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Micro-Insurance in Catastrophe Risk Management

presented by

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Outlines

- **Introduction of ICRM**
- **Introduction of MiRT**
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 - Earthquake Micro-insurance in Indonesia
 - Distribution Channel Network for Dengue Micro-Insurance
- **Micro-insurance in China**
 - Double Trigger Micro-insurance Program Benefits

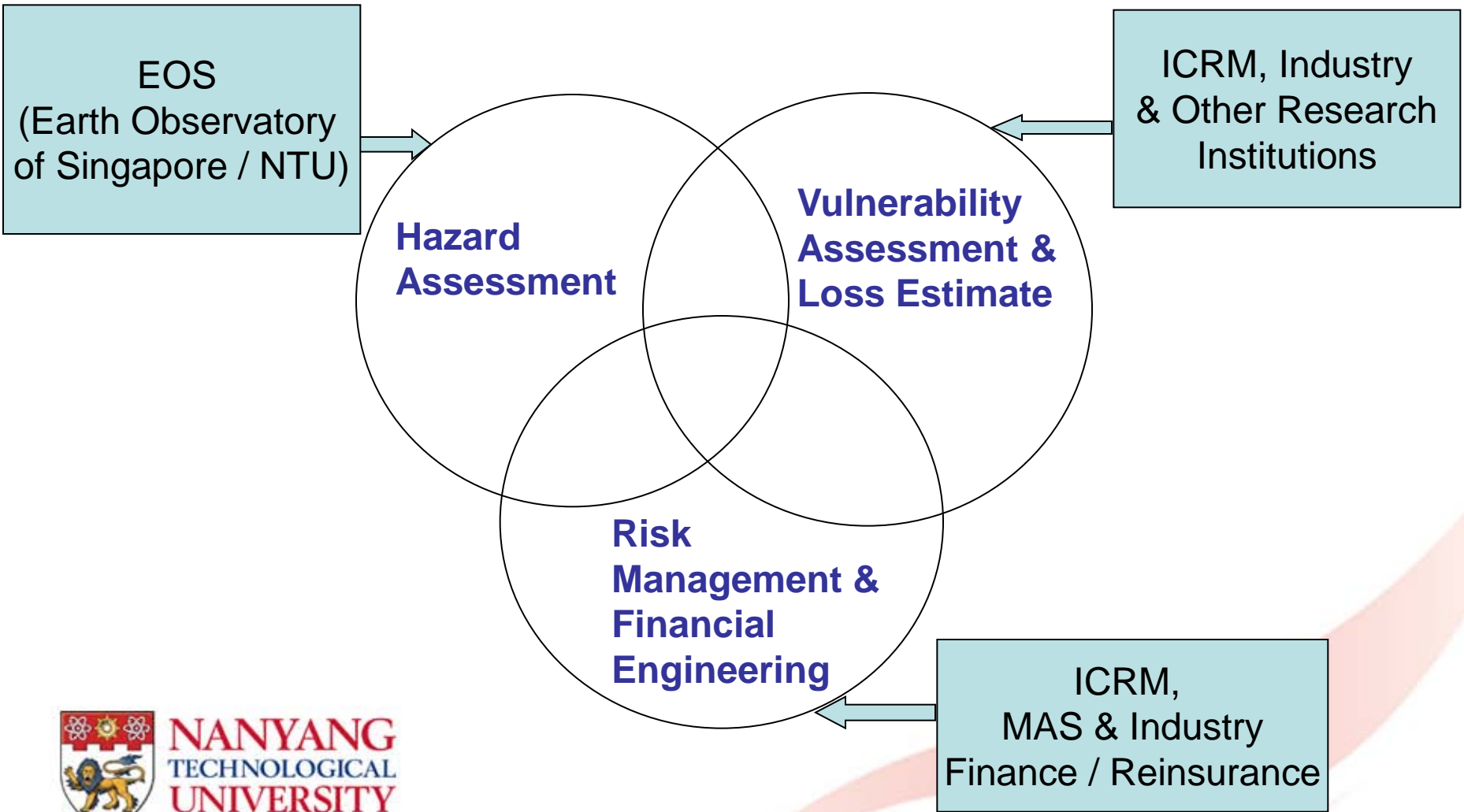
Introduction of ICRM

- **Vision:** Become Asia's leading research institute in Catastrophe Risk Management. Render expert services to those at risk worldwide in general and Asia in particular.
- **Mission:** Undertake research projects and integrate efforts in science, engineering, finance, technology, economic and social-political aspects related to catastrophe risk arising from natural and non-traditional hazards.
- **Output:** New comprehensive methodologies and tools for understanding, communicating and managing catastrophe risk for government and industry

