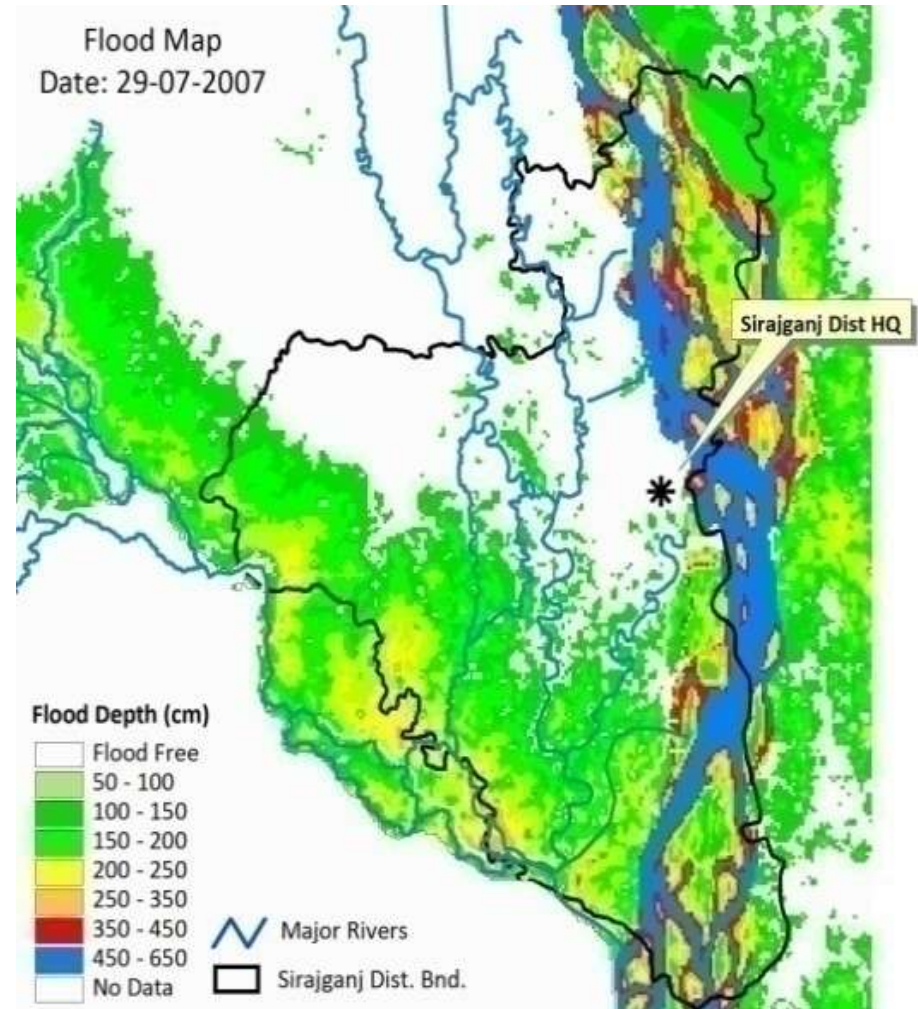
Design - RDRL, Institute of Water Modeling

