

# The Preliminary Research to Earthquake Insurance —Combined with the Example of Yunnan Province\*

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**Abstract** - Establishing the mechanism of earthquake insurance and carrying out the corresponding business will play a significant role in preventing and mitigating disaster in the area where occur earthquakes frequently. In this paper, we discussed the specific role of earthquake insurance in preventing and mitigating earthquake disaster, then combined with domestic and international experience as well as earthquake insurance related pilot case in Yunnan Province to discuss and analyze some key problems when carrying out earthquake insurance business in the future in China. Finally, we concluded that establish the key mechanisms of earthquake insurance mainly contain the business-led, source of funds, operations and claims.

**Index Terms** - earthquake insurance, prevention and mitigation of disaster, mechanisms, problems

## 1. About Earthquake Insurance

Earthquake insurance is a kind of insurance coverage which deal with losses caused by the earthquake disaster, and the subject matter of earthquake insurance is property itself and relevant economic benefits. It mainly includes family property insurance, housing insurance and personal injury insurance, and so on.

## 2. The Role of Earthquake Insurance for Preventing and Mitigating Disaster

Based on the successful experience of some foreign countries in operating earthquake insurance, the main role of earthquake insurance included: dispersing risk, improving the efficiency of funds, reducing the financial burden, and maintaining social stability, and so on.

1) Dispersing risk effectively. On the one hand, domestic insurance companies could transact reinsurance business from foreign insurance companies to apportion compensation, so as to achieve the purpose of disperse risk. On the other hand, under the conditions are permitted, earthquake insurance business also could be carried out directly by foreign insurance companies, once a disaster occurs in china, then risk will be transferred out completely. In addition, through independent operate disaster insurance, it could accumulates profits of insurance in no disaster years or less disaster years and use for reparations when disaster strikes. Thus, disaster risk will be distributed on time and in the region.

2) Improving the efficiency of assistance funds after disasters. Insurance compensation is based on the insurance contract, through the investigation, as long as meet the conditions you will get reparations and the time is usually short. Although part of the financial funds for earthquake disaster can be put in place in a short period of time, because of the involvement of financial resources often require multiple procedures for approval, the efficiency is often not ideal. In comparison, the speed of getting insurance compensation funds faster than financial compensation funds. Domestic and international disaster relief experience shows that in the early of earthquake disaster if can quickly relief disaster will could effectively resolve the proliferation. And can effectively prevent social indirect losses which caused by direct loss in earthquake disaster.

3) Alleviating the financial pressure. Financial compensation is gratuitous, but insurance compensation is not. In other words, insurance compensation is based on people to pay premiums as the premise and the number of funds is clear after an earthquake disaster. So people will pay more attention to the effect and manner of using these funds rather than how to fight for more financial funds. Meanwhile, the set to deductibles and the different mechanism of rates can effectively motivate policyholders pay more attention to how to prevent and mitigate earthquake disaster rather than passively waiting for disaster befall.

4) Maintaining social stability. No matter the earthquake before or after, people always could get the indemnification by purchasing earthquake insurance. For example, People will obtain a sense of security by buying earthquake insurance before the earthquake. Besides, People also get appease and to stabilize the mood as soon as possible and recover normal production timely, no matter work or daily life. Finally, it could play a role of maintaining economic and social stability.

## 3. The Practical Experience of Earthquake Insurance in Yunnan Province

So far, there still does not exist actual earthquake insurance business in china. However, earthquake insurance business are already visible in some insurance products. For

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example, China Life Insurance released an insurance product named "China Life to enjoy life" endowment insurance (Participating) in October 2008 which covers not only disease death, accidental death benefit, but it also covers earthquake, flood, typhoon, tsunami, mudslide and landslide six kinds of major natural disasters. Among them, the accidental death benefit caused by catastrophe is up to three times of the insured amount; Heng An Standard Life released an insurance product named "blessing win" Endowment Insurance (Participating) in November 2008 which also covers earthquake, flood, typhoon, tsunami, mudslide and landslide; Hua An Insurance released an insurance product named "Fumantang" property insurance after 5.12 also covers the earthquake responsibility.

At present, in support of the Yunnan provincial government and Yunnan Seismological Bureau and other relevant departments and was approved by Insurance Regulatory Commission Of Yunnan in 2013, Champion Property & Casualty Insurance Company Limited, China Reinsurance (Group) Company and Peoples Insurance Company of China will carry out the pilot project about earthquake insurance business in Chuxiong in Yunnan. Until now, the pilot project is still in the stage of collecting data and doing relational research.