ICRM – Why the focus on Asia

- Asia has the largest growth of real assets and urban centers on Earth. This has exacerbated the problems of Catastrophe Risks.
- Asia is home to the largest number of 'poor' people of the world. Catastrophe micro-insurance products need to be developed.
- Historically, Asia has suffered the most due to catastrophic events, but has the least amount of safety net or risk transfer mechanisms.
- Climate Change issues will potentially impact Asia more than any other continent.
- Catastrophe insurance penetration is extremely low in developing countries in Asia. Examples: under 0.5% in India, Philippines and China.

Research Linkages: Integrating Earth & Environmental Sciences with Earthquake, Flood, and Financial Engineering



About Micro-insurance Round-Table (MiRT) Forum

- **Background**

- Nanyang Technological University (NTU), Singapore and Risk Management Solutions (RMS), Inc., California, USA, have jointly organized four Micro-insurance Round-Table Forums in March 2007, April 2008, April 2009 and April 2010 at the Nanyang Executive Centre of NTU.
- The main objective of the Forum is to discuss how to bring micro-insurance to those in the lower rungs of the income pyramid and the old in the developing countries, who are affected by natural disasters such as earthquakes, major floods, volcanic eruptions, hurricanes and tsunamis.
- Whilst insurance has been introduced to this sector of the economy, both the extent and the rate of insurance penetration in this sector have been extremely low. This is due to low supply and demand, with sellers finding it unprofitable while buyers do not know much about risk transfer mechanisms. Even if the buyers know of such a product, they would think that they could not afford it.
- It is therefore in the vision of the Forum that new opportunities could be created to develop micro-insurance as the new service area, to provide the financial means for those in the lower income pyramid to protect themselves against catastrophic risks



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About Micro-insurance Round-Table (MiRT) Forum

- **Objectives**

- The Micro-insurance Round-Table Forum is designed to focus on the following issues:
 1. Current work and identifying the main advocates / players / beneficiaries.
 2. Case studies of completed and on-going projects on catastrophe risk and catastrophe micro-insurance.
 3. Identifying the most urgent steps needed to make this concept implemented on a sustained basis.
 4. The role that insurance, (re)insurance, investment banks, governments, NGOs, international organizations (such as the World Bank), and academics can play in this effort.
 5. Developing and understanding appropriate loss estimation models for such a product and development of the product.
 6. Where do we go from here? What are the next steps?



Introduction

- Organizer:
 - Organized by Nanyang Technological University, Singapore & Risk Management Solutions, Inc., USA
- The objective of the Forum:
 - To discuss how to bring micro-insurance to those in the lower rungs of the pyramid and the old in the developing countries who are affected by natural disasters.
- Why Micro-insurance?
 - Catastrophic risks
 - Developing economies
 - Low-income people



4th MiRT, 8 – 10 April 2010

- Since the inauguration of the MiRT series in 2007, the micro-insurance efforts around the world have multiplied many times. Unfortunately, very few catastrophe micro-insurance products have been designed and implemented with robust technical, financial and sustainable attributes. The 4th MiRT will focus on looking and discussing pilot projects with those attributes.
- 5th MiRT, 8-10 April 2011, NTU

The Singapore-NTU Alliance for Micro-Insurance

- It is made up of individuals who have the knowledge and interest in furthering this concept to assist those who need help after major man-made or natural disasters.
- It is a public-private partnership alliance with participation by (re)insurance companies, brokers, government agency like MAS, other local industry players, and NTU.
- India, Indonesia, China, and Philippines could be the countries where the real projects will be proposed and pilot projects would be carried out.
- The Alliance will guide and act on an advisory basis.
- All the participants at the MiRT will have the privilege of becoming the founding charter members of this Alliance.



