Press Information

Book N°2 – MAJOR RISKS AT MILIPOL PARIS 2011
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INTRODUCTION: Professionalizing risk management

In recent years, the issue of risk has gained visibility and legitimacy. Risk management is in turn characterized by a strong trend toward professionalization.

While earlier it was indistinctly associated with other activities, risk management now has tended to become a specific practice based on specific knowledge. In France, it wasn’t until the 1970s-1980s that it became a full-fledged profession that does not focus on a particular type of risk against which it would be defined, but on the risk itself, seen as the common denominator between very different realities.

In just a few years, the issue of risk has become one of the major issues of corporate governance as well as of the French State (with the high point being the introduction of the precautionary principle in the French Constitution).

This professionalization has led to the establishment of specific institutions and new professions, which have almost all emerged in the second half of the 1990s. Some of them are professional associations aimed at bringing together risk managers; others are research institutions more or less focused on the worlds of business or public policy. These institutions are organized into networks that ignore the boundaries between public and private sectors and between the types of risk.

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1 Source: Michel DACCACHE, *Risk management and legitimacy of elites. About the institutionalization of risk management in the establishment schools (in French)*
DEFINITION OF THE CONCEPT OF RISK

The definition of major risk is often associated with a quotation from French volcanologist and geologist Haroun Tazieff: “My definition of a major risk is one where the threat to man and his direct environment and his installations is of such gravity that society finds itself absolutely overwhelmed by the immensity of the disaster.”

A major risk is characterized by its overwhelming seriousness and a very low probability of occurrence. A major risk is a community risk and refers to an accident involving large numbers of victims and/or extensive damage to property and/or the environment (e.g. the explosion of the AZF chemical plant in Toulouse, France, in 2001, and floods in the Somme region of northern France). The goal is to reduce the likelihood of occurrence or reduce the impact.

Major risks can be classified in four categories:
- Natural risks: floods, forest fires, storms, earthquakes, landslides, volcanic eruptions, etc.
- Technological and industrial risks: nuclear and biological risks, dam failures, transportation of hazardous commodities, etc.
- Health risks: epidemics, etc.
- Terrorist risks

In France, the management of major risks is entrusted to both the Commission on Major Risks (Délégation des Risques Majeurs), which is attached to the Ministry of Ecology, and the Directorate-General of Civil Defense and Crisis Management (DGSCGC). Their purpose is to inform and alert the population and to protect people, property and the environment against accidents, incidents and disasters through the preparation and implementation of appropriate measures and by means of the Government, local authorities and other public or private organizations.
TYPES OF RISKS

1. Natural risks

A natural risk involves the exposure of human populations and their infrastructure to a catastrophic natural event. Essentially, natural risks include avalanches, forest fires, floods, landslides, cyclones, storms, earthquakes and volcanic eruptions as well as tidal waves or tsunamis, insect infestations, and prolonged droughts. A natural risk can be defined as a threat of a naturally occurring random event that will have a negative effect on an area where human, economic or environmental issues are at stake. For example, an earthquake in a densely populated area will have a much greater impact than one occurring in a desert.

The phenomenon of climate change was clearly identified during the 1972 Stockholm Earth Summit. Since then sustainable development approaches have been implemented. These are not only the responsibility of the State but also that of companies around the world.

Information

In this area the precautionary principle will tend to be applied more often in the future, but the legal aspects between stakeholders has not as yet been well defined. These legal measures in France (so-called “NRE” Act, concerning new economic regulations) do not have any clear legal obligations. On a global scale companies cover themselves against climate risk by buying new types of financial products: weather derivatives.

A July 22, 1987, act established citizen rights to information on major risks to which they may be subject on all or a part of the French territory along with those safety measures concerning them. This information may take the form of a number of approaches (public meetings, regulatory documents, brochures, posters, etc.). Prevention of natural risks remains, for the most part, based on activities of information, surveillance and if need be, warnings to exposed populations. Information largely contributes to a culture of risk that must be acquired and shared. (Source: www.ecologie.gouv.fr)
Controlling regional development

Natural risks should be taken into account in urban and regional planning policies. Disasters such as the floods in southeast France in 2002 and 2003, for example, have demonstrated the need to focus on urbanizing areas that are less vulnerable to extreme natural events. In France, urban planning documents and prevention plans for predictable natural risks (PPRs) are the primary means available to communities and the State to guide and regulate land use appropriately according to the seriousness of the risks.

