PART III B

Chapter 15

The French Experience in the Management and Compensation of Large Scale Disasters

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Risks like natural perils and terrorism are unpredictable and can cause severe damage undermining the solvability of a company. The insurance marketplace avoids accepting to cover these risks, sticking to the safer territory of insurable risks. This leads to underinsurance for those exposed and to the adverse selection of risks. To make up for the lack of cover for uninsurable risks, France has implemented different solutions, in particular for natural catastrophes and recently (2002) for terrorism. This chapter examines how the different systems have acted in response to large scale disasters.

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1. Specific systems for uninsurable risks : natural catastrophes and terrorism

The National Fund for Agricultural Disasters (1964 law) created a Public Fund financed by an additional contribution to the premium corresponding to the insurance policies covering damage to property or vehicles of the agricultural operation, allowing to compensate for uninsurable damage on agricultural operations. The funds available in the pool are distributed amongst those who call upon the Fund, and no State guarantee will complete any missing amounts although in exceptional cases the State can decide to contribute extra funds. This type of compensation can be unjust, as certain people will receive too little and others too much compensation. The Public Fund is organized such that the size of the disaster does not influence the management of the Fund.

Those systems based on an insurance compensation mechanism are fundamentally different from the Public Fund alternative. France's solutions are a mixed insurance/reinsurance "1982 law natural catastrophe" scheme and GAREAT created in 2002 for terrorism insurance.

The GAREAT pool was set up in 2002 as an answer to the market's imminent withdrawal following the September 11th disaster. This pool covers large industrial risks, in general of value greater than EUR 6 million, in exchange for a limited contribution (12% on average for large risks) on property premiums. An estimated 43 000 risks are covered by the Pool thus benefit from the annual aggregate cover offered on a loss occurring basis for each underwriting year. The solvency of the Pool is guaranteed through the selection of a diversity reinsurers and the consideration of the financial ratings of these companies. The State guarantee, ultimate guarantee of solvency ruin, comes into play at the top layer of the program. The Pool has not yet been put to the test of a large scale disaster.

The mixed insurance/reinsurance "1982 law natural catastrophe" scheme covers – via an obligatory extended guarantee on the property damage insurance policy – property located in France and certain French overseas territories. The risk of adverse selection is checked by the obligatory nature of this extended guarantee. This scheme could be implemented thanks to France's moderate exposure to risk and to the well developed insurance industry. It benefits on the State guarantee which ultimately limits the aggregate annual loss to the market. The 1982 scheme gives an example of the management and compensation of large scale events for which the State guarantee came into play. This paper will thus focus on the experience of the 1982 law.

2. Focus on the 1982 scheme

This scheme was set up following the large storms which occurred in 1982. The objective of the scheme is to offer unlimited cover for those uninsurable risks at a moderate price, thanks to the State guarantee. This guarantee is constructed such that it only has to play in the case of an exceptional event or series of events, such as the 100 year return period flood in Paris or a strong earthquake in the south of France. The State imposed control on four essential factors in return for its guarantee of solvency :

- the declaration of the state of natural disaster : the mayors file for a decree, and their request is examined by an Interministerial Commission. This Commission uses technical reports to advise the Ministers who declare the state of natural disaster which is published in the Official Journal ;
- the definition of the perils covered : The legislators did not want to limit the 1982 law by creating a list of the natural phenomena included in the cover. Nor did they want to create a list of exclusions. They limited themselves, therefore, to the idea of "uninsurable damage" (this idea was then clarified by the laws of 25 June 1990 and 16 July 1992). The damage must be "direct", in other words arising solely as a result of the action of a natural element of abnormal intensity to the property insured (for example, the loss of goods in a freezer will be included only if the machine itself was damaged, thus excluding a simple power cut) ;

Table 15.1 Distribution of accepted files according to type of phenomenon (1982–2002)

Floods	59.0%
Landslides (without subsidence)	20.1%
Subsidence	6.8%
Others	14.1%

- the deductibles : these depend on the type of risk – residential or commercial – and on the peril covered (the amount is the same for all perils except subsidence which has a higher specific deductible). Furthermore, since 1 January 2001, a sliding scale has been introduced to vary these deductibles so as to encourage loss prevention measures. This scale applies to those towns, which do not yet have a prevention plan for foreseeable natural risks (PPR). In practice, a coefficient from 1 to 4 is applied to the deductible based on the number of decrees already issued in respect of this same peril over the past five years.