Implementation – OXFAM, GB

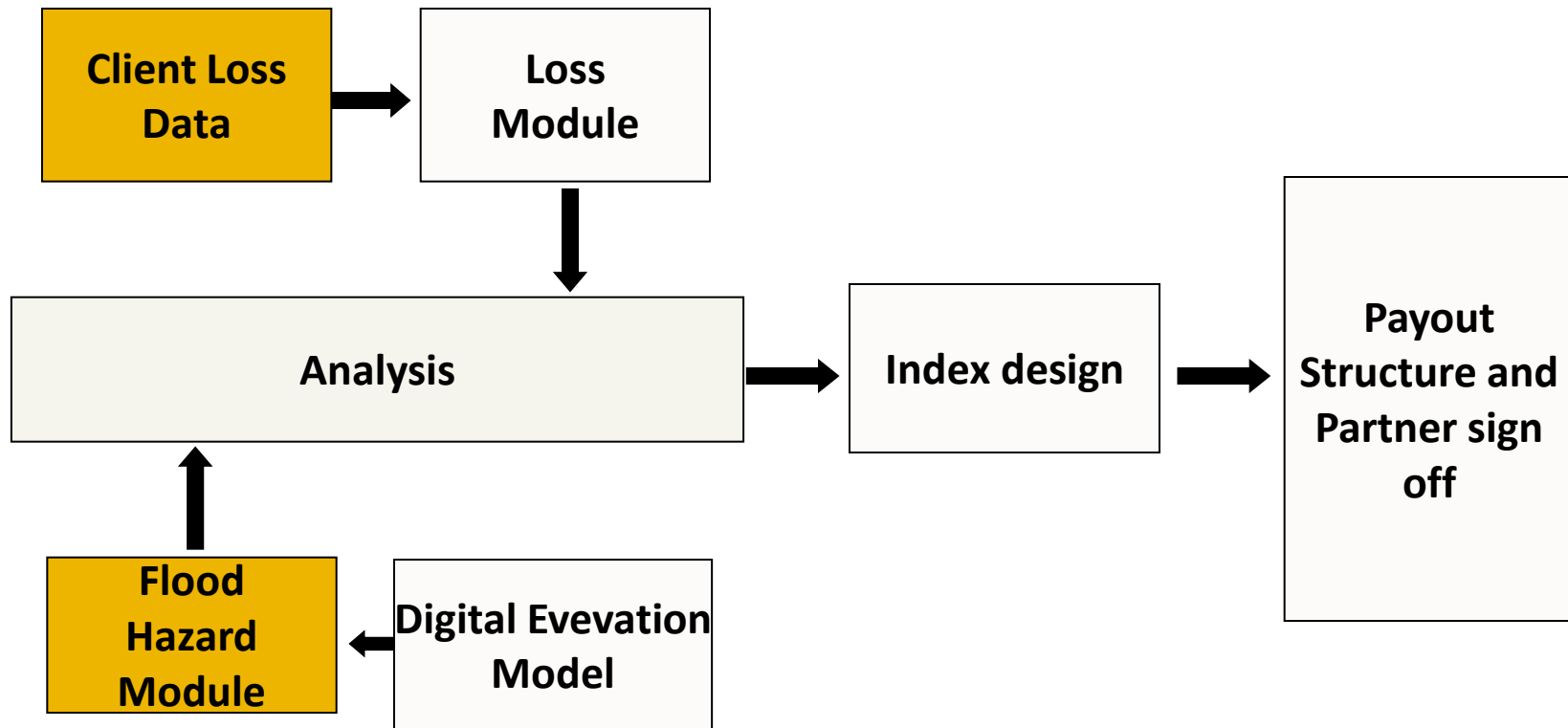
Insurer - Pragati Insurance

Project Location - Sirajgunj, BD

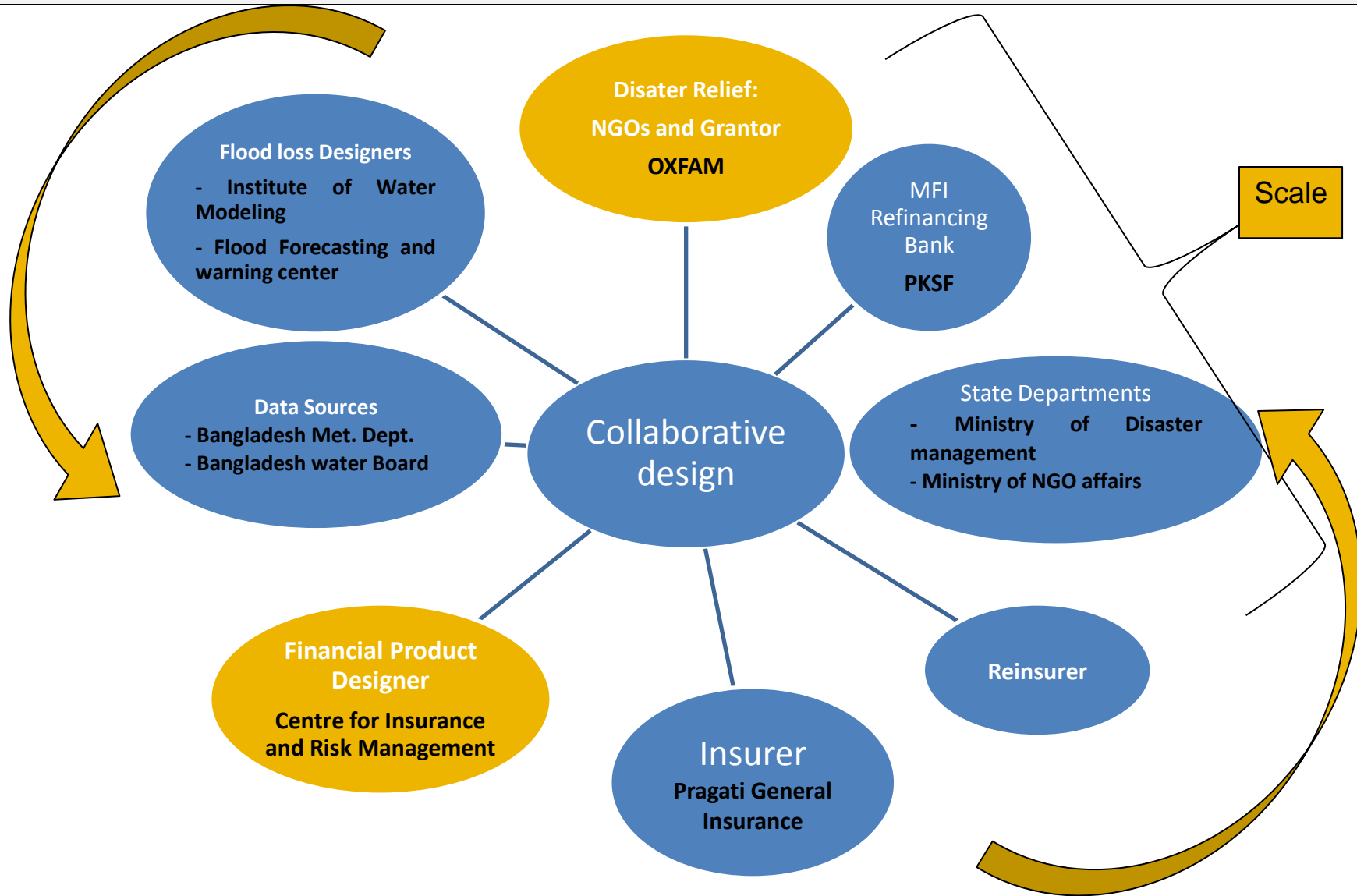
Initiation - 2009



# Structure of Flood Insurance



# Pieces of the Puzzle



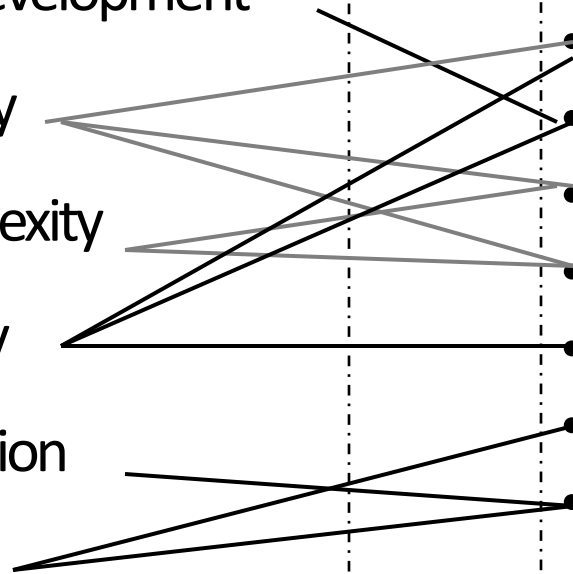
## Scale & Sustainability

### Obstacles

- High Cost of development
- Data availability
- Product complexity
- Poor Credibility
- Adverse Selection
- Limited Scale

