Business Models and Institutional Framework for Up-scaling Index-based Flood Insurance Products

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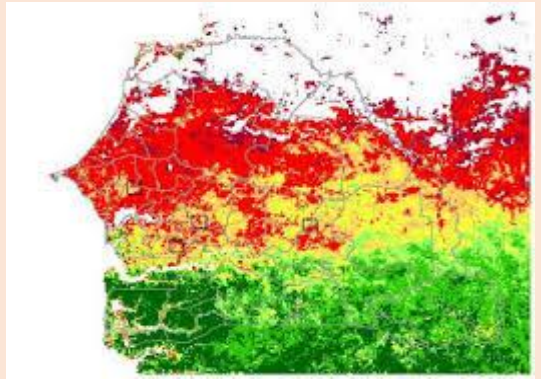


Outline

- Background and earlier studies
- IFPRI's role in the project
- Approach to implement activities
- Partners

I

Background and Earlier Studies

Estimated losses due to flood in Bihar

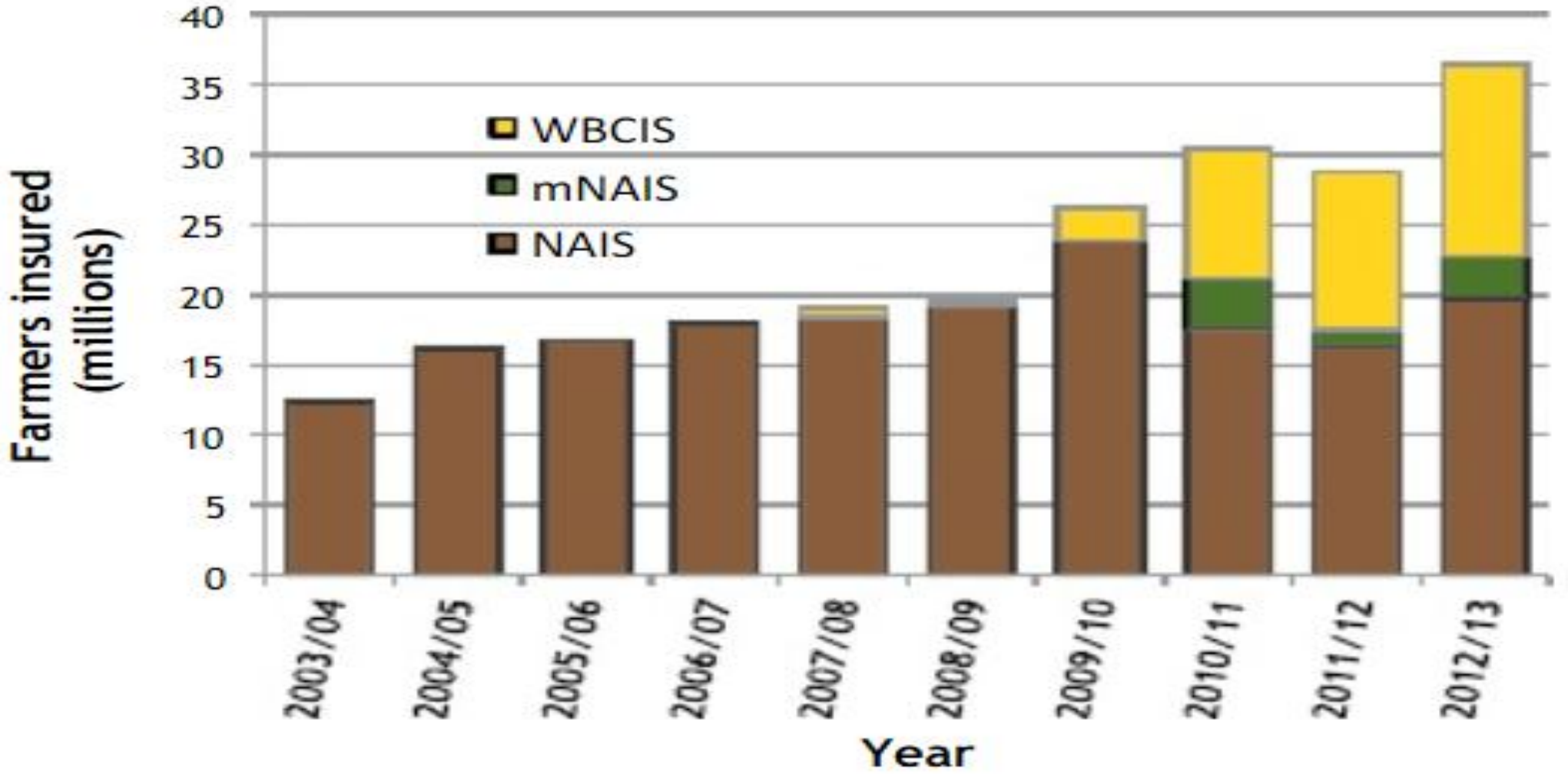
Extent of flood in Bihar (Source: Sinha et al 2012)