Besides this consideration in planning documents, Article R. 111-2 of the French Urban Planning Code allows communities and the State to refuse to issue a building permit or approve a building permit application subject to specific conditions when there are risks involved.

Global Figures²

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² Source: All statistics compiled from the BD CATNAT database maintained and constantly updated by Ubyrisk Consultants.
2. Technological and industrial risks

An industrial risk is an accidental event occurring on an industrial site involving hazardous products and/or processes and leading to immediate serious consequences for the personnel, population, property and environment.

The term ‘industrial site’ essentially encompasses two major categories of activity:

• The **Chemical** industries that produce or use large quantities of chemicals: production of basic plastics (e.g. PVC), pharmaceuticals, etc.
• The **Oil** (or petrochemical) industries that produce, process or store all the petroleum-based products: production of gasoline and other fuels, storage, distribution, etc.

**Applicable regulations**

In France, as in many countries, technological risks are legally framed by a number of protective measures.

According to the type of products stored or manufactured, Companies whose business activities include some degree of risk are classified according to three levels of danger:

• **Companies subject to subject to declaration**, which may present low levels of risk or pollution. There are some 450,000 in France and range from piggeries to small gas storage facilities to candle manufacturers.
• **Companies subject to authorization** are those that may encounter significant risks, such as sites stocking more than 1.5T of ammonia, paper and cardboard depots... They number 61,300 in France.
• **Companies subject to authorization with public easement** (now often referred to as “Seveso classified companies”). In this case there is a very high risk, and urbanization control around the site is required. This is the situation for companies using or stocking more than 20 tons of highly toxic substances or other high risk sites. There are 1,239 ‘Seveso’ facilities in France.

In each of these cases the company presents its activities to the **Préfet** (the French State’s representative in the area) who then indicates the safety measures to be taken. In order to identify to which level of danger the site belongs, the “ICPE nomenclature” is used (**Installations Classées pour la Protection de l’Environnement**, or classified installations for environmental protection). This text defines the quantity limits for products and types of activities, and from that the **Préfet** determines to which of the three levels the company should be subjected. Finally, technological risk prevention plans (PPRTs) have been progressively introduced since July 2003.
Seveso Directive
The European Union has a directive on industrial risks: the so-called “Seveso directive” or “96/82/EC directive” that requires European Union member states to identify industrial sites where there is a risk of a major accident. This European directive, adopted on June 24, 1982, was modified on December 9, 1996, and amended in 2003 by the 2003/105/EC directive. This directive is named after the Seveso disaster which occurred in Italy in 1976 (a cloud containing dioxin escaped from the Icmesa chemical plant near the town of Seveso). This accident encouraged the European states to adopt a common policy with regard to the prevention of major industrial risks.

REACH
REACH is the European regulation on Registration, Evaluation, Authorization and restriction of CHemicals. It came into force on June 1, 2007. It streamlines and improves the former legislative framework on chemicals in the European Union (EU). The main goals of REACH are to ensure a high level of protection from the risks that can be posed by chemicals in relation to human health and the environment, and to promote alternative testing methods and the free circulation of substances on the internal market, thus enhancing competitiveness and innovation.

REACH makes industry responsible for assessing and managing the risks posed by chemicals and providing appropriate safety information to their users. In parallel, the EU can take additional measures on highly dangerous substances, where there is a need for complementing action at the EU level.

Management of industrial and technological risks
Standardized risk management methods have appeared for the most part in the industrial sector. It is undoubtedly in the nuclear and arms industries that the visible and possible consequences of accidents are the most important and in which preventative actions are the most developed. In these sectors safety is more the byword rather than security.

