

## **Disclaimer**

This report was compiled by Mr. Guillaume Bernard, who worked at ADRC as an intern from 18 August to 12 September 2014.

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# France

## 1 General information



France is a Republic of 65.82 million of people whose capital is Paris. It is one of the charter members of the European Union with Germany. In 2013, it has still been the 5<sup>th</sup> economy of the world just after Germany and before Italy in spite of the economic crisis that struck hardly Euro Zone. Its currency is then Euro and its motto is *Liberty, Equality and Fraternity*.

French Republic is located in South-Western Europe. It is bordered by Belgium and Luxembourg to the North-East, by Germany and Switzerland to the East, by Italy and Monaco to the South and by Spain and Andorra to the South-West. The mainland of France is 547,030 square kilometers but if we take into account the oversea territories of France, it is about 632,834 square kilometers, with one of the widest maritime territory of the world.

Mainland is composed by large tracts of flat lands crossed by several rivers, with natural borders of hills and mountains from the East to the South. A continental climate prevails in the Eastern inland areas, a Mediterranean climate in the South, under the Central Mountains along the sea and a maritime climate in the Atlantic coast areas.



Figure 1: France's reliefs

France is also the first nuclearized country of the world with 58 nuclear reactors, 75% of its energy comes for it (2012) and its technology is recognized internationally. One reactor of the next generation is now under construction, and the first fusion reactor as well is under construction by an international cooperation team.

France is one of the five advisors countries for the Asian Disaster Reduction Center. It is the only one from European Union.

## 2 Natural Hazards

### 2.1 Natural Hazards Likely to Affect France

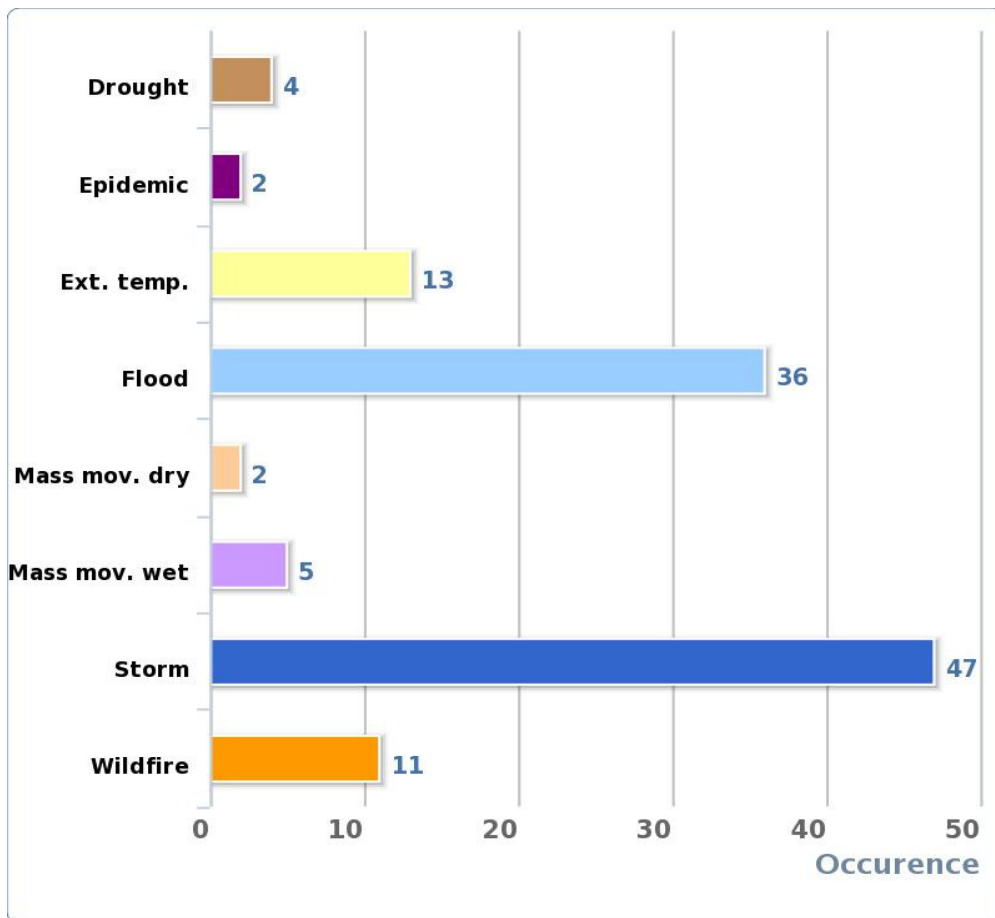
Floods, landslides and storms often occurred in France. In summer times, heat waves, forest fires and drought use to occur more and more frequently. South-Eastern France also experiences earthquakes and volcano activities.