### Partners

- Ministry of Disaster Grantor
- NGO
- Designers
- Ministry NGOs Affairs
- Insurance Industry
- Refinancing Bank PKSF



# What

## Likelihood

- Invest in data infrastructure
- Invest in identification (cash and data) infrastructure

### Layer risk

- insurance on resilience solutions
- Parsing out layers to household, private sector, regional government and then Aid

## Likeability

### Building-block products

### Bundle 'Tangible' services

### Define uninsured events

# How NOT to build Climate Insurance Solutions

**Insurance is at the end of a risk trajectory**

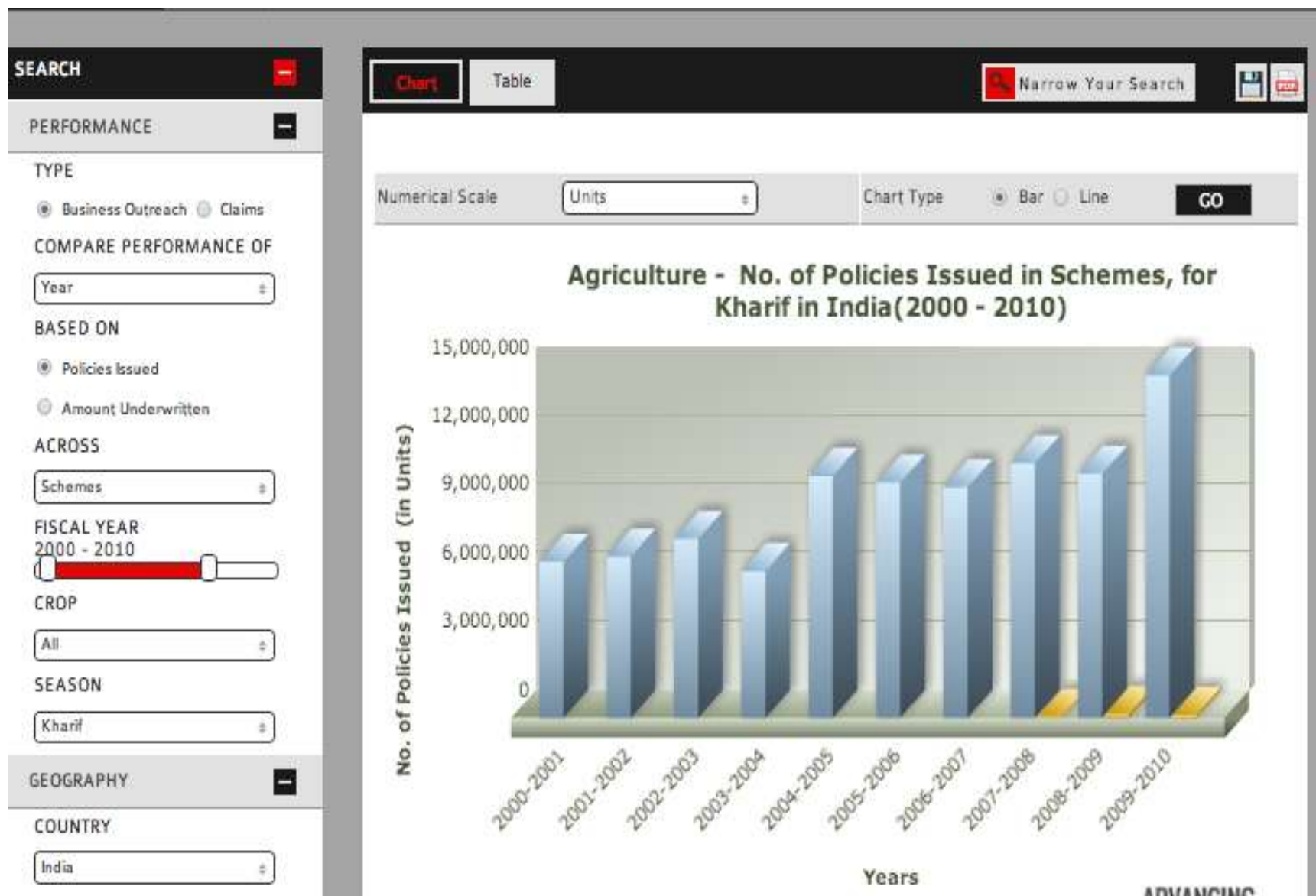
**The client is the household and small business**

