NBCR terrorism issues

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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)
NBCR – Current situation

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 Irak, 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 radioactive 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
NBCR - Scenarios

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 (Cesium 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)
NBCR - Insurance issues

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- Nuclear specifics

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- Outlook

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
Trends – Europe perspective

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
Trends- Nuclear safety

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