

Insurance for climate change related risks from a Chinese perspective

Jiahua Pan
the Chinese Academy of Social Sciences

Climate change related disasters risks and vulnerability (1-1)

➤ Climate change related risks

- risk: “the combination of probability, or frequency, of occurrence of a defined hazard and the magnitude of the consequences of the occurrence.”
- Vulnerability: susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes; is a function of the character, magnitude, rate, sensitivity and adaptive capacity.
- CC stakes are high: ocean circulation, sea level, the water cycle, carbon and nutrient cycles, air quality, the productivity and structure of natural ecosystems, the productivity of agricultural, grazing, and timber lands, and the geographic distribution, behavior, abundance, and survival of plant and animal diseases.
- CC risks are long term, macro level, uncertain, unmanageable by individuals; must be converted to short term or immediate, micro-level, more specific and deterministic: rainstorm, typhoon, cyclone, windstorm, flooding, snowstorm, hailstorm, ice, landslides, mud-rock flow, dust-storm, forest fire, lightning, drought.
- impact on & role of insurance industry: mitigation, asset management, business operation

Contents

- Climate change related disasters: risks and vulnerability
- Risks and insurance: the experience from China
- Response Actions to risks: the example of SARS
- Conclusions and Discussions

Climate change related disasters risks and vulnerability (1-2)

➤ Damages from climatic disasters in 2002, China: large in scale and huge losses

- the direct economic losses caused by the drought in Shandong Province alone (lower reach of the Yellow River) are estimated at RMB10 billion (GDP in China is 1000 billion in 2002).
- Three tropical storms incurred serious damages (over ¥500 million) to south and east coastal provinces (Guangdong, Guangxi, Zhejiang and Fujian, the most dynamic regions in the Chinese economy). Two exceptionally serious flooding occurred in Northern Guangdong, with 50 townships affected and 350,000 people made homeless. The estimated loss is as high as RMB 700 million.
- Other large scale climate related disasters include landslides in South western China (Sept – Dec 2002 only: 11 incidences, 105 deaths, 96 injured) and snowstorm in Inner Mongolia (100,000 herdsmen affected, losses RMB37 million).

Climate change related disasters risks and vulnerability (1-3)

Flood and drought: large and increase in scale

	1985	1990	1995	1997	1998	2000
Irrigated area (m ha)	44.04	47.40	49.28	51.24	52.30	53.8
Drainage area (mha)	18.54	19.34	20.07	20.28	20.53	20.99
Dykes ('000km)	177	220	247	248	251	271
Protected by dykes (m ha)	31.06	32.00	30.61	32.69	34.17	39.6
Area affected by flood (m ha)	14.20	11.80	12.73	11.41	22.29	7.32
Area affected by drought (m ha)	22.90	18.18	23.45	33.51	14.24	40.51

Risks and insurance the experience from China (2-1)

► Insurance sector in China

- state company (PICC) from 1949-1980: small in scale and limited operation (premium in 1980 <RMB500million), dominated by property insurance (>90%)
- in 2002: 54 insurance companies; premium RMB300 billion; life insurance takes the lead

Climate change related disasters risks and vulnerability (1-4)

► The disadvantaged most vulnerable

- two interpretations of the disadvantaged: climatic-geographical-topographic location and social-economic status of individuals.
- e.g.: road accidents in China, 2000: (1) road conditions; (2) vehicle conditions; (3) access to emergency treatment

	Number of accidents	deaths	injuries
National total	616971	93853	418721
% occurred in urban area	62.4	22.6	31.7
% in rural area	37.6	81.4	68.3

Risks and insurance the experience from China (2-2)

► Insurance premium and claims in China, 2000 : property coverage is limited.