- the price of the cover : the State fixes the amount of the additional premium corresponding to the natural catastrophe cover. It is now set to 12% of the fire premium for property and 6% of automobile fire premium (or 0.5% of automobile damage premium).

Table 15.2 Deductibles and rating by line of business

		Deductibles	Except subsidence	Rating
Non-professional	Property	€380	€1,520	12% of fire premium
Professional	Property	10% min €1,140	€3,050	
	Business interruption	3 working days min €1,140	€3,050	
Automobile		€380	–	6% of fire premium or 0.5% of damage

The organisation of the scheme forbids the insurer to calculate the price of the guarantee as a function of the real exposure, and imposes mutuality between property located in the high-risk zones and those in the low-risk zones.

Thanks to this solidarity, every insured benefits on a very complete guarantee at a moderate price (approximately €20 per year for the average homeowner). The 1982 law forced private insurers to cover nearly unlimited exposure. To counter this obligation, the state offers its guarantee through the state owned reinsurer Caisse Centrale de Réassurance (CCR). CCR offers the market a reinsurance program with no limit for those risks falling within the scope of the 1982 law. Insurers can choose to reinsure their natural catastrophe portfolios at CCR or with another reinsurer, or not to reinsure at all. However, CCR is the only alternative which offers the state guarantee.

The State guarantee is meant to be necessary only in exceptional cases. No exceptional event has occurred over the past 22 years ; however, a long list of major events set the oscillating rhythm of the loss cycle. The table below shows the estimated market losses for major events since 1982.

Table 15.3 Estimated market loss for mains events (in m)

Year of occurrence	Name	Market Loss Estimation
1982/83	Storm/floods(1)	534
1987	Storm October(1)	107
1988	Floods October (Nîmes)	290
1990	Floods February	183
1989–2000	Subsidence(2)	3200
1992	Floods September (Vaison)	244
1993	Floods September/October	305
1993–1994	Floods December/January	259
1994	Floods November (Nice)	122
1995	Floods January/February	365
1995	Floods August/September (cyclones Antilles)(3)	110
1996	Earthquake July (Annecy)	61
1996	Floods December (Southwest)	76
1997	Floods June (Normandy)	30-40
1998	Floods June (North – Pas-de-Calais)	10-20
1999	Floods November (Grand Sud)	240-250
1999	Hurricanes José and Lenny (DOM)(3)	50-60
1999	Storm Lothar et Martin	220-230
2000	Floods December (Brittany)	60-70
2001	Floods January (Brittany – Normandy)	40-50
2001	Floods April (Somme)	60-80
2002	Cyclone Dina January (Reunion)	93
2002	Floods September (South)	650
2003	Arles	700

(1)"Nat Cat" or natural-disaster compensation was paid in addition to or in the absence of storm cover under the policies.

(2)This relates to damage caused to buildings by the dryness and rehydration of the subsoil.