Year	Crop area (000 ha)	Crop damage (Rs million)
2000	44.3	830.37
2001	65.0	2672.18
2002	94.0	5114.96
2003	61.0	626.61
2004	139.9	5220.56
2005	13.6	116.45
2006	8.7	70.66

Estimated value of flood losses in Kosi (Source: UNDP 2009)

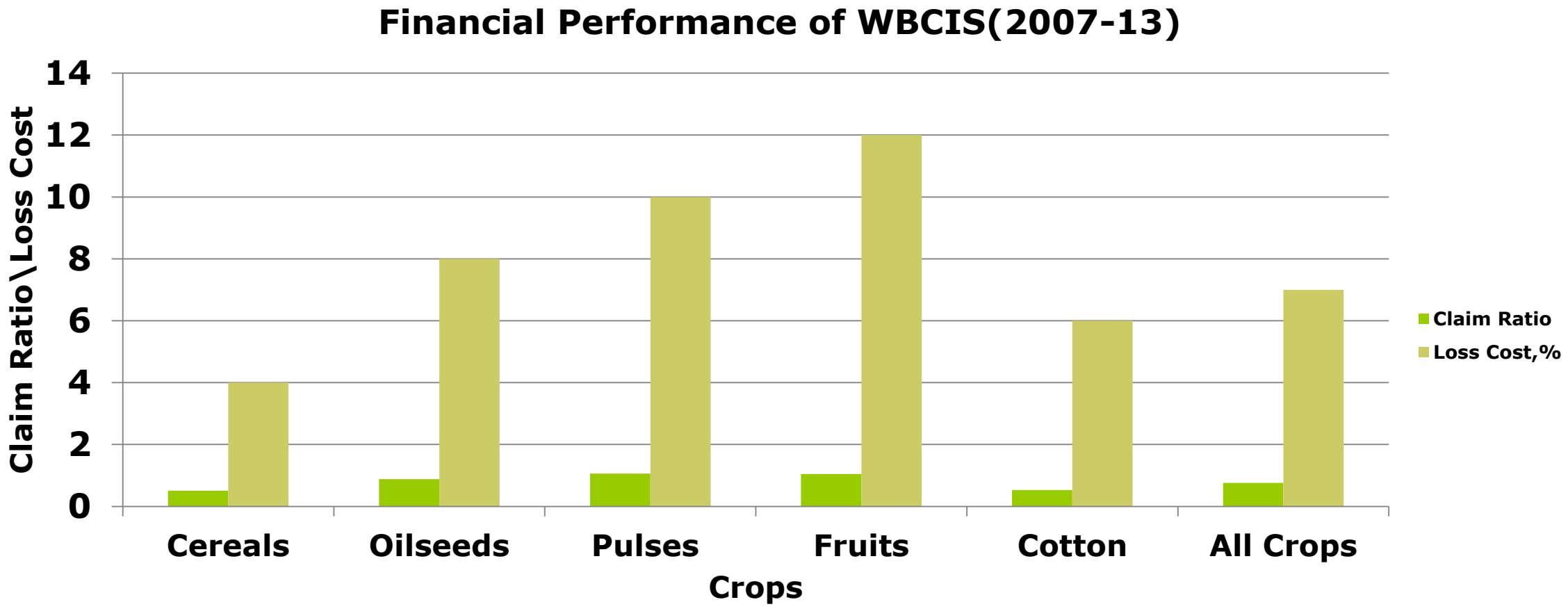
Item	Average loss/HH, Rs	Total loss, Rs million
Property	14,000	4002
Livestock	7,570	3936
Food grain	6,358	4002
Domestic goods	3,763	1567
Other goods	6,406	608

Farmers covered by India's WBCIS, NAIS and mNAIS crop insurance programmes (Source: Joseph 2013)