The French laws define then a natural disaster (or natural catastrophe) by the abnormal intensity of a natural agent (like river, snow or ground...) while all the habitual measures to prevent it and reduce it were not enough to stop their incidence or could not be ensured by public offices. It is officially stated by an inter-ministerial decree.

Figure 2: Overview of natural disaster from 1980 to 2010:

No of events:	120
No of people killed:	21,633
Average killed per year:	698
No of people affected:	4,095,496
Average affected per year:	132,113
Economic Damage (US\$ X 1,000):	38,961,700
Economic Damage per year (US\$ X 1,000):	1,256,829

Figure 3: Natural Disaster Occurrence Reported from 1980 to 2010:



These two figures come from the EM-DAT whose includes all disasters from 1900 until present which fit at least one of the following criteria:

- ✓ 10 or more people killed,
- ✓ 100 or more people affected,
- ✓ declaration of a state of emergency,
- ✓ Call for international assistance.

This last decade, weather tends to change, because of global warming according to some experts, and storms are becoming more violent, floods wider and more sudden, and heat waves more common. The Government has then no other choice than preparing new plans of action against floods, storms and heat waves mostly.

## 2.2 Recent Major Disasters

### ✓ Cyclone Xynthia, February 2010

From February 26<sup>th</sup> to March 7<sup>th</sup> of 2010, a violent windstorm struck Western and Central Europe causing serious damages in 12 European countries. It claimed 63 lives of which 53 French persons. Winds rose to maximal power of 228 km/h (142 mph). In France, strong winds combined to heavy rains and high tide caused the failure of several dykes in South-Western France so that water rose quite quickly in some places and people found death by drowning in their own houses. It also affected about 500,079 people because of floods and energy shutdown. It causes approximately US\$ 4.230 billion damages.



Figure 4 & 5: massive floods after dyke failure during the Cyclone Xynthia

Recovery time has been long as the local authorities with the help of the central administration have worked on new laws on city plan in order to prevent any flooding risks. The fact that people died in their houses without the time to escape shocked the public opinion so that authorities made a strong action and decided the expropriation of houses built in zone that could be under water again. But it took a lot of time for authorities to make the new maps and design the most dangerous zones where houses should be destroyed and other zones where new houses should not be built anymore and so on, so that the recovery management has been a public issue and is still controversial – as for instance the compensation given by the state to people who had to leave their houses built in dangerous zones.

It is also important to keep in mind that France benefited from the support of European Union in the disaster phase of rehabilitation and recovery – 35.6 million Euros were given by the European Commission for the victims of the storm.

### ✓ Heat Wave of August 2003

During two weeks temperatures of more than 40 degrees centigrade struck 9 countries of South and Western Europe, claiming around 45,000 lives. For France, 19,490 people died and the cost of this weather has been estimated at US\$ 4.4 million damages. It clearly showed the

inefficiency of medical and administrative authorities to manage the situation, and the instability of lot of old people isolated who died alone in their houses.

As other heat waves struck France in the following Summer – like in 2006 when 1,388 people died, central authorities established a special plan to secure old people and prevent them from the risk of dehydration.