What is Micro-Insurance

- Insurance with low premium
- Low caps or low limits
- Part of atypical risk-pooling and market arrangements
- Serve low income people and businesses (not covered by typical social/commercial insurance)
 - » (Wikipedia)

Indonesia



Earthquake Micro-insurance in Indonesia

- Micro-insurance is a tool to indemnify people in low-income groups against specific losses incurred e.g. due to illness, death, disability, loss of property/ livelihood/ farm produce/ livestock.
- It works on the principle of insurance through risk-pooling of groups, where each household pays a regular premium to cover against losses.
- The benefit amount in case of suffering an adversity (*covered risk*) being substantially higher than the premiums paid, to ensure speedy recovery to normal circumstances.
- Various micro-insurance schemes are currently being implemented in different parts of the world.

Natural Disasters

- The frequency of natural disasters and their impact is increasing due to several factors including:
 - Increased population
 - Climate change
 - Rapid urbanization (high population density)
- South East Asia is particularly vulnerable to natural disasters and has been repeatedly struck by earthquakes in the recent past- including the one that caused the massive tsunami in December 2004 .



LIFE technology for Structural Strengthening



(a) PGA = 0.30 g: Cracks at upper portion



(b) PGA = 0.35 g: Upper portion of wall gave way



(c) PGA = 0.35 g – The left portion toppling



(d) PGA = 0.35 g: Total collapse



(a) PGA = 0.35 g: Cracks patterns



(b) PGA = 0.45 g: Ultimate crack pattern



(c) PGA = 0.80 g: Upper portion collapsing



(d) PGA = 0.8 g: Another view of collapse

- LIFE developed a simple and effective methods of strengthening brick walls, ensuring that they do not crumble and collapse abruptly during extreme events.



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• The technique consists of sticking criss-crossing canvas strips/ wire-mesh across the brick wall to provide the restraint against abrupt collapse.



Canvas can keep brick walls sturdy during quakes

NTU researchers find walls reinforced with canvas strips take longer to crumble than normal ones

By MELISSA TAN

JUST a few well-placed strips of canvas can stop an entire brick building from falling apart during an earthquake.

technologies, and tries to use cheap and natural materials to assist Asian communities, where such help is most urgently needed, said Professor Fan Tao-Chien, chairman of LIFE's advisory board. Prof Li added that the researchers had to find a solution that "could be applied easily and with minimal increase in cost", because "many regional rural communities may lack the resources to implement it otherwise". The team, made up of NTU faculty, graduate students and undergraduates in their final year, tested other cheap materi-

Strengthening Programs

- Based on this simple and practical technique, LIFE has worked on the strengthening programs in China and Indonesia.
- The buildings strengthened include individual houses, schools and health centres.
- LIFE has recently completed a project of structural strengthening of a polyclinic in Indonesia (Padang, West Sumatra)
- An integral component of these projects is the training of masons in building strengthening techniques which they can apply in future on other buildings where they work; this is done with a view to promote good construction practices and building techniques.



Strengthening of Polyclinic - Indonesia



Scaling-up strategy

- Experts predict that Padang in West Sumatra faces imminent risk of a high-intensity earthquake in the near future.
- LIFE recognises the need to scale-up the structural strengthening intervention in order to reduce vulnerability of significant proportion of the population.
- Critical to the efforts for supporting people's efforts for self-reliance in withstanding future quakes is the introduction of the micro-insurance as an integral component of the program.
- It is envisaged that the proposed scheme will enable timely financial support following earthquakes thereby helping communities to be much better equipped to cope and recover.



Micro-Insurance scheme

- The objective is to use micro-insurance schemes to indemnify against losses caused by earthquakes by providing low-income households with easily accessible insurance to cover the loss/damage to assets including the property.
- The essential features of the scheme would be:
 - Low premiums
 - Focus on risk protection (due to earthquake)
 - Affordable to clients
 - Sustainable for insuring agency
- With micro-insurance cover people affected by the disaster would benefit from the contributions of many others who are relatively less affected and thus receive compensation that is greater than their premium payments.



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Micro-Insurance scheme cont....

- Risk-financing:
 - Scheme would involve payment of a regular premium.
 - The strengthening program would be carried forward by the community with families paying for strengthening of their own houses on the understanding that their increased resilience would lower the chances of collapse during quakes thus saving their lives as well as property.
- Disaster prevention - insurers would offer lower premiums to reward risk-reducing behaviour, in this case being appropriate seismic strengthening measures to reduce risk of building collapse.

Micro-Insurance scheme cont....