Premium cost ratio and loss cost for WBCIS during 2007-2013

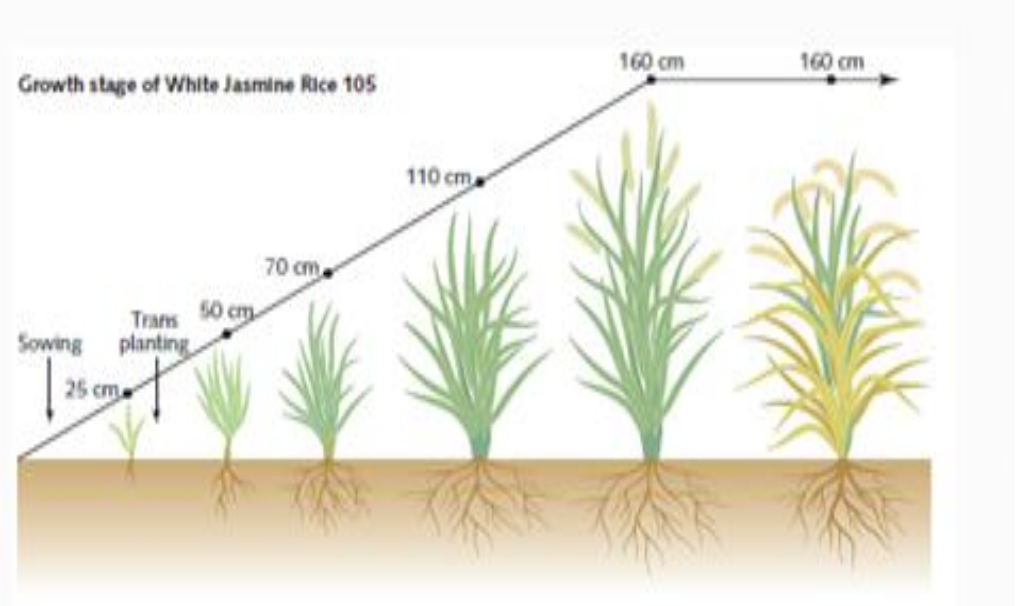
(Data source: GOI, 2014)



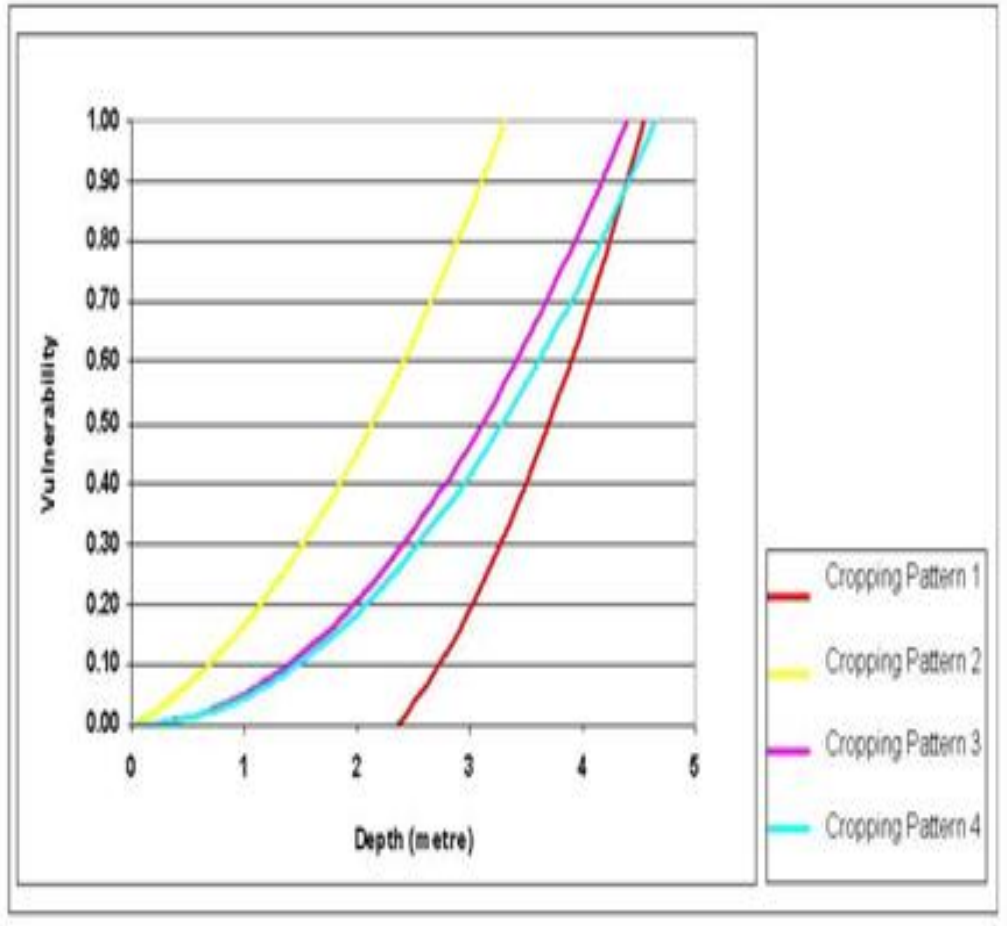
4 major hindrances to index based crop insurance (Cole,2013)