**Use existing 'highways', the poor shouldn't be paying for the new highway**

**Use aid for long term market creation NOT one time premium subsidy**

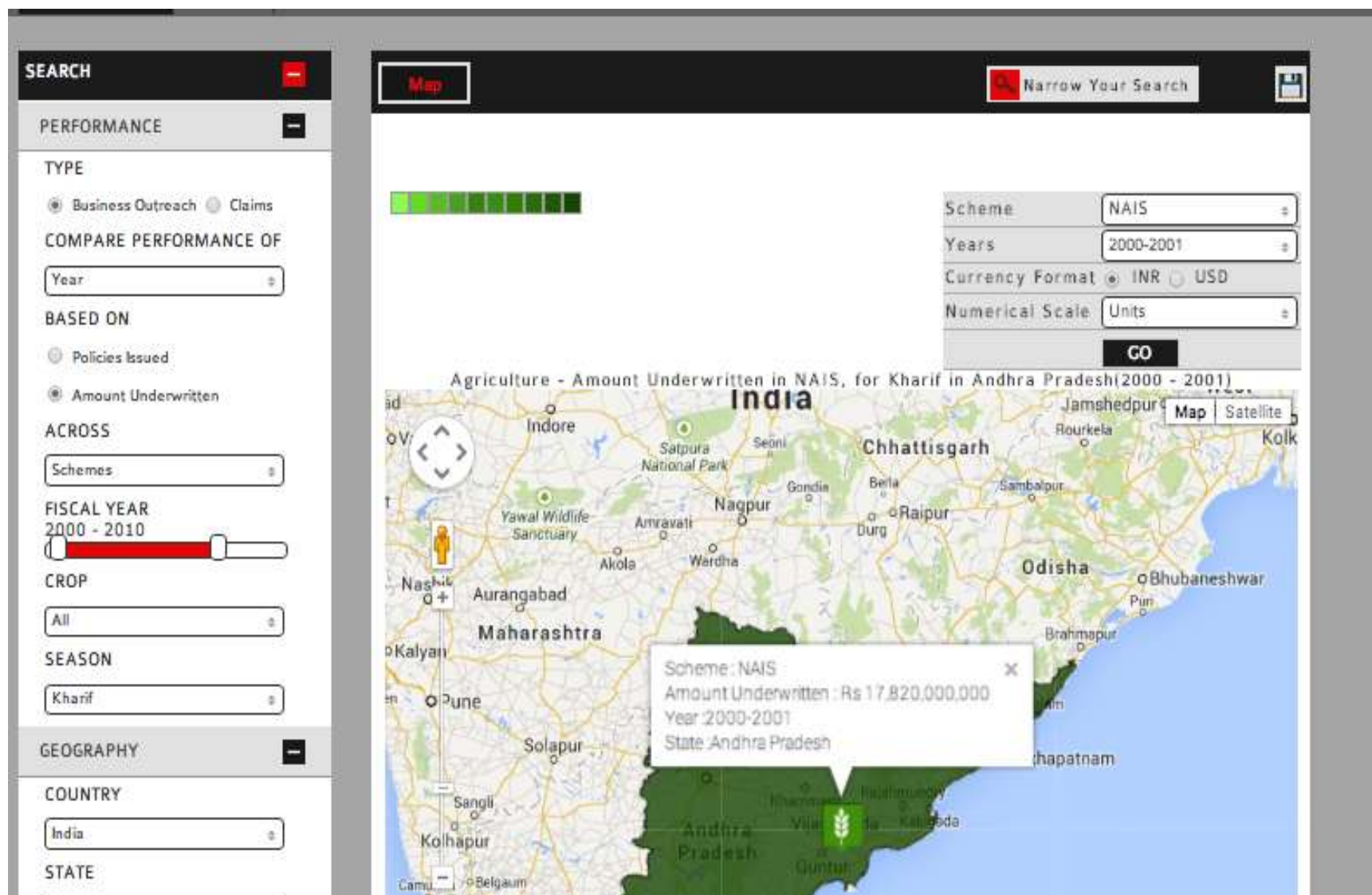
**Leverage the power of high volumes**

# WBCIS Scheme: State-wise outreach

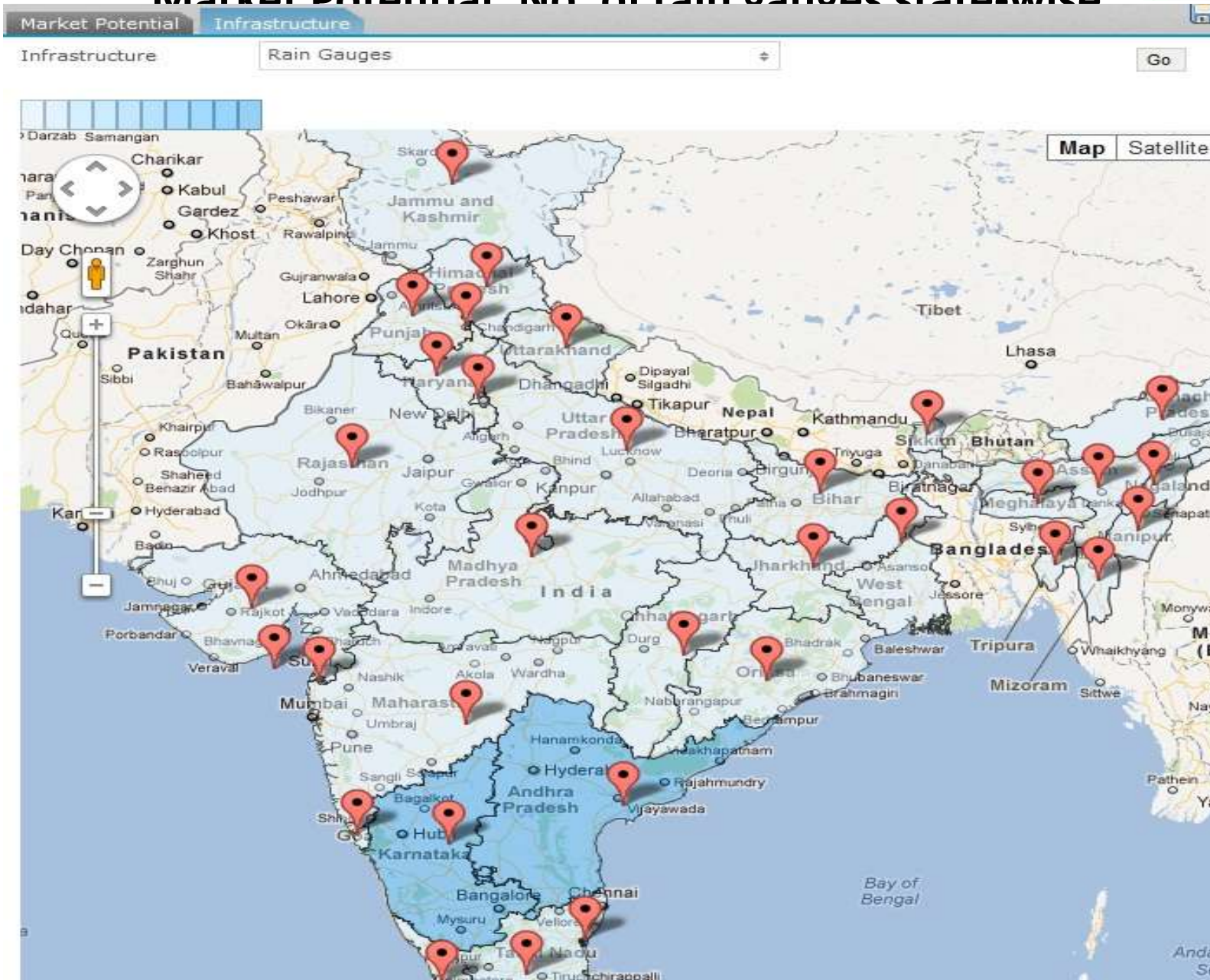




# State Specific Scheme Overview



# Market Potential: No. of rain gauges state-wise







# Structure of Flood Insurance



# Safety Nets for all

**Rupalee Ruchismita,  
Resilience Design Labs**

May 17<sup>th</sup>, 2016

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Twitter: [ResilientRupale](#)

[www.rdrl.org](http://www.rdrl.org)

# CLIMATE

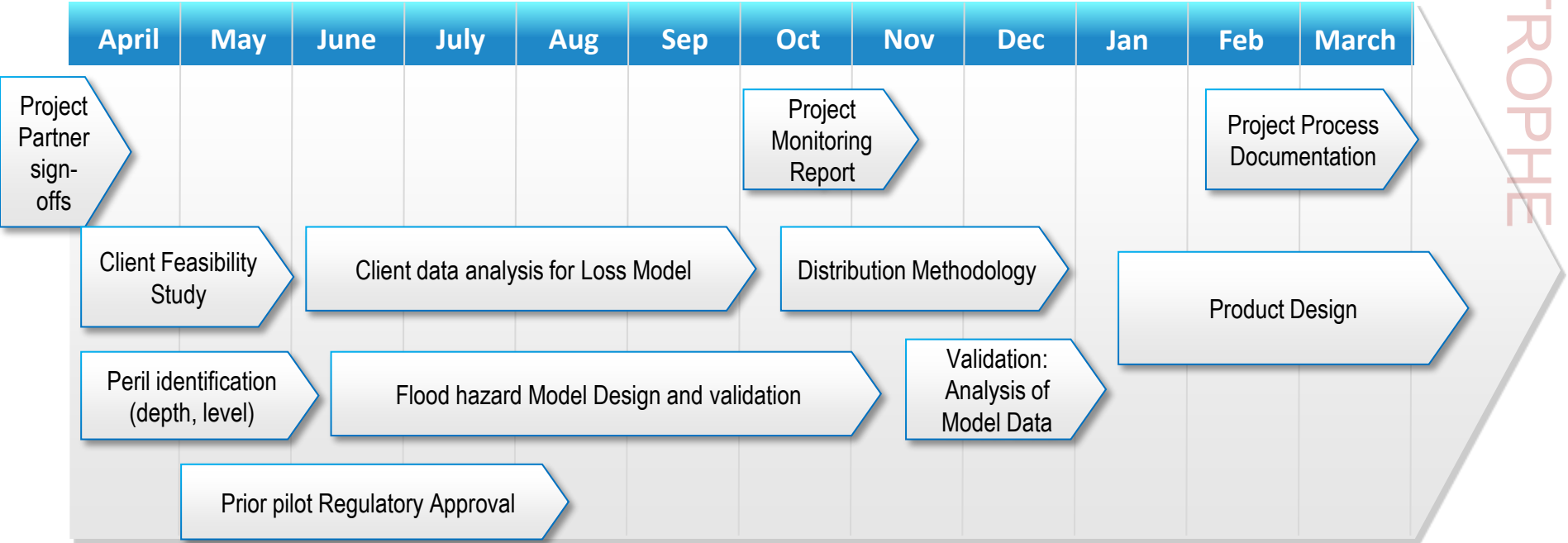
# AGRICULTURE DESIGNING EXERCISE

# Bihar Natural Catastrophe Portfolio Cover

## (SIDBI, Tier 1 MFIs, Jeevika, AIC)

Enabling macro level agencies to insure their catastrophe exposed credit portfolio, reducing transaction cost for end client

### Activity Plan



### Thematic Learnings

- Product Design
- Distribution Models
- Government Advocacy for premium
- Regulator Advocacy

### Audience

- Lender
- Government
- Regulation

### Outputs

- Flood Insurance ,‘how to’ Product Manual for Insurer
- Draft Peril and index design

CATASTROPHE



# Safety Nets for all

**Rupalee Ruchismita,  
Resilience Design Labs**

May 17<sup>th</sup>, 2016

[Rupalee.ruchismita@rdrl.org](mailto:Rupalee.ruchismita@rdrl.org)

Twitter: [ResilientRupalee](#)

[www.rdrl.org](http://www.rdrl.org)

# **Stakeholder Value: Solutions for Policy Makers**

## **Use**

- Monitor impact of regulation on providers and products

## **Benefit**

- Create industry benchmarks on product, process and service quality
- Identify early trends (sectors trends and also for specific providers and risk categories) to respond accordingly
- Make proactive regulation and policy for underserved regions and track its impact on the market

# Next Steps

## Safety Nets for All

### Agriculture Index Insurance Conference 2012

#### Understanding Agricultural Index Insurance: Field Visit and Training, August 2012.

Organized by: CRM and Greenen Credit Agricole Microfinance Foundation (GCAMF).

Training venue: CRM Office, Chennai

Field Visit: Cuddalore District and Nagapattinam district, South India.

Dates: August 27 – September 01, 2012.