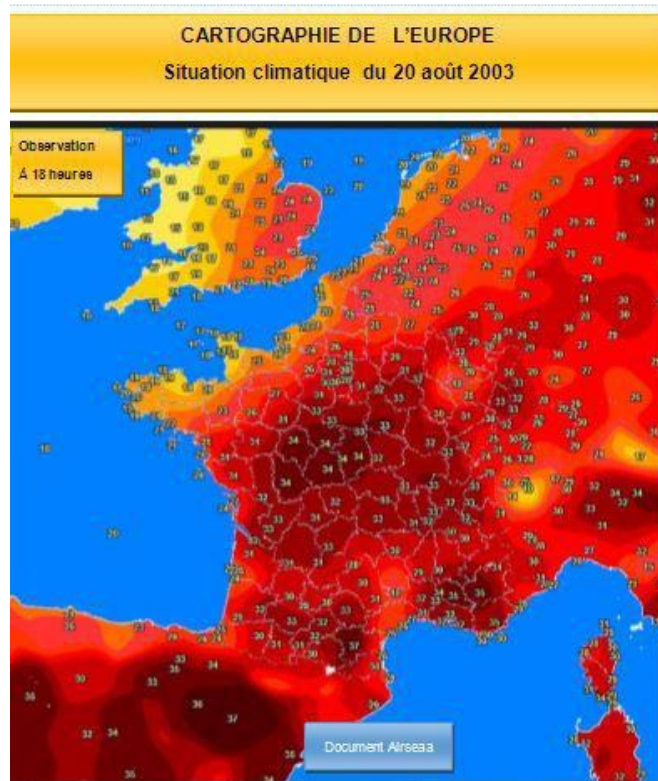


Figure 6: Temperature across Western Europe, 2003/08/20

✓ **Cyclones Lothar and Martin, December 1999**



These two cyclones crossed the North of France between December the 26<sup>th</sup> and the 28<sup>th</sup> of 1999 and caused damages across North-Western Europe. They claimed 88 lives in France and caused about US\$ 8 billion damages. Winds rose until 195 km/h (121 mph) and 140,000,000 m<sup>3</sup> (4,944,053,340 ft<sup>3</sup>) of wood fell in France causing huge damages to national forests. The palace of Versailles and its French gardens were hardly affected and the electricity network as well so that 3,400,011 people were affected by the storms.

Figure 7: Way of the two cyclones across France





Figure 8: Versailles and its gardens were severely damaged, about 10,000 trees fell.

From these cyclones, French Meteorological Company in cooperation with the central administration developed system for informing people in order to prevent next storms and reduce damages. National Electric Company also learnt from this disaster and created plans for more efficient and rapid answers in order to reestablish as quick as possible energy network.



Figure 9 & 10: Countryside suffered a lot from fallen trees but cities suffered as well from collapsed roofs.

✓ **Flood of Vaison-la-Romaine, September 22<sup>nd</sup> of 1992**

In 1992, heavy rains and storms claimed 41 lives and caused about 76 million of Euros damages. The rapidity of the flood marked an impression on public opinion as in only four hours the heavy rains created the flood.

✓ **The Great Flood in Paris, from January 18<sup>th</sup> to March 8<sup>th</sup> of 1910**



In 1910, during two months, the Great Flood immobilized the capital and even if no one died, the economical damages were huge. They are now estimated at 15 billion of Euros. In Paris 20,000 buildings were inundated and half of the subway network as well.

Figure 11: In order to promote restart of work, deputies go to the house of Parliament despite the water.

This Great Flood is also known as the Centennial flood, so that now, one century after, French authorities are expecting a new massive flood in the capital just like Japan is expecting a big earthquake. In spite of the dams built before Paris, in 2013 the Seine reached its critical threshold. Preventing the next flood is a major issue of central administration as it is difficult to foresee the damages that a new flood would cause in this modern-old city with full of tourists.