- **Complexity of index**
  - *Single parameter does not adequately describe the flood impact on crops and a multiple parameter based index is complex*
  - *Geospatial flood vulnerability maps are needed*
- **Premium price**
  - *Finance is a major constraint, which can be made affordable by right amount of subsidy which should neither too meagre nor to high.*
  - *Demand-price elasticity of insurance product is very high (-0.6 to -0.8)*
- **Liquidity**
  - *Liquidity constraints matters most*
- **Awareness**
  - *Awareness about the benefits of insurance in the public are lacking*

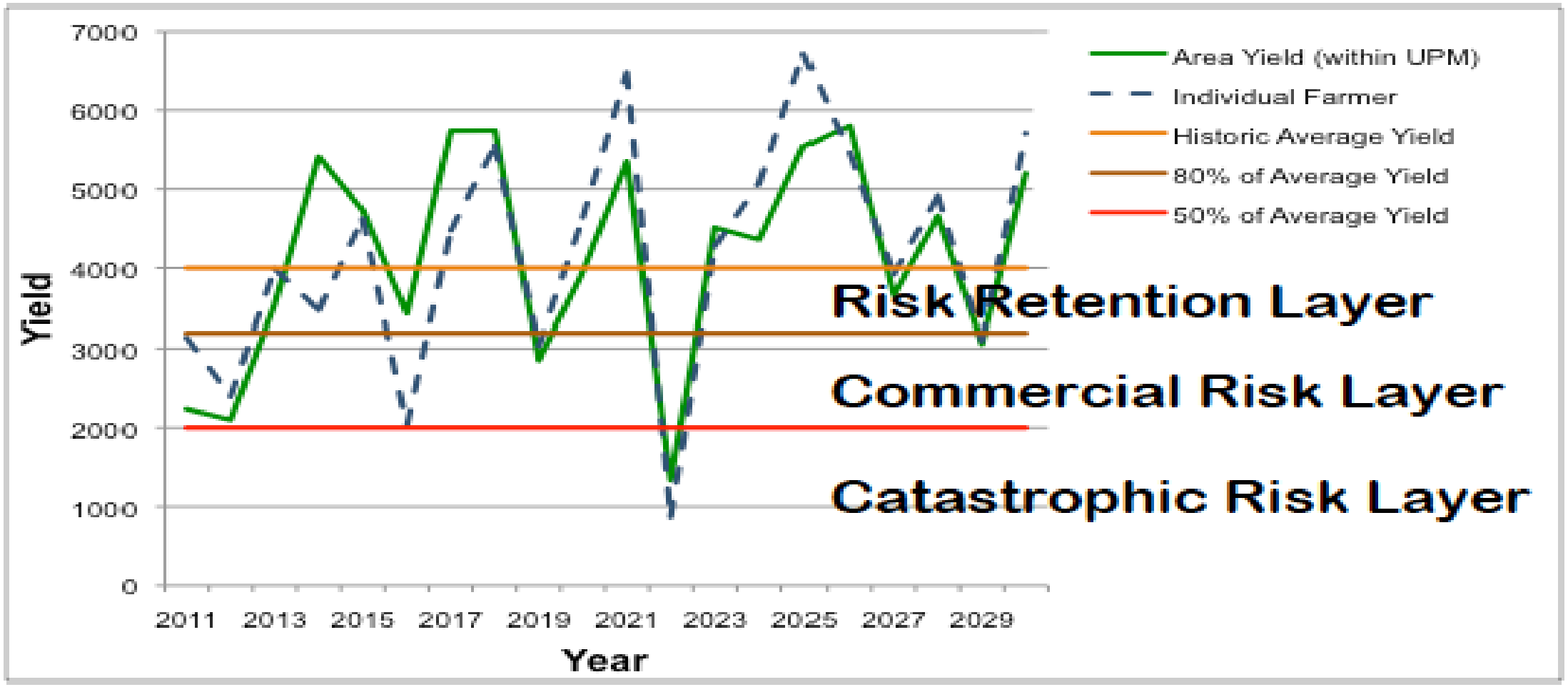
Vulnerability of rice to depth and duration of flooding at different growth stages (Lotsch et al,2009; Maiti,2007)



