



TERRORISM RISK IN FRANCE:

**EXISTING COVERAGE
AND CCR'S ROLE?**

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In the insurance industry, the concept of terrorism is a complex one. It encompasses attacks and acts of sabotage, and may at times include the risk of strikes, riots and civil commotion and therefore war risks and other exceptional risks.

There are many forms of coverage designed to satisfy the specific requirements of legislation in force in different countries. The purpose of this brochure is to provide an overview of the principal forms of coverage offered by the French property insurance market and to highlight CCR's role, in its capacity as the reinsurer authorized to provide State-guaranteed coverage through the reinsurance mechanisms that have been implemented.

INCLUSION OF TERRORISM COVERAGE IN PROPERTY INSURANCE POLICIES

France is one of the countries offering the most extensive forms of property coverage against acts of terrorism. Property coverage against attacks and acts of terrorism has been compulsory for all property insurance policies since 1986.

SCOPE OF THE COMPULSORY COVER

Under Article L 126-2 of the French Insurance Code, it is mandatory for insurance policies covering Property Fire Damage on national territory and damage to motor hulls, to also cover "...direct material damage to the insured property caused by a terrorist attack or act of terrorism...sustained on national territory."

The terrorist attacks and acts of terrorism referred to in the aforementioned article are the offenses defined by Articles 421-1 and 421-2 of the French Criminal Code.

The scope of application of the compulsory cover extends to include acts of terrorism committed using nuclear, biological, chemical or radiological (NBCR) weapons, as referred to in Article 421-2.

In addition, following the introduction of the French law of January 23, 2006, coverage extends to include any material damage sustained on national territory that may result from an attack perpetrated outside its borders, such as contamination by chemical agents.

SCOPE OF THE COMPULSORY COVERAGE PROVIDED BY ARTICLES L 126-2 AND R 126-2 OF THE INSURANCE CODE

The scope of compulsory coverage includes:

- Policies covering Property Fire Damage located on national territory
- Motor Hull insurance policies
- Aircraft Hull insurance policies (for aircraft used for non-commercial or non-profit purposes, with a value of less than € 1 million)
- Vessel Hull insurance policies (marine, lake and inland waterway vessels used for pleasure boating, with a value of less than € 1 million)

Compensatable losses:

- Direct material damage.
- Financial losses resulting from direct material damage
- Costs related to property decontamination, excluding the decontamination and containment of debris
- Business interruption covered by the policy

Compensation limits:

- Limits and excesses stipulated in the Fire cover policy will apply, except in the case of large risks (as defined in paragraph 2 of Article L 111-6 of the Insurance Code), for which different limits and excesses may be agreed, subject to certain conditions
- The combined total of the losses and the decontamination costs of a building, may not exceed the market value of the building or the total sum insured

Exclusions from the scope of the compulsory coverage:

- Policies underwritten in the Construction Liability line
- Aircraft Hull insurance coverage with a value of less than € 1 million, used for commercial purposes
- Vessel Hull insurance coverage for marine, lake and inland waterway vessels with a value of less than € 1 million, not used for pleasure boating
- Cargo and Railway Rolling Stock insurance coverage
- Intangible losses or business interruption losses not resulting from material damage covered under the policy
- Business interruption losses "caused by risks located abroad"

- Terrorism insurance policies covered by way of a specific GAREAT agreement
- Losses sustained in French Polynesia, French Southern and Antarctic Territories and New Caledonia

CCR is authorized by Article L 431-10 of the Insurance Code to provide unlimited State-guaranteed reinsurance solely for losses falling within the scope of the compulsory cover provided for in articles L 126-2 and R 126-2 of the Insurance Code.

SPECIFIC PROTECTIONS IN PLACE

The September 11, 2001 terrorist attacks on the New York World Trade Center towers, led a majority of reinsurers to exclude the largest risks from Terrorism cover, provided for in property treaties.

This decision had a particularly serious impact on French insurers, who are legally bound to cover all losses caused by acts of terrorism - this led to the opening of negotiations between insurers and reinsurers, under the auspices of the public authorities, with a view to implementing a scheme designed to avoid any coverage gaps.

For Large Risks, these negotiations led to the creation, in 2002, of an Economic Interest Grouping (GIE), GAREAT (Gestion de l'Assurance et de la Réassurance des Risques Attentats et Actes de Terrorisme - Management of the Insurance and Reinsurance of Risks of Terrorist Attacks and Acts of Terrorism), the purpose of which is to set up a mutual co-reinsurance scheme among its members, providing them with unlimited State-guaranteed coverage through CCR.