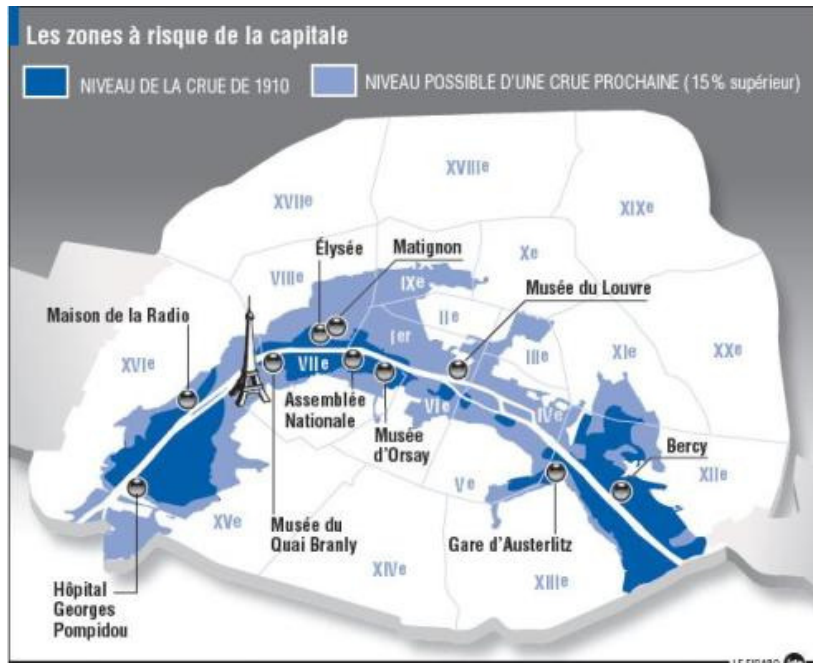


Figure 12: prevision of the next flood in Paris. Dark blue refers to the Great Flood of 1910; light blue refers to the next possible flood. The Two central islands including Notre-Dame-de-Paris would be under water and main touristic places as well.

✓ **Provence Earthquake, June 11<sup>th</sup> of 1909**

France may also suffer from earthquakes, like in June 1909 in the South areas of France when an earthquake of measuring 6.2 on the Richter scale occurred. 46 people died, 250 were injured and 2,000 buildings were damaged. This is the largest earthquake ever recorded in mainland of France.



Figure 13 & 14: Epicenter of the earthquake and postcard giving an idea of the damages.



### 3 Disaster Management System

#### 3.1 Administrative System of France

Note: this section is written while the French government is working on a law to reorganize completely all the French administration system in order to make economy and to improve its efficiency. This part might not be up to date in the following years even if the law is not foretold before 2017 at least.

French administrative system is divided into two branches: Central Administration and Decentralized Administration.

Central Administration is composed by the State administrations like Ministry or different institutions working on special fields such as Scientific Council or Employment Agencies. French territory is divided in 25 Regions under the authority of Regional Prefect. Regions are also divided in departments for a total number of 95 departments – in the mainland – which are under the authority of Departmental Prefect. In each department and region, these prefects ensure the direct liaisons from the capital and the ministries to local population. They are responsible of the state control and authority upon every French territory so that they have lot of powers in terms of security management – with police forces but also medical and rescue team in case of disaster. They and their offices also make sure that the French laws are respected by other offices on local scale.