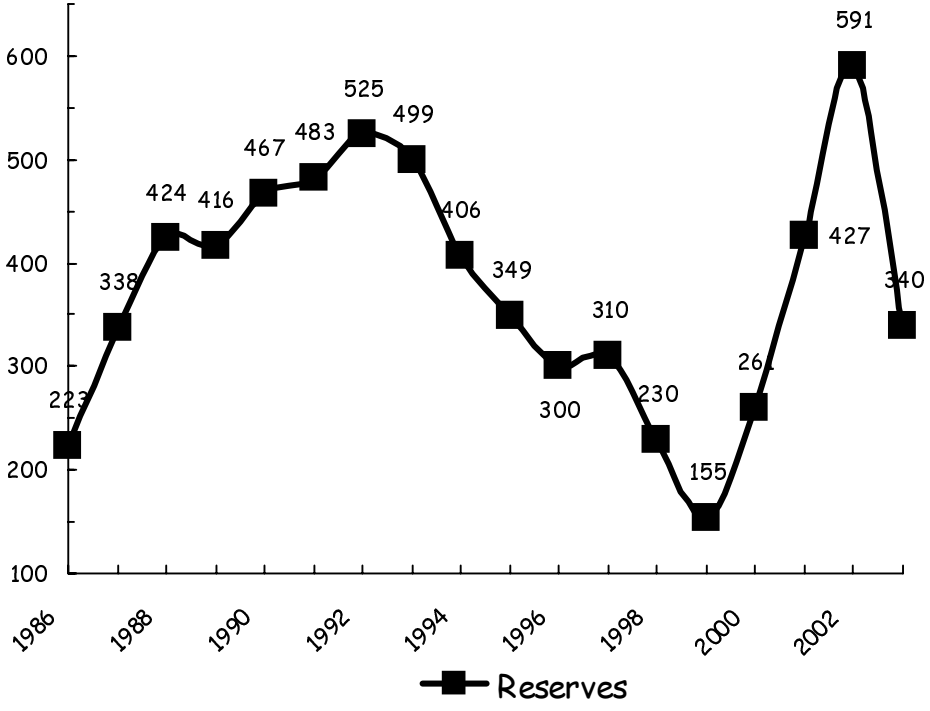
(3)This relates to water damage only. Indemnity for damage caused by wind is provided by the storm, tempest and hurricane cover under the policy.

3. 1999

In 1999 the State guarantee was called upon for the first time since the creation of the scheme. Although no exceptionally large event occurred in 1999, two major events hit France : the flooding in the Aude department in the south during November 1999 (insured loss 240M€) and the consequential flooding following the winter storms Lothar et Martin (insured loss 240M€). A significant hurricane also occurred in the French Antilles the same year (Lenny and Jose). At the same time, an unexpected peril new to the industry and to the scheme which appeared in 1989 had induced the erosion of CCR's reserves over time. In 1999, the conjugation of two major events and the subsidence losses were too much, and the State guarantee was called into play for the very first time since the creation of the scheme.

The graphic below shows the evolution of the premium income and reserves per year. The reserves hit a low point in 1999.

Figure 15.1 Evolution of CCR's equalisation reserve and premium income 1991–2003 (in m)



At that time, the market accepted a reform with the objective of allowing the scheme to return to equilibrium. This market agreement was set for five years, concerning the underwriting years 2000 through 2004. The major points of the reform were :

- Check losses to subsidence ;
- Insure the equitable contribution of each insured to the scheme ;
- Financial measures to replenish reserves.

The **first set of measures** aimed to limit the subsidence loss. The interministeriel commission interrupted the treatment of subsidence dossiers and commissioned its expert Météo France to derive an objective method of measuring the abnormal intensity of the phenomenon. The presence of clay

subsoil was no longer sufficient to determine the state of natural disaster. A new method measuring the level of water in the subsoil was put into place, and allowed to measure if the soil was abnormally dry over a several month period of time. This new criteria reduced by half the number of accepted files. It was also decided at that time to introduce a specific deductible for subsidence, which would allow avoiding payment for minor damage such as micro cracks. The deductibles for subsidence were thus raised to 1 520 € for residential risks and the minimum deductible to 3 050 € for professional risks. Finally, it was decided that the Major Natural Perils Risk Prevention Fund would contribute to financing prevention plans specific for subsidence.

The **second agreement concerned the measures** aiming to insure the equitable contribution of each insured to the scheme, and concerned the updating of the deductibles with the introduction of a sliding scale, the homogenisation of the treaty premium base, and the extension of the cover to include wind damage for hurricanes in French overseas territories.

The changes initiated on the deductibles – in particular the sliding scale – contribute to the sustainability of the scheme through prevention. Since 1 January 2001, a sliding scale has been introduced to vary the deductibles applied to each town so as to encourage loss prevention measures. This scale applies to those towns, which do not yet have a prevention plan for foreseeable natural risks (PPR).