Growth Stage	June	July	Aug	Sep	Oct	Nov	Dec
	Seeding	Transplant	Tillering	Booting	Flowering	Reproductive (Grain Filling)	Harvesting day
Rice height (cm)	0–25	25–50	50–70	70–110	110–160	160	160
Critical water depth (cm)	25	25	40	70/20*	160	160	160
Critical flooding duration (days)	>3	>3	>4	>4	>4	>4	>4



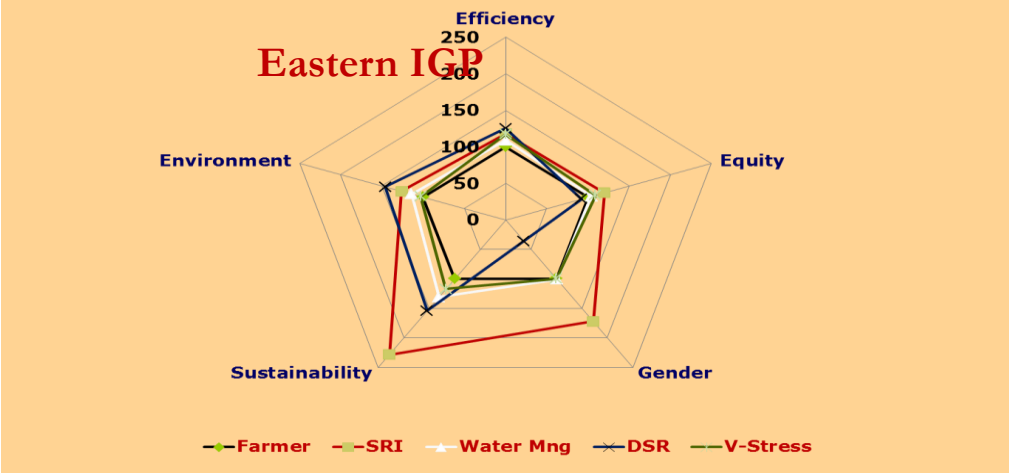
Typical Risk Layers: Retention, commercial, and catastrophic (Cartel et al, 2014)

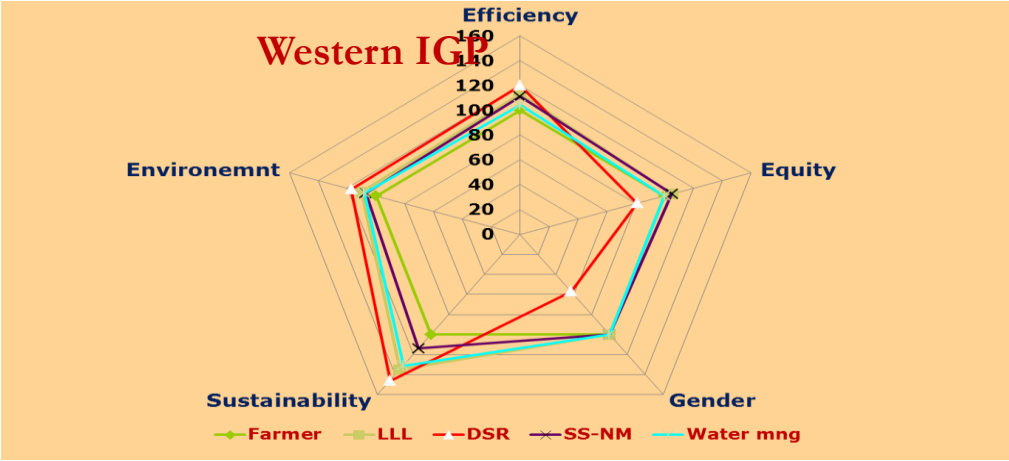


Constraints in scaling-up WBCIS

S No	Key concern	% response
1	Location of weather station	81
2	Quantum of sum assured	44
3	Knowledge of WBCIS policy	37
4	Delay in claim settlement	34
5	Period of risk covered	30
6	Type of risk covered	27
7	Design of WBCIS policy	25
8	Reliability of weather data	17

Willingness to pay for climate smart agriculture: Indian IGP (Eastern and western) (CCAFS-IFPRI study)