- It is intended that micro-insurance would not only be an effective risk management strategy, it would also be a source of livelihoods to masons properly trained and experienced in seismic strengthening technologies.
- These masons with guidance from academic institutes and technical universities would double up as agents.
- This integration of micro-insurance with perceivably reduced risk of loss during disasters would incentivise the adoption of the scheme.
- Local accredited Academic Institutions (like Andalas University) can be roped in to certify whether a particular building is adequately strengthened to mitigate the risks from shocks of a quake.

Micro-Insurance scheme cont....

- Delivery models:

- An affordable delivery model would be public-private-peoples partnership following the partner-agent model.
- In this, commercial or public insurers together with microfinance institutions, universities, NGOs/ CBOs collaborate to develop the policy. The insurer absorbs the risk with agents (which can include masons) marketing the policy so formulated.



Micro-Insurance scheme cont....

- Roles of various stakeholders in micro-insurance scheme
 - Govt - regulatory role (*making and supervising regulations*) and implementation of scheme.
 - Rural banks, humanitarian organizations providing non-financial services, NGO's, local financial institutions (insurance) - providing professional and cost-effective product alongside existing product offerings;
 - Universities, schools and CBOs - raise awareness and to promote understanding of the concept among the community.
 - Local and national insurance companies - delivery mechanism (*for channelling micro-insurance scheme to individuals in target communities*), collect premiums and administer claims.
 - Locally trained masons – as insurance agents and for certifying individual houses and buildings are strengthened properly

Micro-Insurance scheme cont....

- Challenges:

- How to manage covariant risk: since the policyholders are likely to be concentrated in a region, the risk posed by an earthquake is same for all households at any given time; therefore the occurrence of a quake can give rise to multiple claims if significant sections of a population are simultaneously affected.
- Term of cover: in insurance schemes there is a specific period within which the insured event must occur in order for a claim to become payable; which in case of earthquakes would be difficult to pinpoint.
- Integration with other schemes: like life/ accident insurance would have to be carefully balanced by experts actuary's to ensure sufficient weightage is assigned to the building strength, so as to promote the strengthening of structures.

Conclusion

- The scheme would help to improve access to strengthened households and community buildings in quake prone regions.
- Provide protection to cover risks in the aftermath of a disaster thus aiding speedy recovery.
- The sustainability of the program would depend on forging creative alliances between all stakeholders.
- Proactive involvement of Governments in a regulatory role would incidentally reduce the fiscal burden on their coffers after a quake.
- Better house-building standards are also likely to emerge from the success of this program.

Indonesia

Distribution Channel Network for Dengue Micro-Insurance

4th Micro-Insurance Round-Table (MiRT) Forum
8-10 April 2010
Nanyang Executive Centre
Nanyang Technological University - Singapore



Dengue Fever Insurance as an example

- ACA's product innovation in 2010
- To indemnify insured who is suffered from Dengue Fever
- Sum Insured Rp 2.000.000 (USD 200)
- Annual Premium Rp 50.000,- (USD 5)
- Voucher replaces insurance policy
- Apply through Short Message Service (SMS) → cellular phone

Insurance Application and Confirmation with SMS

- Simplified instruction manual
- Cash payment
- Easy to apply
- Automatic response – less manual work
- Paperless
- Minimal administration staffs
- Simple claim procedure

Dengue Fever's Insurance Card



KARTU PESERTA
Asuransi Demam Berdarah

Harga Premi
Rp 50.000 / Tahun

Berikan yang terbaik untuk keluarga Anda



The image shows a woman clapping her hands while a young child in a yellow shirt laughs joyfully. The background is a soft-focus indoor setting. The text is overlaid on the top and bottom left of the image.



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Reverse side of the card

Asuransi Demam Berdarah memberikan santunan Rp 2.000.000 (dua juta rupiah) bagi Peserta Asuransi yang terdiagnosa Demam Berdarah. Asuransi berlaku 12 bulan dimulai pukul 12.00, hari ke 15 setelah tanggal AKTIVASI PIN melalui SMS.