The clearest applications of industrial risk management concern risk mapping and zoning, monitoring systems, and the scheduling of safety and prevention exercises and training sessions. Alternatives to the use of dangerous or polluting products are other options. Organizational or human failures are often at the root of industrial disasters. In order to avoid further accidents, measures can be taken to share experience and lessons learned from accidents.
Since 1992 there has been a database (ARIA) in France covering more than 30,000 technological accidents from which lessons may be learned. Other challenges include: peripheral urbanization control, anticipation and treatment of aging installations (including pipes), technological risk skill maintenance and continuous training, consultation and transparency, environmental impact assessment, health risk and management of health and long-term impacts from disasters, and legal reform monitoring, follow-up and implementation.

French Prime Minister François Fillon, in a speech at the Nuclear Safety Summit in Kiev, Ukraine, in April 2011, announced that he wants a European “collective intervention force” to be able to respond in the event of a nuclear accident: “I believe we could greatly improve our effectiveness through the introduction of a collective rapid reaction force, to be deployed specifically in response to a nuclear accident, just like we did within the European Union for civil defense, in particular for forest fires.”
3. Health risks

A health risk refers to a risk, immediate or long term and more or less probable, in which public health is endangered. The identification and analysis of risks linked to a particular phenomenon such as flooding or contamination make it possible, generally, to forecast the impact of a health risk on public health.

**Health risk assessment steps**

- The description of biological troubles or pathologies likely to appear due to the intrinsic properties of a polluting agent.
- The “dose-response” or “exposure-risk” relationship which describes mathematically the association between a level of exposure and the appearance of an effect on health over a given period of time.
- The evaluation of a level of exposure, its length and its frequency.

Risk characterization uses results obtained from the preceding steps in order to describe the type and amplitude of the excess of risk expected due to the exposure of a population to a pollutant. It also integrates a discussion of the uncertainties associated with this characterization.

**Health surveillance and safety**

The French system for sanitary surveillance and safety was set up under a July 1, 1998, law in response to the growing complexity of health threats, to scientific questioning and to requests from the public (right to health, right to safety and the right to be informed). The system’s missions include public health surveillance, alerts, actions and assessments.

In terms of health risks linked to water, the French Ministry of Health is backed by three agencies whose expertise is in sanitary surveillance and which issue recommendations.

- The French Institute for Public Health Surveillance (InVS) is a public administrative agency in charge of surveillance, monitoring, vigilance, and alerts in all areas of public health. It participates in the collection and processing of population health status data. InVS is responsible for collecting, analyzing, and updating information about health risks, their causes, and trends. It also prospectively detects risk factors that might modify or impair the health of the population, on a sudden or
widespread basis. For each type of risk, it identifies and studies the most vulnerable or threatened population groups, and must inform the Minister of Health immediately of any public health threat. Finally, it contributes to the management of health emergencies.

- **The French Agency for Food, Environmental and Occupational Health Safety (ANSES)** is a public administrative institution whose principal mission is to contribute to the protection of human health with respect to the environment, the workplace and food. ANSES provides independent scientific expertise.

- **The French Institute for Radiological Protection and Nuclear Safety (IRSN)** is a public industrial and commercial institution that conducts research and assessment projects on risks associated with radioactivity in natural and industrial environments. In terms of health safety, the Institute contributes to human and environmental protection against ionizing radiation, and carries out nationwide continuous monitoring of ambient radioactivity levels in the different environments with which people may be in contact, such as air, water, soil and food.

### 4. Terrorist risks

Following the September 11, 2001, attacks on the United States and letters laced with anthrax, there was a public outcry for more preventive and response measures to terrorist threats. Throughout the United States, 72 centers serve as focal points for the receipt, analysis, gathering, and sharing of threat-related information between the federal government and state, local, and private sector partners.

All the European states revised their rescue plans in the event of incidents or attacks where the use of chemical, biological and radiological (CBR) substances might be involved. In some instances, existing measures were revised, while for others specific responses were designed. Thus France set up the measures of “Piratox,” for malicious acts or attacks involving toxic chemical agents, and “Biotox,” for pathogenic biological agents. Awareness campaigns were conducted among health workers and surveillance of vulnerable areas (reservoirs, the drinking water system, the food chain, commercial and business centers in larger towns, government buildings, industrial plants, urban transport networks, etc.) was stepped up.