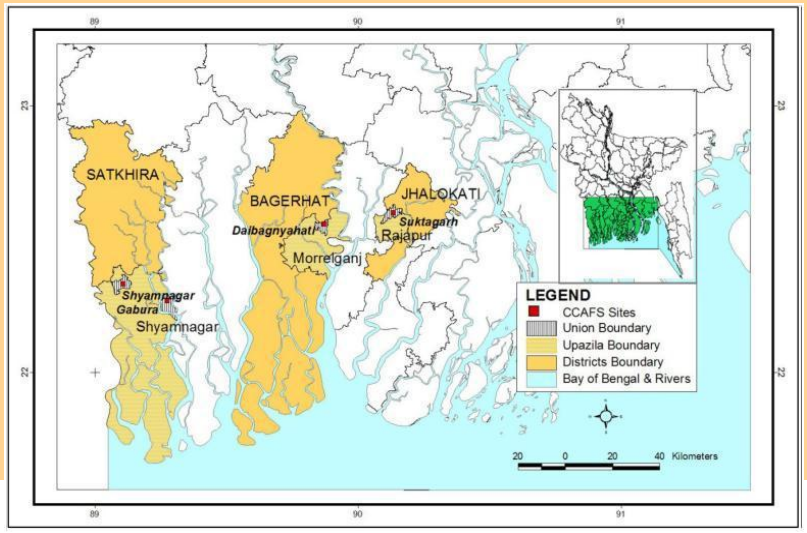


	Eastern IGP		Westen IGP
1	Laser land leveling	1	Laser Land leveling
2	Rainwater management	2	Direct seeded rice
3	Systems of rice intensification	3	Irrigation scheduling
4	Green manure	4	Crop insurance
5	Crop diversification	5	Leaf color chart
6	Crop insurance	6	INM
		7	Green manure

Willingness to pay for CSA in Bangladesh (CCAFS-IFPRI study)

CCAFS sites

- *Dumuria*
- *Shyamnagar*
- *Gabgachhia*
- *Jagannathpur*



Sl No	CS intervention
1	Leaf color chart
2	Urea deep placement
3	Bag gardening
4	Saline tolerant varieties
5	Rainwater harvesting
6	Weather forecasting and advisory

Community insurance: Farmers' satisfaction activities (CCAFS-IFPRI study)

- High satisfaction activities
  - *Social mobilization & group formation*
  - *Members' engagement in assessment processes*
  - *Engagement of members for product design*
- Medium satisfaction activities
  - *Premium amount*
  - *Grievance redressed*
  - *Yield assessment process*
- Low satisfaction activities
  - *Claim payment and amount of benefit receive*