Cara AKTIVASI PIN > SMS ke 081511570000 atau 087758870000 (tarif biasa)

1. Gosok bagian pelindung Nomor PIN
2. Ketik: Nomor KTP Pembeli (tanpa titik, tanpa spasi) # Nama Peserta Asuransi # Nomor PIN # Alamat Peserta Asuransi

Lapor KLAIM > SMS ke 081511570000 atau 087758870000 (tarif biasa), ketik: KLAIM # Nama Peserta Asuransi # Nomor PIN # Nama Dokter # No.Tel. Dokter

HOTLINE ACA 24 Jam : 021 31999100 **Web Site : www.aca.co.id**


Pastikan pelindung nomor PIN masih tertutup



Bacalah Buku Panduan Asuransi DB dengan seksama.
Tiap Peserta Asuransi boleh memiliki beberapa santunan Demam Berdarah hingga maksimum Rp 10.000.000 (sepuluh juta rupiah).

12345 6789 0123 456

Kartu ini berlaku s/d



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Wide Range of Distribution Channel

Dengue Fever Insurance of ACA is marketed by :

Traditional Channels

- ACA's employees
- ACA's agents & Brokers

New Channels

- Convenience stores
- Pharmacy network
- Post Office network
- Bank network
- Kiosks
- Cellular Shops
- Gas Station



Advantages to ACA

- Lower cost of operation:
 - Utilizing business partners network
 - No customer = No success Fee
 - Reduce debtors position
 - Minimal administrative work
- Faster and accurate processing
- Up-to-date customer database
- Cellular phone an easier way to communicate with customer
- Receiving premium in advance
- Leverage company image
- Easier renewal process



Advantage to Customers

- Easy enrolment process
- Practically no forms to fill
- Able to access protection which otherwise might not be available due to accessibility
- Enjoy benefit of lower premium
- Simple and hassle-free claims process

Summary

- Indonesia has a huge potential market in its 231 million population dominated by young ages
- Rapid development of IT may help insurance industry to maximize the potential of market and to create efficiency
- Accessibility, good product, lower premium, easy administration and faster response time in transaction are key factors for success in selling personal lines insurance to customers

China



Double Trigger Microinsurance Program Benefits

- 🕒 Affordable for the farmers
- 🕒 Parametric trigger provides payouts for smaller and more frequent events and addresses “insurance trust” issue
- 🕒 Retains catastrophic non-indemnity “step policy” coverage of the original program
- 🕒 Commercially viable and sustainable for all participants (primary, reinsurance, government)
- 🕒 Fronting operations and technology details need to be elaborated in more detail

Government Options – Managing EQ Risk for Rural China (800 counties under the program)

Earthquakes and other natural catastrophes have the potential to suddenly create unforeseen (unplanned) budget demands to deal with their consequences (beyond the immediate response and relief measures). To quantify this risk several options have been evaluated (a 10 year sequence with 10,000 yearly simulations)

Option 1 - Do Nothing

- Government's costs (*unexpected budget demands*) are defined as the payouts for the proposed program..

Option 2 – Self Insurance

- Government sets aside every year 550 million RMB and use these funds to pay the losses, similarly to Option 1. (money growth over time not considered for simplicity)

Option 3 – Commercially Viable Microinsurance Program

- Government collects every year 45 million RMB (its share of the program premium) and sets these funds aside to pay their share of the losses (the highest excess layer). Money growth over time not considered for simplicity.

Government's Dilemma - Resolved

OPTION	RISK HORIZON			
	RP 10,000 Yrs.	RP 1,000 Yrs.	RP 100 Yrs.	RP 10 Yrs.
Option 1	-34,600	-20,500	-8,800	-4,000
Option 2	-29,100	-15,000	-3,300	+1,500
Option 3	-12,200	-12,200	+100	+400

 Recommended Option 3 (microinsurance program) with following advantages:

- Significantly reduced and “smoothed” magnitude of unexpected budget demands at all risk horizons
- Potential for “profit” (at lower RPs))
- Supports economic growth and insurance system activation

Micro Insurance Experimentation in China

- ◆ Agriculture insurance
- ◆ Farmers' house and property insurance
- ◆ Farmers' life insurance
- ◆ Farmers' medical insurance
- ◆ Farmers' accident insurance
- ◆ Farmers' credit and loan insurance

Characteristics of micro insurance in China:

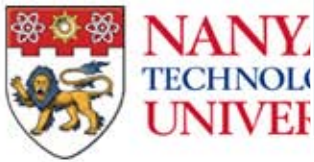
- ◆ Aimed to provide protection for families in rural China
- ◆ Low premium and basic protection
- ◆ Simplified operation and policy
- ◆ Multiple channels of premium collection and product promotion