Terrorist threats include chemical, biological, radiological, and nuclear (CBRN) risks. In addition to preventing terrorist attacks, the French State has introduced a special security plan known as “Vigipirate,” which includes measures to support and protect people to minimize the consequences of such events should they occur.
Terrorism Risk Index (TRI) ranking

In August 2011, the TRI (Terrorism Risk Index) revealed that the United Kingdom ranks first among the Western countries most at risk from terrorist attacks and 38th on the list of high-risk countries, due to “the deteriorating security conditions in Northern Ireland, where there was a general increase in the number of terrorist attacks.” The country is rated as ‘medium risk,’ just like France.

While the USA, Canada and the rest of Europe are judged to be at ‘low risk,’ Western countries remain “concerned about the continued risk posed by radical Islam and the prospect of future attacks on Western interests at home and overseas.” Somalia is the highest risk country in the index, with the Islamist militant group Al-Shabaab controlling much of the central and southern areas of the country. The African country is followed by Pakistan, Iraq and Afghanistan. The ‘extreme risk’ category also includes, in order: South Sudan (5), Yemen (6), Palestinian Territories (7), Democratic Republic of Congo (8), Central African Republic (9), Colombia (10), Algeria (11), Thailand (12), Philippines (13), Russia (14), Sudan (15), Iran (16), Burundi (17), India (18), Nigeria (19) and Israel (20).

The report reveals that the number of terrorist attacks rose by approximately 15% globally, with 11,954 incidents between April 2010 and March 2011, compared to 10,394 from April 2009 to March 2010. However, there fatalities fell from 14,478 to 13,492.

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3 According to a survey conducted by British risk analysis and mapping firm Maplecroft
MAPPING OF MAJOR RISKS 2010 – 2011

1. Europe: Preventing volcanic eruptions

Europe has approximately one hundred volcanoes that have been active in the last 10,000 years, of which 30 are in the European Union. In Greece and Italy there have been 140 eruptions since the 16th Century. A major eruption in Europe would have serious consequences for the population and would cause significant damage to the environment. Volcanic hazards are many: lava flows, gases, ash falls, pyroclastic flows, lahars (volcanic debris and mud flows), and avalanches of debris.

The damage and risks to human life, social structures, infrastructure and properties can occur not only by the direct effects of eruptions but also by secondary phenomena such as tsunamis, as well as by components of volcanic ash like sulfur and fluorine, and aerosol plumes that are likely to cause problems for aviation as demonstrated by the eruption of Eyjafjöll in Iceland in 2010.

Volcanic eruption in Iceland

Eyjafjöll is an active volcano in Iceland whose previous eruption took place from December 19, 1821, to January 1, 1823. For some time seismic activity in the surrounding area, near the Eyjafjallajökull glacier, had indicated a possible eruption, and in fact it took place just before midnight March 20, 2010. Over about half a kilometer, fountains of lava more than 200 meters high erupted with the lava sometimes reaching temperatures higher than 1,000°C.

Authorities, fearing flooding in the event of nearby glaciers melting, evacuated hundreds of people. In April 2010 the European airspace was paralyzed because of fears of damage to aircraft engines during encounters with volcanic ash.

Forecasting tools

The arsenal of methods to study and listen to a volcano is becoming more developed and nowadays volcanology has technology that can, together with risk mapping and prevention through education and public awareness, reduce the impact of most volcanic phenomena.
The presence of a permanent observatory is an important means in this area. Volcanic eruptions are often forecast several years, several months or several days in advance by the appearance of earthquakes that increasingly grow in strength before the beginning of the eruption phase, indicating that magma is rising to the surface.
2. America: The strength of the United States against the terrorist risk


According to a report by the U.S. Department of Homeland Security (DHS) on the country’s preparedness for terrorist attacks, the United States has made significant progress in protecting the nation against large-scale attacks or disasters, to protect critical infrastructure and cyber networks. Nevertheless, terrorist threats remain. They may originate in distant lands or local neighborhoods.