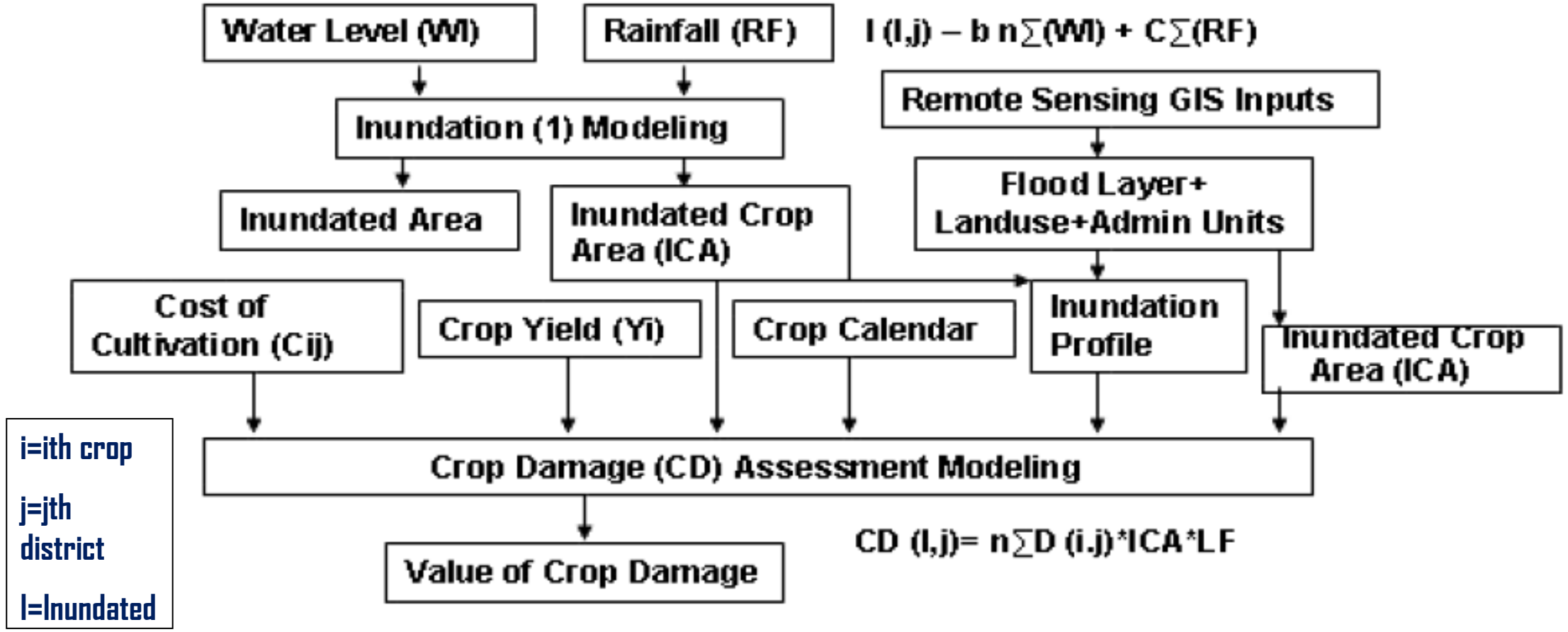
II

IFPRI's Role in the Project

Activities and deliverables

- **Farmers' preferences of flood products & their feasibility**
  - *Compile existing weather risk insurance programs*
  - *Interact with all stakeholders to develop the supply chain*
  - *Farmers' behaviour to risk and insurance to understand the demand side of insurance*
  - *Farmers' willingness to pay for insurance products*
- **Financial feasibility of insurance products under different scenario**
- **Develop business models acceptable to farmers and insurance industry**
  - *Subsidy, efficiency, transaction cost*
  - *Add-ons and bundling insurance product*
- **Develop institutional framework for scaling-up flood insurance product**
  - *Community-based insurance*
  - *In-built in Farmer Producer Organization*
  - *Contract farming*

Schematic diagram of flood hazard modelling (Source: Venkatachary, et al, 2001)



Specific tasks

- **Baseline socio-economic data collection**
  - ***Livelihood analysis, social & gender differences analysis; and gender & equity analysis***
- **Analysis of social, institutional and policy arrangements that facilitate farmers' inclusion; cost-benefit sharing for sustainable operation**
- **Assess the expected benefits of IBFI interventions on gender and socially disadvantage groups in flood risk zones**
- **Develop an insurance market to scale-up the potential benefits of IBFI product on a sustainable basis**

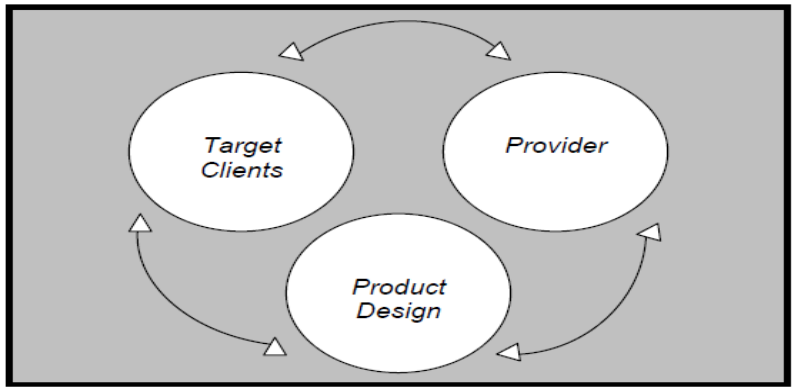
III

Approach

Approach

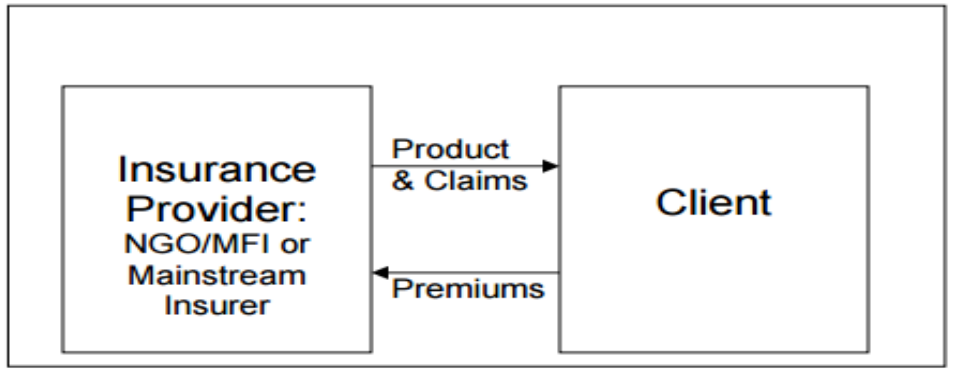
- Learning lessons from other countries
  - *Thailand, Vietnam, Bangladesh, Munich Climate Insurance Initiative, etc*
- Stakeholder consultation at national and state level
- Consultation meetings with policy advisors and policy makers
- Focus group discussions and household surveys
- Benefit-cost analysis to assess feasibility of insurance products
- Benefit-cost analysis of different business models
- Communication approach
  - *Policy briefs, op-eds, and Policy dialogues*