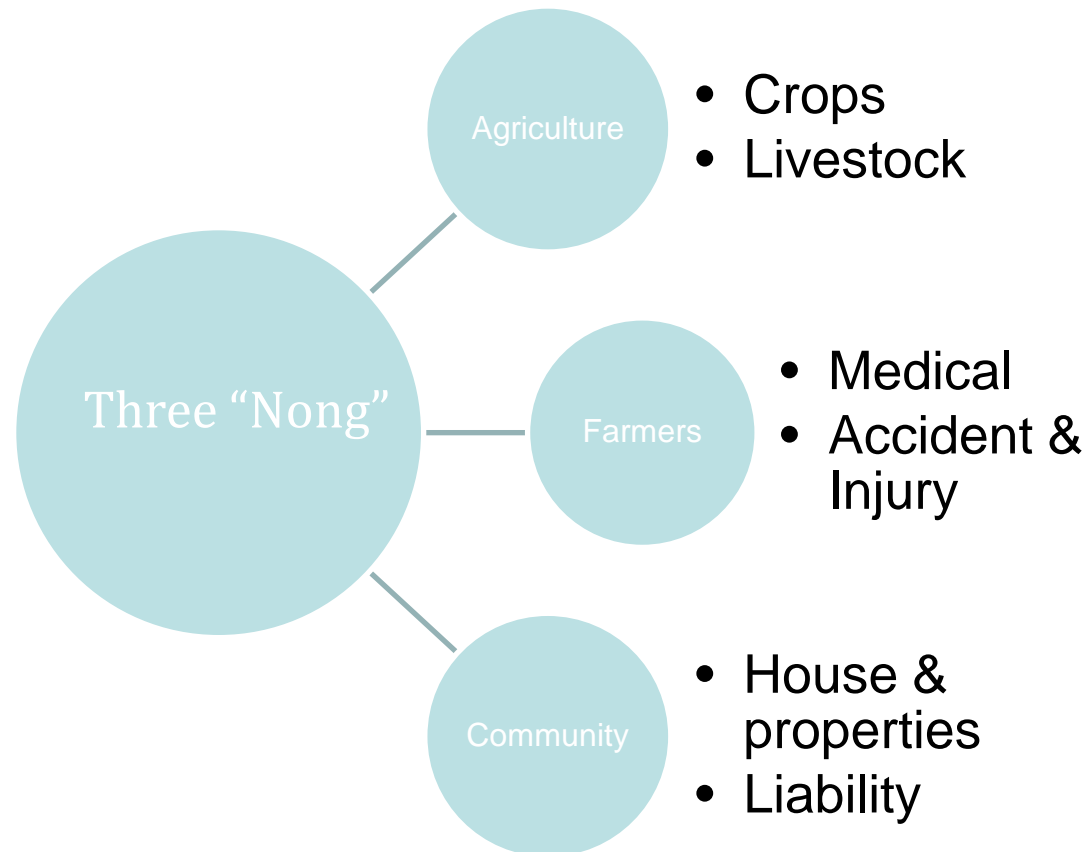
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What risks farmers concern mostly?

	Risk	Concern	Risk	Concern
Medical Insurance	No money to see a doctor	3.70	Earthquake	3.36
	Drought	3.68	Climate change	3.27
	Inferior products	3.67	Food safety	3.23
Natural Disaster Insurance	Infectious disease	3.62	Reform failure	3.18
	Flood	3.60	Lack of medical facilities	3.15
	Rainstorm	3.59	Family breakdown	3.13
Accident & Injury Insurance	Environment pollution	3.53	Ethnic Conflict	3.09
	Traffic accidents	3.51	Terrorist attacks	2.95
	Hospital congestion	3.51	Traffic congestion	2.94
	Economic crisses	3.43	High real estate price	2.91
	Snowstorm and freezing rain	3.43	Population fluctuations	2.85
	Energy security	3.37	Smoking	2.82



Micro Insurance of China



The latest promotions

- No. 1 Document on Agriculture and Rural Development was issued by Central Committee in 2010
- “Expand agriculture insurance products and regional coverage with government subsidy.”
- “Increase government subsidy for middle west regions.”
- “Encourage local government to provide subsidy for agriculture and farmers’ house insurance.”
- **“Develop rural micro insurance”**
- “Improve reinsurance system of agriculture insurance.”





Thank you very much!