A key element of this framework was the creation of the Department of Homeland Security in March 2003. This department brings together 22 separate agencies and offices in order to better “protect the American people from terrorist and other threats.” It works with many partners across the federal government and local authorities, public and private sectors, and communities throughout the country.

The preparedness of the United States for terrorist risks

- **Information sharing** – Since the September 11, 2001, attacks, 72 centers throughout the country serve as focal points for the receipt, analysis, gathering, and sharing of threat-related information between the federal government and state, local, and private sector partners. The Nationwide Suspicious Activity Reporting Initiative is a program used to collect and share reports of suspicious activity. This program also trains state and local law enforcement to recognize the behaviors related to terrorism or crime. The National Terrorism Advisory System (NTAS) is a new terror-alert system that also provides detailed information about terrorist threats and recommends security measures to the public, government agencies, transportation hubs, and the private sector. Finally, the “If You See Something, Say Something” program is aimed at raising public awareness of indicators of terrorism and violent crime, and emphasizes the importance of reporting suspicious activity to the proper authorities.
• **Transportation security** – DHS has made significant advances in transportation security through conducting baseline security assessments across aviation, maritime, and surface transportation sectors. Today, DHS requires all airlines flying to the United States from foreign countries to provide data to the Advanced Passenger Information System (APIS) and Passenger Name Record (PNR) prior to departure. It checks 100 percent of passengers on flights flying to, from, or within the United States against government watch lists.

• **Critical infrastructure security** – DHS has made significant strides to enhance the security of the nation’s critical physical infrastructure as well as its cyber infrastructure and networks. Current tools include the National Cybersecurity Protection System and the National Cybersecurity and Communications Integration Center, which serves as the nation’s principal hub for organizing cyber response efforts. In addition, a 2010 landmark agreement between DHS and the Department of Defense has enhanced America’s capabilities to protect against threats in this area. Finally, the Chemical Facility Anti-Terrorism Standards (CFATS) are intended to “regulate security at high-risk chemical facilities.”

• **Border security** – DHS has taken significant steps to strengthen the security, reliability and accuracy of personal identification documents and reduce identity fraud, in particular through visa procedures and other pre-departure initiatives. However, many states of the country are still unable to fulfill the requirements of the REAL ID Act of 2005, which sets security standards for identification documents.
3. Africa: The international fight against maritime piracy

There were more than 164 attacks against ships off the Somali coast and 37 captures of vessels during the first nine months of 2010 according to the latest report on the state of piracy by the UN in November 2010. In response, Africa has mobilized to try to curb this phenomenon.

The Djibouti agreement, signed on January 29, 2009, by states in the region including Djibouti, Ethiopia, Kenya, Madagascar, Maldives, Seychelles, Somalia, Yemen and Tanzania, established a new regional mechanism to fight against maritime piracy. In February 2010, the countries met again in Djibouti to agree on the implementation of this fight at the regional level.

The fight against piracy in the waters of the Indian Ocean and Red Sea is the subject of international cooperation. The Indian Ocean countries and the European Union adopted in October 2010, in Mauritius, a “regional strategy” for improving the anti-piracy fight. This regional strategy against piracy consists in developing an action plan in Somalia in order to fight the causes of piracy and to encourage the countries to take action against pirates arrested in the region with the financial and technical support from the international community. It was also established to strengthen the capacity of the countries affected by this scourge to secure their maritime zones.

The implementation of the regional strategy

In February 2010, in Djibouti, the meeting of countries bordering the Red Sea enabled the participants to discuss ways to implement the Djibouti code of conduct adopted in January 2009. The establishment of peace and stability in Somalia, the strengthening of public institutions, economic and social development and respect for human rights are necessary to create the conditions for total eradication of piracy and armed robbery off the coast of Somalia. The Somali government has already decided to tackle the problem of securing the maritime area. The country should open a training center for the Coast Guard of the countries in the region in the near future.