#### 4. The key Mechanisms and Issues about Earthquake Insurance

##### 4.1 The key mechanisms about earthquake insurance

Learning from the successful experience of foreign carried out insurance business and combining with relevant situation of the pilot of earthquake insurance in Yunnan, we think that the key mechanisms of earthquake insurance mainly includes:

1) The dominant mechanism for business start-up. Because the earthquake disaster has an huge risk and based on the consideration of "rational man", profit is the ultimate goal pursued by insurance companies , there is no one insurance company willing to undertake the earthquake insurance business as the leader. Consequently , it will require a dominant force to promote the business to run. Generally, these countries in which the financial markets, especially the insurance industry is developed the dominant mechanism for business start-up is market itself. However, in these countries which the financial market is relatively backward, the dominant force is government. For example, the dominant force of earthquake insurance business is the consortium of insurance companies in Japan. Several insurance companies jointly funded, co-operation and management is licet.

2) Funding sources and mechanisms constitute. From the world's countries' view, whose earthquake insurance operations are mature, the countries of developed insurance business mainly rely on market. But the countries which are lagging behind the developed countries mainly rely on financial markets and government. For example, in Japan, the main sources of which consist of equity, premium income and investment income. But the Earthquake insurance funding of New Zealand is by collecting premiums of insurance funds,

investment income, and tax reduction and exemption. Compared the Earthquake insurance funding of Japan and New Zealand, we could conclude that, Japan only rely on financial market, but New Zealand also add the tax reduction and exemption. In Yunnan, due to the development of the insurance industry is relatively backward, and the limited funding of the insurance company in the pilot business plan, leading to its funding sources rely on Insurance Company and the Governmental finance, which is consistent with foreign successful practices of earthquake insurance in theory.

3) Insurance operating mechanism. Based on the successful experience of overseas earthquake insurance mode in developed countries, a successful earthquake insurance operating system should include at least three main bodies, policy holder, insurance companies and the government. In combination with the practical situation of Yunnan province, and draw experience from international practice, the planed pilot operation system of Yunnan earthquake insurance add two principal, reinsurance companies and capital market, as shown in figure 1.

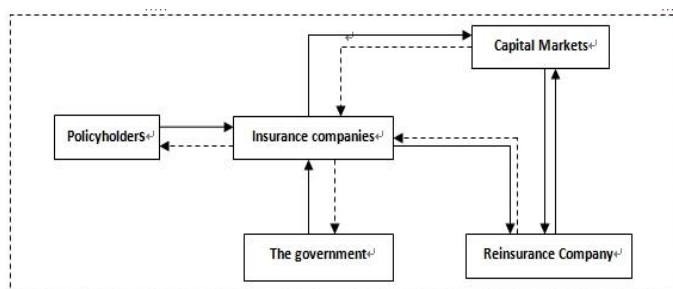


Figure1 The pilot program of earthquake insurance of including five main parts in Yunnan

4) The payment mechanism for loss. The payment mechanism of earthquake insurance is that according to those objective factors such as geological structure , the structure of buildings, economic development level to formulate a series of underwriting and claims systems , in which include premium rates, payment amount, the insurance period , and so on. For example, Yingfang Chen (1996) according to the research "probable maximum loss calculation" concluded that it is the best solution which at 15% of the total premiums to extract catastrophe reserve is the best program for our country to carry out earthquake insurance in the future. According to the empirical analysis, Minquan Ye think that if based on the 10-year period to carry out earthquake insurance in our country the insurance risk can be reduced to a minimum. In the preparation stage of pilot of Yunnan earthquake insurance, the insurance companies are collecting relevant data and field investigations so that could establish a useful model to estimate the probability and loss probability in various earthquake regions of Yunnan , and want to design and establish a effective loss payment system which include different regions, urban and rural , architectural, economic development level.

#### 4.2 *The relevant issues about earthquake insurance*

Based on the relevant practical experience of earthquake insurance in Yunnan and abroad, In the process of doing earthquake insurance business, we usually have to take into account these issues such as the nature of insurance, universal or partial insurance, and the insurance coverage.

1) Commercial insurance or policy insurance. In the process of practicing, the earthquake insurance is similar to agricultural insurance and other insurance types. In the early stage of carrying out earthquake insurance business, the general practice is that make it as an insurance policy in many countries and it was implemented through mutual cooperation of government and business, and it was regarded as a compulsory insurance. Similarly, in the pilot program of Yunnan earthquake insurance, it will also be regarded as an policy insurance to implement, but it is not a compulsory insurance, which is mainly based on the consideration of risks and aspects of the pilot phase.

2) Universal coverage or partial coverage. According to international practice, the earthquake insurance business always for those people who facing high risk of earthquake in the early stage. After the operation of the insurance mechanism to be mature, and then gradually popularize to all the people , such as Turkey and Japan.

3) Property insurance or personal insurance. In most countries, the earthquake insurance coverage is only for property damage. For example, even if for such a country like Japan which the earthquake insurance is very mature the

responsibility of earthquake insurance also only includes homeowners insurance and commercial property insurance. Similarly, it only focus on the economic losses caused by the earthquake disaster in Yunnan , however , for casualties caused by disasters, the study was relatively small.

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