Specifically, when a state of natural disaster is declared in such a town, by means of an interministerial decree, as the result of a given peril (such as flood), a coefficient is applied to the deductible based on the number of decrees already issued in respect of this same peril over the past five years (a new decree defining the rules for counting the number of decrees for application of the sliding scale since 4 August 2003 was published in the Official Journal on 29 August 2003; originally, the law defined the rule for counting the number of decrees since 2 February 1995, the creation date of PPRs). The multiplicative coefficients are as follows :

- one to two decrees: normal application of the deductibles set out above;
- three decrees: doubling of these deductibles;
- four decrees: tripling of these deductibles; and
- five or more decrees: quadrupling of these deductibles.

The sliding scale ceases to apply as soon as a PPR is set up for the peril in question, but will be reapplied if the PPR has not been approved within four years.

These deductibles apply in respect of each and every occurrence and each and every policy. In the case of motor vehicles, they apply to each and

every vehicle, even if several vehicles are covered under the same policy. The deductibles are compulsory, that is to say they apply even when the basic policy does not include them. They are not index linked and cannot be "bought back", even by means of another policy (encouraging risk prevention).

At the same time, the authorities inserted a better definition of the premium base upon which CCR's reinsurance offer should be based, so that the difference in the set of guarantees offered by different companies in their basic policy would not induce inequality amongst the companies' reinsurance costs. The strongest measures pushing toward the replenishment of reserves concerned the suppression of reinsurance commission on the quota share, and to a lesser extent the obligatory cession of automobile risks to the treaty.

The inclusion in the scheme of hurricane wind damage in overseas territories aimed to better the coverage available to insured on this market. The reinsurance of these risks would be covered on a separate treaty for a transitory period of five years. After this period, the insurer would reinsure these risks located overseas under the same reinsurance treaty, thus having one stop loss deductible based on the total premium applying to the total losses across both zones.

The **third set of measures** was financial, and touched both the insurance and reinsurance conditions of the scheme. On the insurance side, the rating of the extended guarantee was raised from 9% to 12%. It was said at the time that each of the three points in the rate augmentation corresponded to a specific need : one point for the cover of the subsidence risk, one point for the inclusion of wind damage due to hurricanes in the French overseas territories, and one point to help CCR replenish its reserves. The goal announced was that CCR obtain reserves such that the ratio reserve to premium reaches a factor between 2 and 3.

4. A system in equilibrium: requires insuring its sustainability through reform and prevention

Five years after the reform, the results are not as spectacular as expected. The years 2002 and 2003 experienced the most costly events recorded and led CCR to use 251 m€ of its reserves. The target ratio a reserve to premium has fallen to one half; however, we have seen that the system is functioning, even when faced with rather exceptional events two years in a row. The effects of the 1999 reform have proven their pertinence.

The deductible sliding scale has also proven to be an effective way of inciting the mayors of towns to pursue preventive measures. Very few

insureds actually pay the modulated deductible, as mayors prefer to file for a prevention plan and thus work towards the collective objective of sustainable development.

In conclusion, the scheme is able to find equilibrium after having suffered a set of major events without calling upon the state guarantee. The support of the insurance market through the 1999 reform and the contribution of society towards the prevention of major natural catastrophes are essential factors to the success. Finally, thanks to the State guarantee, the solvency of the insurance market is guaranteed in the case of a catastrophic event.

Annex 1

List of Speakers and Presentations at the Conference*

Session 1 - Insurability of catastrophic risks

- Economics of catastrophe risk insurance, *Christian Gollier (University of Toulouse).*
- Insurability of terrorism risk: challenges and perspectives, *Howard Kunreuther and Erwann Michel-Kerjan (Wharton School, University of Pennsylvania).*
- Industrial, technological and other catastrophes, *Christian Lahnstein (Munich Re).*
- Recent trends in the catastrophe risk insurance/reinsurance market, *Patrick Murphy O'Connor (Benfield).*
- Role of the reinsurance industry in the management of weather related risks, *Peter Zimmerli (Swiss Re).*
- Issues and options in the management of terrorism risk through insurance, *Robert Reville (Rand Corporation).*
- Current state of the coverage for war and terrorism risks - including NBC - in the aviation sector, *Eugene Hoeven (IATA)*
- Free market solutions for terrorism risks coverage, *Ben Garston (MAP Underwriting and Lloyd's Terrorism Panel).*

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* Power point presentations summarising papers included in this publication as well as other presentations made at the conference are available on the OECD Insurance homepage: http://www.oecd.org/daf/insurance.