Djibouti, the key point of the fight against piracy

With the upsurge of piracy off the coast of Somalia and in the Gulf of Aden, Djibouti’s geostrategic position is becoming more and more important. Djibouti has already accepted French and American fleets that are fighting against sea piracy in the region. According to the Djiboutian Minister of Transport, over 300 warships of the coalition forces are using ports and airports of Djibouti to operate in the region.
Specialists in crisis management of the European Union are exploring a new action in the Gulf of Aden and in the Indian Ocean, to provide or enhance the actions of the coastal states (Djibouti, Yemen, Kenya, and Somalia) in terms of maritime surveillance and the anti-piracy fight. This action is a part of the policy of common defense and will take place alongside the EUNAVFOR Atalanta Anti-Piracy Operation launched in December 2008, and it is in addition to the training mission EUTRA of Somali armed forces, which could be launched soon.
4. Oceania: Australian floods and New Zealand earthquake

In late December 2010, the northeastern part of Australia was hit by major floods. This unprecedented disaster affected Brisbane, the country’s third largest city.

The State of Queensland in northeastern Australia was literally drowned in heavy rain, the most abundant since meteorological records began. According to the Australian Bureau of Meteorology, late November and December 2010 were extremely wet across much of eastern Australia. Four major rain events affected large parts of the eastern states during this period, resulting in widespread flooding on many rivers, especially in Queensland and New South Wales. Torrential rains poured down around Christmas time (up to 50 liters per square meter per hour) on ground already saturated with water. Rivers overflowed, flooding not only homes but also thousands of square meters of farmland and coal mines.

These floods are the worst that Australia has ever seen. Over 250,000 people were affected, some 40 towns and cities were flooded and an area the size of France and Germany combined was under water.

Julia Gillard, Australia’s Prime Minister, said she was shocked by the images of flood devastation and deeply concerned about the economic impact of the flooding. An Australian Reserve Bank board member estimated the floods could cut Australia’s economic growth by as much as 1 percent, equal to almost $13 billion, double the previous highest estimate (about $6 billion).

Flooding is a risk predictable in its intensity but it is difficult to know when it will occur. Risk prevention and the protection of persons require that both collective and individual measures are taken.
5. Asia: After the Japanese drama, nuclear power is questioned again

Following the accident at the Fukushima nuclear power plant, Goshi Hosono, Japan’s State Minister for the Prevention of Nuclear Accidents, announced his plan to review the Japanese agency in charge of nuclear safety.

A nuclear safety plan

The main purpose of this plan is to “conduct an immediate review” to create “a new nuclear regulatory agency in April 2012.” The new agency will merge what is now the Nuclear and Industrial Safety Agency (NISA) with the Nuclear Safety Commission (NSC) of Japan, and the new organization will be split from the Ministry of Economy, Trade and Industry (METI). This nuclear safety agency should restore the public’s confidence and further enhance its function as a regulatory body. By separating the functions of nuclear safety regulation and nuclear power promotion, the Japanese government plans to “create a new nuclear regulatory organization which is trusted domestically and internationally.” The Minister added: “By unifying relevant functions related to nuclear safety regulations, the government should further strengthen the functions of the new regulatory organization.”

Crisis management and human resources

According to the announced plan, the new agency should be created as an affiliated organization either under the Cabinet Office or the Ministry of the Environment. Crisis management is one of the most important roles of the new organization, and necessary arrangements should be made for that purpose. The new agency will aim to reform organizational culture and secure and train talented experts. The government should “conduct a broader study on a future nuclear and energy policy review as well as on the outcome of the investigation into the accident, and will then present the result of its review by around the end of 2012 on areas covered by the new organization.”

The nuclear safety myth

In his speech at the Hiroshima Peace Memorial Ceremony on August 6, 2001, Japan’s Prime Minister Naoto Kan said, “Japan is also working to revise its energy policy from scratch. I deeply regret believing in the ‘safety myth’ of nuclear power and will carry out a thorough verification on the cause of this incident and implement fundamental countermeasures to ensure safety.”