A market agreement requires insurers affiliated with the two French professional insurance bodies (FFSA and GEMA) to cede their terrorism risks systematically to GAREAT's Large Risks section. All other French or foreign insurers authorized to cover such risks, may likewise, join GAREAT's Large Risks section on an individual basis, in order to benefit from CCR's unlimited State-guaranteed cover. They are thus bound to cede the entirety of their eligible risks to the grouping.

For small or medium risks, no market agreement has been entered into, but CCR has been authorized by law, since 2006, to offer insurance companies, upon request, unlimited State-guaranteed cover.

COVERAGE OF LARGE RISKS

Large risks are defined as risks for which the sums insured amount to € 20 million or more.

GAREAT's Large Risks protects its members by providing a pooled Annual Excess of Loss reinsurance scheme to the market, the limit of which is set at € 2,600 billion for 2018. This will increase by € 60 million per year until 2021.

CCR supplements this program by providing GAREAT's Large Risks with unlimited State-guaranteed coverage beyond this limit. This coverage applies only to risks falling within the scope of application of the compulsory coverage.

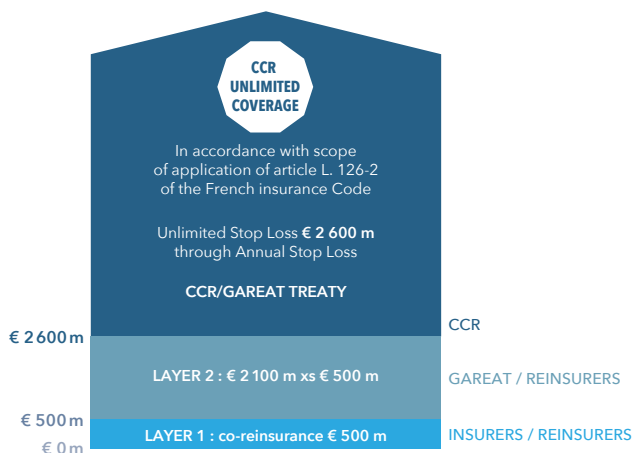
Risks and insurance covered by GAREAT's Large Risks falling outside this scope are not taken into account under this cover. The only exception to this rule applies to railway rolling stock which is covered by CCR with the State guarantee, up to a limit of € 120 million.

This arrangement gives GAREAT Large Risks' members access to some of the broadest coverage in the world.

In addition to providing unlimited State-guaranteed cover, CCR also contributes to the underlying scheme set up by GAREAT, through its open market reinsurance activity.

COVERAGE OF LARGE RISKS IN 2018

- Large risks: insured amounts > € 20 m
- Coverage compulsory for members of the French Insurance Federation (FFA)
- Fixed premium (revised annually)
- Basis: Year of occurrence 2018
- 2018 : Estimate of premium base € 210 m



COVERAGE OF SMALL AND MEDIUM RISKS

Small and medium risks are defined as risks for which the sums insured amount to less than € 20 million.

Unlike large risks, no market agreement has been entered into for coverage of these risks. GAREAT's Small and Medium Risks, created in 2005 offers its members pooled, but limited coverage. Insurers are free to join GAREAT's Small and Medium Risks section or retain their risks, with or without using traditional reinsurance coverage.

CCR may participate in such programs, within the framework of its open market reinsurance activity.

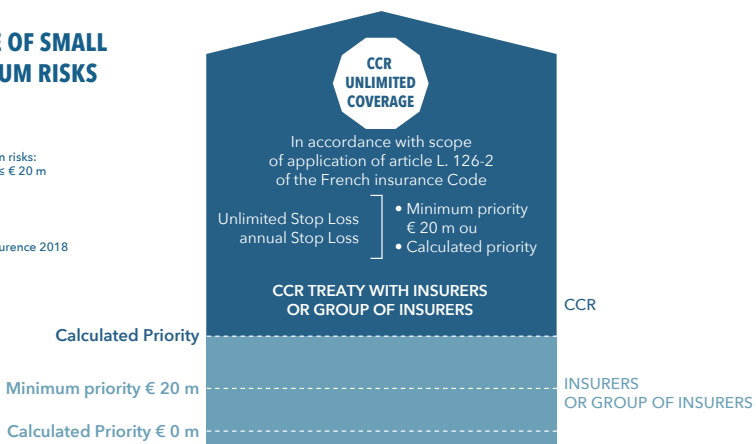
Since January 1, 2006, CCR has likewise offered insurance companies unlimited State-guaranteed coverage for Small and Medium Risks falling within the scope of the compulsory cover.

