NBCR terrorism issues
Summary

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Terrorism has dramatically changed over the last 10 years:

• **WTC**
  • Major post cold war geo-political event
  • Change of paradigm in terrorism (diplomacy, security, alliances, wars…)
  • Review of all insurance covers and set up of terrorism pools

• **Mid 2000**
  • Irak/ Afghanistan wars, Development of attacks (Middle East, Europe…),
  • Hyper-terrorism threats: Nuclear, Biological, Chemical and Radiological
  • Tentatives on nuclear plants (Sydney, 2005)

• **2010 - 2012**
  • Focus on Nuclear terrorism and ‘Rogue States’
  • Nuclear terrorism set by the US as the worst threat to the world (Washington, 2010). France, UK and US agreement (Seoul, 2012)
The current political situation is very uncertain with numerous areas of tensions and the nuclear landscape has changed the development of nuclear military states:

- **Geo-politics**
  - Globalization of terrorism
  - Tensions and uprisings in the Middle east
  - Fights in Iraq, Afghanistan, Pakistan

- **Nuclear**
  - Failure of the nuclear military containment policy
  - Conjunction of civil (terrorism, sabotage, accident...) and military (proliferation, blackmail ...) threats
  - New instruments (cyber war on Iran...)
There are basically 4 main threats of Nuclear and Radiological terrorism:

- **Dirty Bomb**
  - Specific device with mix of explosives and radio-active materials

- **Attack on a nuclear plant**
  - Attack (all types, inc. cyber) resulting in massive radio-active emission
  - Similar to major nuclear accident

- **Set up of a nuclear bomb**
  - Manufacturing of a nuclear device

- **Use of a nuclear weapon**
  - Theft and use of a nuclear weapon
Here are 3 public scenarios with potential economic damages estimates, not including a related financial crash, showing numbers in the range of 10% to 30% of GNP for a mid-size country:

- **Attack on a nuclear plant (US)**
  - Conventional attack: around 200 billion dollars (GAO)

- **Dirty bomb (Paris)**
  - Bomb of 5kg TNT and 1,85 PBq (Césium 137) on the Paris area: 100 to 300 billion euros (Spiez Laboratory, Switzerland)

- **Nuclear device (US)**
  - New York: around 800 billion US (American Academy of Actuaries)
  - California: above 1000 billion US (Rand)
The type and targets of attacks have changed over the last years:

**Targets**
- Shifted more to people rather than industrial plants or landmark buildings
- Most dangerous type is to use arms of mass destruction (NBCR)

**Insurance needs**
- Lack of sensitivity from insurers and reliance on the State
- Life and Health insurers not prepared and protected for extreme scenarios
- Current pools and schemes focus on Property and not on Life and Health
- OECD insurance and reinsurance schemes to be reviewed in that context
France is the most nuclearized country in the world:

- **Research and Development**
  - 1900-1940: Fundamental research on radio-activity, first patents on nuclear fission
  - 1945-1960: CEA creation, experimental plants, atomic bomb testing
  - 1960-1980: development of civil (nuclear power plants, waste treatment) and military (uranium enrichment and nuclear weapons)

- **Current Industry position**
  - EDF: Largest nuclear electricity producer in Europe (20% of world output), share (75% of all) and exporter (worldwide)
  - AREVA: Largest world waste treatment industry
  - EPR (European Pressurized Reactor- EDF, AREVA, Siemens): new and safer third generation pressurized water reactor (China, Finland, France)
France - Nuclear insurance covers

Insurance covers followed the needs of the industry and the inclusion of terrorism:

- **Nuclear plants**
  - 1957: Nuclear insurance pool (Assuratome)
  - 1960: OECD Paris Convention on Nuclear liability
    - Overseen by NEA (Nuclear Energy Agency)
    - Strict liability channeled to Operators
    - Extended protocol (2004) to a liability limit of 700 million euros

- **GAREAT**
  - 2002: Creation of the first post-WTC terrorism reinsurance pool with unlimited cover given by CCR on behalf of the State
  - 2004: Inclusion of EDF nuclear plants
  - 2006: Inclusion of NBCR covers, by a new Law (propertybinding cover)
  - 2012: Largest NBCR reinsurance capacity in the world, State unlimited cover for 5 years given above by CCR (including NBCR)
France is in a specific situation, with major insurance exposure (binding NBCR covers, nuclear plants..) , being politically active and short of financing for a major event:

- **Concept of a global reinsurance scheme**
  - Coverage of all insured risks (like in Benelux)
  - Merger of all schemes (6 current types for different risks)
  - GAREAT extension to all classes of business
  - State threshold at around 0,5% GNP

Nuclear terrorism is beyond a country policy or protection, but in fact a regional issue:

- **Europe protection**
  - Major risk of cross-border damages with NBCR attack
  - Potential NBCR scenarios far above current financing means of countries
  - European protection (type FESF) needed for member States, incepting at around 5% GNP
The view on terrorism is very different in the US (strategic security issue) and in Europe (hidden risk):

**From shock to denial**
- The Madrid (2004) and London (2005) attacks have been a shock to Europe
- The Lisbon treaty (2006) has included a solidarity clause in case of terrorism
- Since then, nothing significant has been done (studies, exposures, projects…)

**Nuclear regulation**
- Current nuclear plants are not designed for new terrorist attacks
- ENSREG (European Nuclear Safety Agency) post Fukushima stress testing has not included terrorism or sabotage

**Insurance regulation**
- Solvency 2 does not include hyper-terrorism testing
- Focus on financial crisis and competition, not on protection and new schemes
The 2011 Fukushima nuclear accident (not yet over) consequences are still to come:

• **Nuclear dilemma**
  • Several OECD countries, in particular 3 strongest industrial countries (Germany, Japan, Switzerland) have decided to shelve their nuclear plants
  • Future search for maximal security (4th reactors generation)
  • AIEA (International Nuclear Agency) action plan on safety

• **Potential consequences**
  • Worries about nuclear safety with 3 major accidents (Ines nuclear scale) in 30 years: Three miles Island-5 (1979), Tchernobyl-7 (1986), Fukushima-7 (2011)
  • No reduction of risk on potential terrorism as long delay to stop the plants
  • More radio-active elements to display
Trends- Factors of change

There could be many factors influencing the political and insurance perspectives on terrorism, we will just mention

- **Events and threats**
  - Events: a new major nuclear accident, a major attack in Europe or the US
  - Threats: radio-active dissemination, nuclear devices transmitted to a terrorism network, cyber attacks and use of artificial intelligence on nuclear…

- **Potential new policy in OECD countries**
  - New political sensitivity and coordinated action
  - Development of country Chief Risk Officers
  - Consequences of Systemic risk and Solvency insurance regulations