**Speakers**

- Mr. Ashish K. Rao
- Mr. Rajesh Kulkarni
- Mr. Ashish Kulkarni
- Mr. Nandu Maheshwari
- Mr. K. Gopinath
- Mr. K. Gopinath
- Mr. K. Gopinath
- Mr. K. Gopinath
- Mr. K. Gopinath
- Mr. K. Gopinath

**Sessions**

- Using product design to increase Client Value in Weather Index Insurance by Mr. Ashish Kulkarni, CRM
- Index Insurance as Risk Mitigation Tool in Agriculture by Mr. Kelli Rao, Agriculture Insurance Company of India (AIC)
- Pricing of WI Products by Mr. Azad Mishra, HDFC ERGO GIC Ltd
- Strategies employed for sustainable Weather Insurance distribution by Mr. K. Gopinath – IFCO TOKIO General Insurance Co. Ltd, India
- Index Insurance in Indian Agriculture – An Overview by Mr. Navin Sharma Vice President – Weather Insurance, ICICI Lombard General Insurance
- Stakeholder engagement in product design and distribution by Mr. Nandu Maheshwari
- Managing information for Security and Safety : Disaster Management by Mr. Y. B. Prakash, Director, Karnataka State Natural Disaster Monitoring Centre

#### Field Visit

#### Participants' Profiles

#### Host Profiles

#### Speaker Profiles

#### Presentations

#### Day 1

- Using product design to increase Client Value in Weather Index Insurance by Mr. Ashish Kulkarni, CRM
- Index Insurance as Risk Mitigation Tool in Agriculture by Mr. Kelli Rao, Agriculture Insurance Company of India (AIC)
- Pricing of WI Products by Mr. Azad Mishra, HDFC ERGO GIC Ltd
- Download in French
- Strategies employed for sustainable Weather Insurance distribution by Mr. K. Gopinath – IFCO TOKIO General Insurance Co. Ltd, India

#### Day 2

- Index Insurance in Indian Agriculture – An Overview by Mr. Navin Sharma Vice President – Weather Insurance, ICICI Lombard General Insurance
- Stakeholder engagement in product design and distribution by Mr. Nandu Maheshwari
- Managing information for Security and Safety : Disaster Management by Mr. Y. B. Prakash, Director, Karnataka State Natural Disaster Monitoring Centre

#### Presentations in French

- Traité des produits d'assurance WI by Mr. Azad Mishra, HDFC ERGO GIC Ltd
- Stratégies utilisées pour distribuer durablement des produits d'assurance météorologique by Mr. K. Gopinath – IFCO TOKIO General Insurance Co. Ltd, India
- Engagement des parties prenantes dans la conception et la distribution du produit by Mr. Nandu Maheshwari

# Technical content



## Publications

### Technical Papers

Rashtriya Swasthya Bima Yojana – Performance Trends

Financing Disaster Management in India: Possible Innovations

Review of current state of world capture Fisheries Insurance

Providing Insurance through Microfinance Institutions: The Indian Experience

Livestock Insurance: Lessons from the Indian Experience

Index Based Flood Insurance Products: Report on Flood Insurance

Weather Risk Management – A Guide for Corporations, Microfinance Institutions and Small Farmers

Impact Evaluation of Health Microinsurance through Randomized Controlled Trials

# Discussions

## Email group- Transitioning to Blog

### Understanding Agricultural Index Insurance: Field Visit and Training, August 2012.

August 11, 2012 by CIRM

We are excited to host a delegation of insurers, funders, research institutions and NGOs from across the world (well, 11 countries to be precise!).

The primary objective of this field visit and training is to garner first-hand understanding of agriculture insurance, especially index based insurance in developing countries.

#### Background:

Agriculture is the predominant source of livelihood in India and contributes nearly 18 per cent of Indian GDP, employing about 60 per cent of the labour force. Weather phenomenon like precipitation is a major yield risk for the farmers as a majority of the agricultural land is not irrigated and the limited irrigated areas suffer from inadequate and unreliable water.

The major instruments used by the government to protect farmers from agricultural variability include crop yield insurance scheme, procurement of food grains at



### Agricultural Index Insurance: Pre-conference Update

August 24, 2012 by CIRM

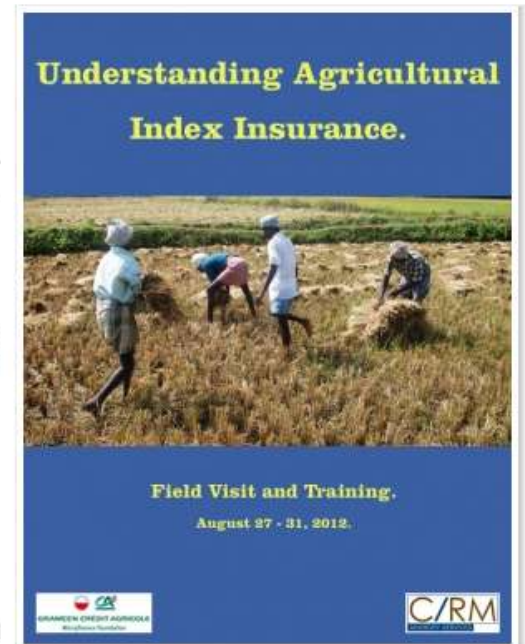
Our conference on Agricultural Index Insurance is shaping up to be a stellar event.

The event has attracted a range of participants including – NGOs, Insurance Professionals, Insurance Commissioners, Regulators and researchers, to name a few.

Similarly for speakers, we have also managed to rope in leading thinkers in this sector.

We have also organized a two day field visit to help the participants get an on ground experience of adoption and impact of index based microinsurance in the agricultural sector in rural Tamil Nadu.

You can find more information and latest updates at the exclusive microsite – [HERE](#).