This coverage is taken out either:

- individually by each company upon request;
- or, since January 1, 2013, collectively by a specific group of companies [entities belonging to a single group, SGAM (a mutual insurance group company), pool, etc.]. In the latter case, the group of companies acts jointly as the "cedent" under the treaty. An authorized representative of the insurance companies handles all dealings with CCR on behalf of the Cedent; this includes treaty performance and management.

COVERAGE OF SMALL AND MEDIUM RISKS IN 2018

- Small and medium risks:
insured amounts ≤ € 20 m
- Fixed rate
- Coverage non-compulsory
- Basis: Year of occurrence 2018



CCR REINSURANCE TREATY; UNDERWRITING CONDITIONS FOR SMALL AND MEDIUM RISKS

The underwriting conditions for this reinsurance treaty are the same for all the insurers subscribing to it. It is an annual Excess of Loss treaty for which the "intervention threshold" and the pricing correspond to a percentage of the premiums written under policies belonging to categories C23, C24, C25/26 of the FR13.03 statement (état FR13.03) defined by the Prudential Control and Resolution Authority (Autorité de Contrôle Prudentiel et de Résolution). Since January 1, 2013, this treaty has an intervention threshold of € 20 million.

The intervention threshold (Annual Excess or Priority) corresponds to the total of the following amounts:

- 20% of all premiums written under "Property Damage" policies recorded in categories C24 and C26 (excluding hail and crop policies from category C26 "Agricultural Property Damage" policies) within statement FR13.03.
- 27.40% of the premiums written under "Property Damage" policies and of the facultative cover extension, recorded under C25 categories in ACPR statement FR13.03
- 2% of the premiums written under "Motor Policies - Other Covers": category C23 of ACPR statement FR13.03.

The pricing corresponds to the following total amounts:

For small and medium risks (total sum insured < €20 million):

- 0.41% of the premiums written in the "Commercial Property Damage" category and the "facultative cover extension"
- 0.2% of the premiums written in the "Personal Property Damage" category
- 0.15% of the premiums written in the "Agricultural Property Damage: other policies" category
- 0.03% of the premiums written in the "Motor Policies - Other Covers" category

A premium discount is given to cedents whose priority, calculated using the formula shown above, is less than the minimum applicable priority of € 20 million.

This discount is applied on the basis of the following scale:

- calculated priority of less than € 5 million; 50% reduction in price
- calculated priority of € 5 million or more and less than € 10 million; 25% reduction in price
- calculated priority of € 10 million or more and less than € 15 million; 15% reduction in price
- calculated priority of € 15 million or more and less than € 20 million; 5% reduction in price

These discounts are applied in the same manner for treaties covering an individual cedent as well as for treaties covering a group of cedents. For groups of cedents, the discounts are calculated individually, per cedent to determine a global group discount.

INCLUSION OF TERRORISM COVERAGE IN MARINE AND AVIATION INSURANCE POLICIES

In Marine and Aviation insurance, coverage is compulsory only for Hull insurance policies, for vessels with a value of less than € 1 million when the vessels concerned are:

- aircraft used for non-commercial or not-for-profit purposes;
- marine, lake or inland waterway vessels used for pleasure boating.

For these policies, CCR offers unlimited State-guaranteed reinsurance coverage. The compulsory cover does not apply to other Property insurance policies offering Hull insurance coverage for railway rolling stock, aircraft, marine, lake and inland waterway vessels, and cargo coverage.

However, Marine and Transport insurers, and more recently Aviation insurers, have routinely offered Terrorism coverage. Such coverage is provided within the framework of a "War Risks" policy that includes coverage of losses resulting from the following events:

- War risks including civil war and war machines;
- Acts of sabotage or terrorism;
- Riots, civil commotion, strikes, etc.;
- Piracy;
- Property seizure (dispossession, unavailability of goods);
- Malicious acts (Aviation).

Since December 1972, CCR has been authorized to offer insurers operating in France unlimited State-guaranteed reinsurance coverage of exceptional risks, underwritten in France, arising from the use of all modes of transport or relating to goods in transit or to stored goods (Article L-431-4 of the Insurance Code). By "stored goods", we mean "goods stored during transport".

Generally, coverage of exceptional risks is provided in the form of a Quota Share treaty, with Stop Loss on Retention for Marine and Transport insurers and in the form of a Facultative Quota Share agreement for Aviation insurers.

Likewise and within the framework of its open market reinsurance activity, CCR covers risks which are not eligible for this State-guaranteed cover. Likewise and within the framework of its market reinsurance activities, CCR covers risks which are not eligible for this State-guaranteed cover.