- Improving insurability and affordability: the role of insurance in hazard identification, risk assessment, risk prevention and mitigation for industrial/chemical accidents, *Satyananda Mishra, IAS, Disaster Management Institute, Bhopal - Government of Madhya Pradesh, India).*

Session 2 - Financial market solutions to manage catastrophic risks

- International financing solutions to catastrophic risk exposures, *Torben Juul Andersen (Copenhagen Business School).*
- The use of risk linked securities to manage catastrophic risks, including terrorism, *Christian Mumenthaler (Swiss Re).*
- Current challenges in terrorism risk securitization, *Gordon Woo (RMS).*
- Financing catastrophic risks in non-OECD countries: challenges and perspectives*, Reinhard Mechler (IIASA).*
- Current market trends for catastrophe bonds and risk kinked securities, *Christopher McGhee (MMC Securities, Guy Carpenter).*
- The potential for new risk transfer instruments to cover terrorism risks, *Michele David (The Bond Market Association).*
- Rating agency's perspective on catastrophe bonds and risk linked securities, *Rodrigo Araya (Moody's).*

Session 3 - Role of governments and development of public-private partnerships for catastrophe risk management

- Role of governments in natural catastrophe risk management and financing in OECD countries, *Paul K. Freeman (University of Denver).*
- Catastrophe insurance programs in emerging countries: field experience, *Eugene Gurenko (World Bank, Financial Sector Operations and Policy Department).*
- Potential role for governments in terrorism coverage, *Dwight Jaffee (Haas School of Business, UC Berkeley).*
- Public-private partnerships to cover terrorism risks in OECD countries, *John Cooke (International Economic Relations Consultant, London).*

- Role of the US government in the prevention and mitigation of terrorism risks, *Robert Liscouski (Infrastructure Protection Office, Department of Homeland Security, USA).*
- Disaster risk management policy in Japan, *Kazuhiro Kawachimaru (NIPPONKOA Insurance Company Ltd).*
- The Spanish experience in the management of extraordinary risks, including terrorism, *Ignacio Machetti (Consorcio de Compensación de Seguros).*
- A stakeholder approach for developing a public-private partnership: the Hungarian case*, Reinhard Mechler (IIASA).*
- Disaster risk management policy in China, *Yuanchang Zheng and Jianguo Mu (Department of Disaster and Social Relief, Ministry of Civil Affairs).*
- The French experience in natural catastrophe risk management, *Suzanne Vallet (Caisse Centrale de Réassurance).*
- Earthquake risk management policy in Indonesia, *Werner Bugl (PT Asuransi, MAIPARK Indonesia).*
- Disaster risk management policy in Mexico, *Carlos Bayo Martinez (FONDEN).*
- Disaster risk management policy in the Philippines, *Ronald I. Flores (Department of National Defense, Office of Civil Defense, National Disasters Coordinating Council).*
- Disaster management in India, *D. Madan (Under Secretary, National Disaster Management Division, Ministry of Home Affairs, Government of India).*
- Management of extraordinary risks, including terrorism, in India: achievements and perspectives, *C. S. Rao (Indian Insurance Regulatory and Development Authority).*

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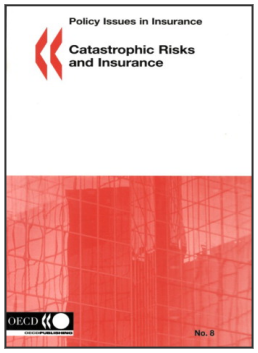
* Background Note of Mr Kawachimaru's presentation (NIPPONKOA Insurance Company Ltd), based on *Governmental Earthquake Insurance System in Japan*, from *Earthquake Insurance in Japan*, written and published in March 2003 by Non-Life Insurance Rating Organization of Japan.



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