# Discussions

- **Blog**

## Understanding Agricultural Index Insurance Conference – Highlights of Day One

August 28, 2012 by CIRM

The first day of the workshop was flagged off with a presentation by CIRM elucidating the context of agricultural insurance in India. Attention was devoted to ways in which “client value”, can be increased to improve demand. The presentation also showcased specific models that provided agriculture advisory services as a bundled service to improve farmer’s demand for insurance products by providing something to claimants and non-claimants. A perfect example is a project undertaken by CIRM – *Comprehensive Agriculture Risk Management Services*, wherein, weather-related forecast information covering a 24-



## Participant Views – Day One

August 28, 2012 by CIRM

### Dr. Georges Abbey

Lecturer, University of Lome.

“The objectives of the workshop are very well-aligned with our expectations and allows for everyone to discover some important lessons. The guest speakers are well in tune with their topics and we wish they had more time to share their experiences.”



In Africa, we are taking our very first steps in agricultural index insurance and we need to better understand the challenges the Indian practitioners encountered and how they overcame those obstacles so that we do not repeat their mistakes. Today, the speakers also underlined the importance of constant innovation in order to reduce transaction costs and increase client value.”

### Pacome Bonou

Head, AMAB Production Service (Agricultural Mutual Insurance of Benin)

“This first day we learnt about the behaviour one needs to have when starting an index agricultural insurance venture and the role farmers play at this stage. The speakers also stated that making payouts the first season can be a powerful demonstration effect and improve take up for the next season.”



### Fabrice Larue

Project Manager, Foundation for World Agriculture and Rurality (FARM), Paris.

One of the things that struck me the most today was that the speakers were really passionate about their topics and managed to transmit their enthusiasm to the participants.



It also stood out that for the establishment of a successful index agricultural insurance the key technical issues have been very advanced (i.e. issues relating to infrastructure) but despite that, there are other decisions that are more difficult like choosing between a simpler product or a more complex product that might better reflect the farmers’ actual loss.

# Discuss

## Participant Views – Day Two

August 28, 2012 by CIRM

The day started with two interesting presentations. While the first focused on the importance of information (data) for weather risk and natural catastrophe management, the second delved into product design innovations.

Mr. V.S. Prakash from the Karnataka State Natural Disaster Monitoring Centre (KSNDMC), who made the first presentation, began by stating that the paradigm shift in the approach to disaster management from rescue/relief post disaster, to disaster risk reduction through preparedness necessitates the use of Information Communication Technology (ICTs). According to Mr. Prakash the first step in disaster management is proper measurement of weather parameters. "If it cannot be measured properly, it cannot be managed properly". Hence, much of his



*Ms. Sessimè Martine Dahoun, Ms. Hellen Olima and Ms. Vusala Garayeva at the Agricultural Index Insurance Conference in the CIRM Office, Chennai. August 28, 2012.*

### **Sessimè Martine Dahoun**

*Head of Regulation – Insurance Department, Ministry of Finance, Benin.*

It is a very good day for me because the translation was very fluid and I was able to engage in the discussions.

Everything we learnt today was practical. I learnt today that the Weather Index

# Discussions: Blog Field visit

## **SAFETY NETS**

Risk management solutions for vulnerable households.

Feeds:



**Participant Views – From the Field Visit**  
August 30, 2012 by CIRM

**Agricultural Index Insurance: Field Visit and Training** is well underway. And now the participants are in the field, talking to farmers and meeting with a local farmers organisation. We will have a more detailed write-up soon, but meanwhile, here are the initial reactions of some of the participants.

**Constance Collin**

**University of Rennes**

*It was great to discuss directly with the farmers and to hear their opinions. During the discussions we discovered many of the practical issues that the farmers face were not always covered in the classroom sessions.*

*It was also very insightful to see the context in which these policies are sold. They are also excellent hosts and very welcoming.*



**Jimmy Loro**

**Senior Adviser, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.**

*For me, one of the key elements of a good insurance product is that it is understood at the farmers' level. Explaining rainfall levels to smallholder farmers was a challenge. This group bought their first insurance in 2006 and even after 6 years, they still haven't fully understood the trigger and payout calculations. There is a need for more financial and technical training on the product for farmers.*

*The presence of extreme weather events like drought resulted to higher demand for crop insurance.*

*I also noted that the weather data provision and the insurance companies are very closely linked. In the Philippines, we would have seen this as a risk as we put great importance on separating these two actors in order to ensure that the data is reliable and objective.*



**Oscar Chamale**

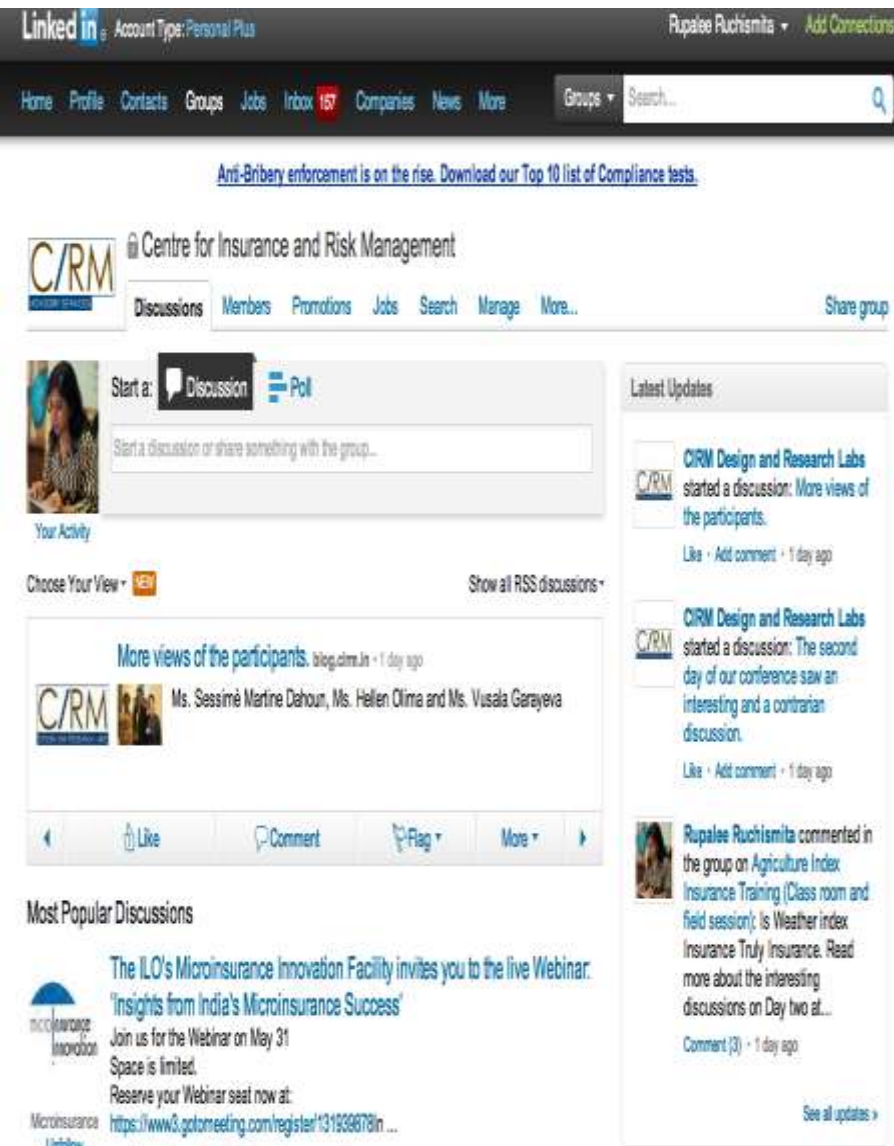
**Business Director – Aseguradora Rural (Banrural Financial Group S.A)**