TERRORISM AND MODELLING

The mechanisms described above, concern the main areas in which CCR is authorized to provide State-guaranteed terrorism reinsurance coverage. CCR is involved in its specific capacity as a reinsurance company tasked with designing, implementing and managing efficient instruments providing reinsurance cover for exceptional risks, meeting the needs of its clients and serving the general interest.

To fulfill its mission, CCR invests in modeling tools. Unlike natural disasters that encompass a variety of risks, terrorism is a specific risk which can at times be difficult to identify. Furthermore, the frequency of its occurrence fluctuates in conjunction with global geopolitical tensions. In addition, to “conventional” terrorism (explosions and conflagrations), experts and intelligence officers agree that terrorist groups are intensifying their efforts to obtain and ultimately use NBCR-type weapons.

An NBCR-type act of terrorism is today a credible threat, even if the specifics of such an attack (where? when? how?) are difficult to predict and make the development of a probabilistic model even more difficult. This type of model appears out of reach for the time being, as the conceptual challenges – both formal and mathematical – render such an approach unreliable. Estimating the annual probability of such an event occurring, while accurately quantifying the feasibility of an attack, the interest in striking a given target, the motivation of a terrorist and worldwide geopolitical situation, are just some of the challenges limiting our ability to generate a realistic probabilistic view of this risk.

On the other hand, even on the basis of a deterministic scenario, numerous parameters, such as the exact source positioning, the quantity of explosives, the nature of the NBCR substance dispersed, the meteorological conditions (wind speed and direction, rain), etc., can be varied. Using this approach, CCR is now able to access a multivariate model providing a view of this risk, which goes beyond the simple deterministic approach and which lends weight, for any given scenario, to the costs generated by the modeling of anywhere from several dozen to many hundreds of deterministic calculations. The model used by CCR is built around a number of modules:

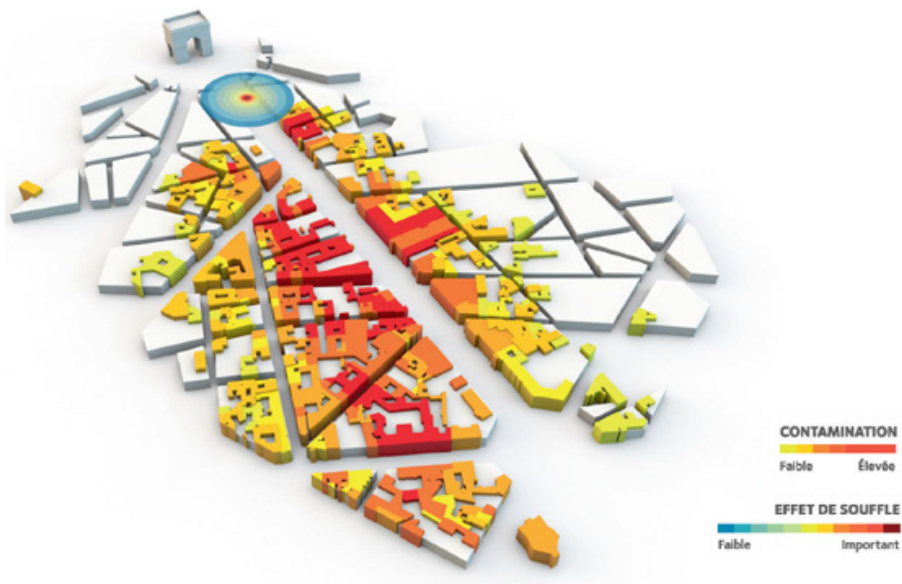
- a potential target catalog, such as embassies, top tourist attractions, places of worship, airports, train stations and industrial sites, in particular those with links to the petrochemical or nuclear industries;

- a hazard module which draws on state-of-the-art scientific knowledge to:
 - assess the zone affected by the explosion blast;
 - calculate the geometry and mass distribution of the NBCR substances in the plume;
 - plot the course of a plume carrying NBCR substances, taking account of realistic meteorological conditions;
- an insured risk accurate geolocalization module incorporating insured cover characteristics;
- a loss calculation module, combining hazards and risk exposures and enabling the loss evaluation for each insurance policy;
- a financial module giving weight to all underlying deterministic calculations, to determine the probable cost range for a given scenario.

This operational model enables CCR to evaluate its risk exposure, that of its clients, and that of the French State, for NBCR-type "Hyper-Terrorism" scenarios.

EXAMPLE OF A HYPOTHETICAL "DIRTY BOMB" SCENARIO AT THE TOP OF THE CHAMPS ÉLYSÉES

Explosion blast and dispersal
of NBCR substances by a north westerly wind





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