	Premium	Claims and
Property insurance	38.05	58.26
Enterprise property	7.38	9.70
Household property	0.81	0.76
Motor vehicles	23.34	38.59
Ship and freight transport	2.94	4.75
Satellite and nuclear energy	0.19	0.38
Construction and installation of investment projects	0.38	0.38
Liability, guarantee, export credit and other	2.75	3.42
agriculture	0.25	0.57
Life insurance	61.95	41.44
Life	55.19	33.08
Health	1.75	2.28
injury	5.01	6.08
Total (%)	100.00	100.0
Total (amount, billion RMB)	159.8	52.6

Risks and insurance
the experience from China (2-3)

➤ **Insurance coverage**

- low coverage for climate related damages in property insurance: PICC's policy for property insurance: covers damages caused by fire, explosion and lightning only. Damages caused by extreme weather events are not insured, such as rainstorm, typhoon, cyclone, windstorm, flooding, snowstorm, hailstorm, ice, landslides, mud-rock flow. PICC divided into three in 1990: life, property, re-insurance
- Agricultural properties are considered "loss-making" insurance.
- The PICC terms of insurance for hail damages to wheat: Newly reclaimed and intercropping are excluded. Yield level insured is 20%-60% of the average production from the previous 3-5 years. Price of wheat used in the insurance is the lowest government protection price.
- Insurance companies and agents are largely concentrated in urban and coastal regions. Limited insurance offices in rural townships and in the west and remote part of the country where extreme weather events occur more frequently and incur heavier damages.

Response Actions to risks
the example of SARS (3-1)

➤ **The SARS Epidemic**

- surprise attack: unpredicted and unknown, highly infectious and no effective means for treatment, SARS panic is everywhere
- SARS disturbs normal ways of life and work. Schools closed, offices shut, meetings cancelled, official holidays shortened, and indoor recreation forbidden in Beijing
- number of SARS cases totaled 4698; 223 deaths in mainland China (9 May).
- Beijing 2136 cases of SARS and 1486 suspected cases, with death number of 112 (9 May).

Risks and insurance
the experience from China (2-4)

➤ **Social insurance for CC related disasters as public bads?**

- Climate hazards like flooding and drought: (1) irregular, unpredictable and beyond individual control; and (2) large in scale and public in nature.
- possible strategies: (1) risk avoidance. Emigration is one way to avoid being caught by climate disasters. (2) adaptation to the disaster, (3) risk prevention, dykes, reservoirs, canals (4) reliance on relief efforts from the government and charities and (5) insurance: moral hazard & adverse selection; high insurance rate
- insurance companies: (1) no coverage of CC related damages in insurance policies. (2) Re-insurance. (3) insurance for the Three Gorges Dam

Response Actions to risks
the example of SARS (3-2)

➤ **The role of insurance in fighting SARS:**

- by 8 May, there were only 163 cases all over China that made claims for insurance payment: 3.47% over all the cases insured. The role of the insurance industry is limited.
- opportunities for the insurance industry: increased public awareness of medical and life insurance; promotion of insurance policy; new insurance products

Response Actions to risks the example of SARS (3-3)

➤ Lessons learned

- early response and early action;
- preventive measures;
- public awareness raising;
- risk spreading by commercial insurance;
- capacity to deal with emergent disasters;
- government support for facilities and to the poor;
- establishment of an early warning system; and
- R & D effort for better understanding of the disasters.

Conclusions and Discussions (4-2)

➤ discussions

- climate change and extreme weather events: climate change impacts such as sea level increase and water circle need to be translated into their adverse effects on human life and assets for actions
- risk assessment: a more concrete physical form before economic and financial analysis: (1) Hazard identification; (2) Occurrences: frequency, geographical locations, severity, damages; (3) vulnerability; and (4) Risk characterization
- economic analysis: Insurance premium has to be determined on a monthly or yearly bases. These make the assessment of risks for insurance difficult and discourage the use of insurance for risk spreading.

Conclusions and Discussions (4-1)

➤ conclusions

- From the experiences in China, climate change related risks are high and the disadvantaged are most vulnerable to such risks.
- Insurance companies so far have not been very active in providing insurance coverage for climate disasters due to the high risks involved and low ability to pay from the poorer section of the population
- For climate change related disasters, the construction of necessary infrastructures is one of the most effective means to reduce risks and investment in risk prevention. Infrastructures in natural disaster prevention may include good road systems, flood protection, reservoirs, dykes and early warning systems.