*I was surprised by the involvement of the farmer organisation in the management of the product and they were even responsible for the claims process. It's very much integrated with their other activities and hence becomes a part of the value chain.*





# Platforms: LinkedIn and Facebook



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[Anti-Bribery enforcement is on the rise. Download our Top 10 list of Compliance tests.](#)

**CIRM** Centre for Insurance and Risk Management

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**More views of the participants.** blog.cirm.in • 1 day ago

Ms. Sessimé Martine Dahour, Ms. Hellen Olima and Ms. Vusala Garayeva

Like Comment Flag More

**Latest Updates**

**CIRM Design and Research Labs** started a discussion: [More views of the participants.](#) Like • Add comment • 1 day ago

**CIRM Design and Research Labs** started a discussion: [The second day of our conference saw an interesting and a contrarian discussion.](#) Like • Add comment • 1 day ago

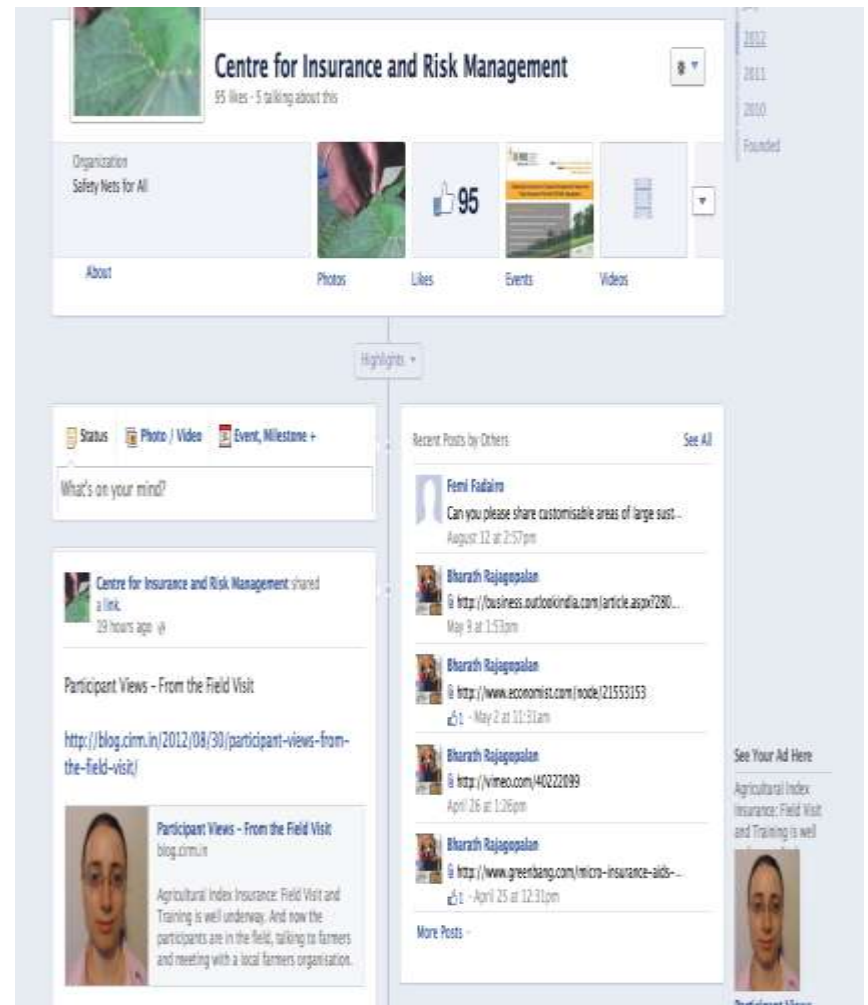
**Rupalee Ruchismita** commented in the group on [Agriculture Index Insurance Training \(Class room and field session\): Is Weather index Insurance Truly Insurance. Read more about the interesting discussions on Day two at...](#) Comment (3) • 1 day ago

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Participant Views - From the Field Visit

<http://blog.cirm.in/2012/08/30/participant-views-from-the-field-visit/>

**Participant Views - From the Field Visit** blog.cirm.in

Agricultural Index Insurance: Field Visit and Training is well underway. And now the participants are in the field, talking to farmers and meeting with a local farmers organisation.

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Agricultural Index Insurance: Field Visit and Training is well underway.

Participant Views -