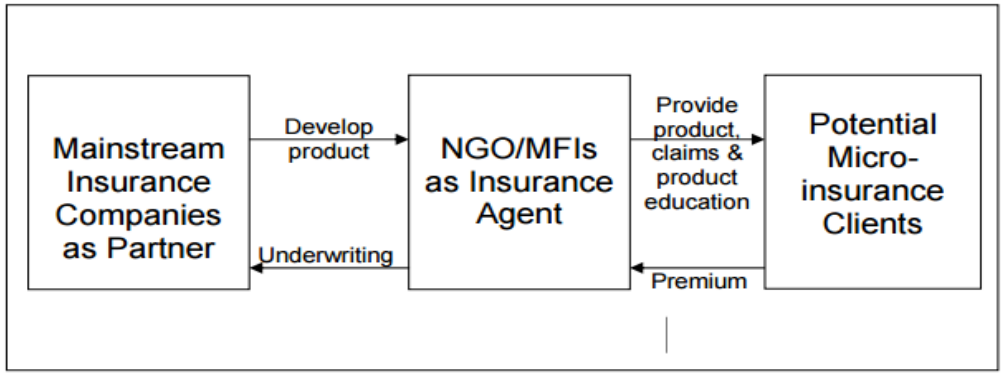
Institutional arrangements



Key issue:

1. **Loss assessment**
2. **Claim settlement**
3. **Bundling**
4. **Transaction cost**

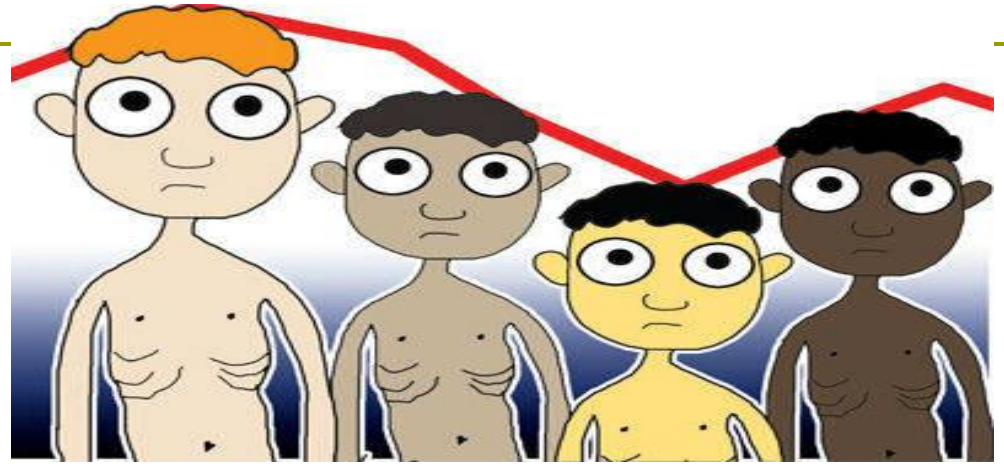




Conditions for success for Index-based Flood Insurance

1. Risk zoning, flood mapping and loss assessment modeling
   - *GIS and remote sensing*
2. Product design
3. Demand-supply balance premium
   - *Role of government*
4. Scale of operation
5. Infrastructure for regular monitoring flood risk
6. Institution arrangement for claim settlement
7. Capacity development and awareness of product

Characteristics of insurance products (Consultation meet)



- Simple to implement
- Cost-effective
  - *Government*
  - *Farmers*
  - *Insurance and financing institutions*
- Transparent to the stakeholders
- No-claim bonus
- Large coverage
- Add-ons (bundling)
- Swift claim settlement
- Regulatory authority

IV

Partners

Partners

- **Research partners**
  - *ICAR Research Complex for Eastern Region*
  - *Indian Institute of Water Management*
  - *Rajendra Agricultural University*

- **Government**
  - *Department of Agriculture, Government of Bihar*

- **Industry partners**
  - *Insurance companies (AIC and private companies)*
  - *Financing institution*
- **Civil Society Organizations**

Flood insurance for improving livelihood of flood affected smallholders

Thank you