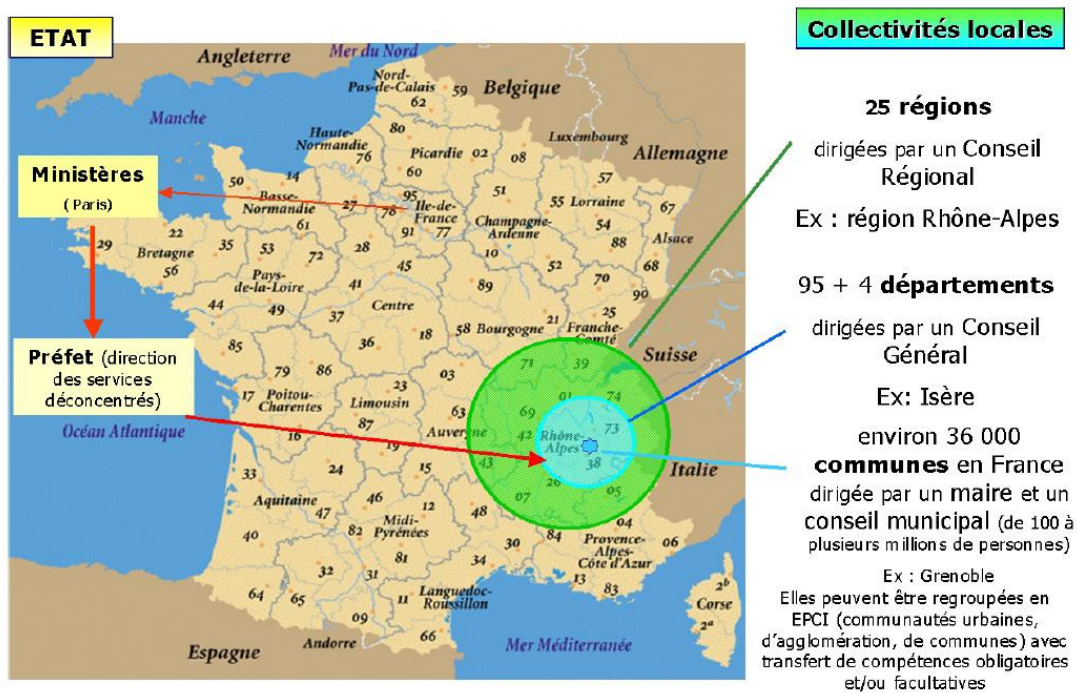


Figure 15: Administrative divisions of France, departments.



Decentralized Administration is composed by regional, departmental and municipal councils elected on a local scale. They are also known as 'territorial collectivities'. They should ensure better policies according to the local needs and data, but the increasing number of institutions, organizations and councils between these territorial collectivities has complicated the decision process so that responsibilities are often lost and time of enforcement is increasing.

French Administrative law is actually the body governing the activities of the administration and distributing the different missions to the different institutions and councils from central to decentralized administrations.



**Figure 16:** example of administration system in France. With the red arrows is the central administration with its prefects. Green shows the Rhone-Alpes region and light blue shows the department of Isere which is one of the departments of Rhone-Alpes region.

### 3.2 Legal System and Framework

#### ✓ What about France?

In France, disaster management used to have two main components: natural disasters and technological disasters, because during the last century several severe industrial accidents happened. Recently nevertheless, the regulation tends to focus on particular type of disasters such as heat waves or floods.

The legal framework for disaster management is mainly composed by two laws. In 1995 was adopted the [Law for the Reinforcement of the Protection of the Environment](#). It gave a definition of principles that should be taken into account for any policy or action on the environment. For instance it reminds the principle of precaution in order to be careful despite scientific uncertainty or also the principle of participation for a more democratic management and so on. This law also gives the framework for *Risk Prevention Plan* in its second title, chapter two. Finally it determines and shares responsibilities between all the scales of French administrations, central and local ones.

The other main law on this field is the [Law for the Prevention of Natural and Technologic Risks and their Recovery](#) adopted in 2003. It deals first with the prevention of technologic risks and how to organize city plan around high risked installations or factories. In its second part, it deals with natural disaster and how should be used grounds and forests.

In parallel to these laws made by the parliament, several regulations are made directly by the offices of the ministries usually in order to clarify some laws or to complete them rapidly to improve the public response to disaster. Ministry but also prefect in regions and departments can adopt this kind of rules to face special local situation as well.

#### ✓ **What about the European Union?**

Talking about legal framework in France in 2013 automatically leads to talk about the European Union as the European Commission and Parliament now write lot of communitarian laws in order to harmonize national laws and to answer more efficiently to disasters that can affect several countries of the Union. It is the case for instance with the Seveso Directive - directive 96/82/CE - adopted in 1984 and up-loaded in 2012. It aims to prevent industrial accident after the disaster that happened in Italy in 1976 while a chemistry factory failed and released toxic materials in the air, contaminating the entire environment and the cities around.

On the alarming observation of recent European floods that between 1998 and 2002 claimed 700 lives, caused the evacuation of 500,000 people and 25 billion Euros of damages, the EU has recently affirmed its will to work more deeply on this topic. Its first step in 2007 was the creation of the *Communitarian Mechanism for Civil Protection*. It aims to coordinate national rescue teams in case of natural or human disaster for a quick and rapid answer.

In 2007 as well, European Commission adopted the Directive 2007/60/CE on *the assessment and management of flood risks is intended to reduce and manage the risks that floods pose to human health, the environment, cultural heritage and economic activity*, in order to prevent more efficiently floods and the damages they can produce. Actually it was the first step for wider programs as FLAPP project - *Flood Awareness & Prevention Policy in border areas* – which was led in 2009 in order to create maps of dangerous zone across the Union. Through this program, new cooperations were established between local municipalities and authorities from all European countries independently from central authorities. The next step should be the elaboration of plans for flood management and should be led around 2015.

### 3.3 Structure of Disaster Management

The structure of disaster management in France is quite complex as several reports denounce it regularly. Indeed the French Court of Audit recently wrote that the dispersion of the means and the dispersal of responsibilities between all administrations and offices is the main problem towards a more efficient management of disasters.

The complexity of the structure might also explain why there is really little literature on this topic, because trying to resume it and explain it clearly seems to be a long way to go. Nevertheless, we can here see the main line of the system.

#### ✓ The National Platform

[French platform](#) for the prevention of Major Risks gathers all the public and private structures with associations as well working on disaster reduction. It is under the authority of the Advisory Committee for Major Natural Hazards (COPRNM: *le Conseil d'Orientation pour la Prevention des Risques Naturels Majeurs*), which is composed by people from different backgrounds like deputies, members of NGOs and civil society, members of local administrations and so on. It actually depends of the Ministry of Ecology.

This Advisory Committee was created in 2007 with the help of the [French Association for Natural Disaster Prevention](#) (AFPCN: *l'Association Francaise pour la Prevention des Catastrophes Naturelles*), which is an independent institution working on disaster reduction. It also contributed to build a European network of all National Platforms in order to develop European cooperation and communication.

#### ✓ CATNAT

[CATNAT](#) – also known as Permanent Observatory of Natural Disaster - is actually a French web-database gathering information on disasters from all over the world with documents, laws and academic articles. Made by a private company specialized in expertise and consulting on natural disaster, it gives lot of information and gathers every useful material about French and European regulations or institutions.

#### ✓ National and local organizations

Actually, the disaster management system is divided into two parts in France. Prevention is the responsibility of the Ministry of Ecology, Sustainable Development and Energy while the protection of people and goods is the affair of the Minister of the Interior which manages the Civil Protection teams and then organizes rescue operations.

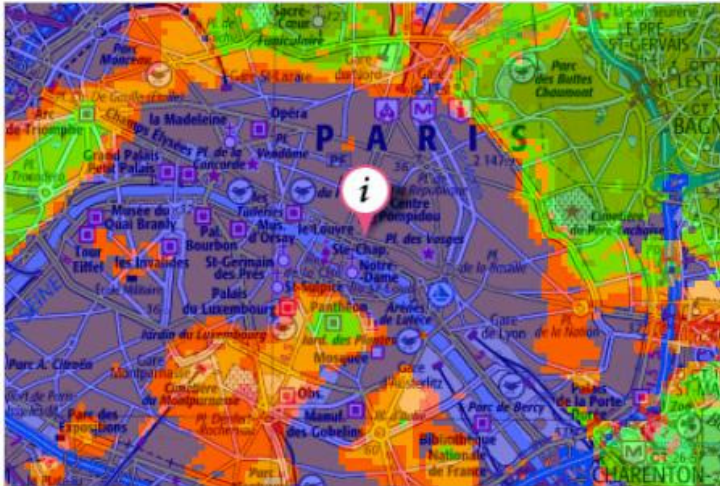
Then, the Ministry of Ecology has done efforts in order to facilitate the access to information about risks. The web portal [georisque](#) gives for instance all the information about risk of disaster for any address in France depending of what studies have been done by the municipalities. You can then check if your city or your habitation is in zone subjected to floods or near a factory classified as dangerous or even near a nuclear installation.

From that web portal we can see the risk of flood inside Paris. We can also find out that no more than 10 kilometers in the South of Paris, there is a nuclear installation – not a power plant, but an installation that might release radioactive materials in case of accident.

Figure 17: sudden flooding risk in Paris. Blue zones are the most exposed zones while green ones are the most secure.

INFORMATIONS GÉNÉRALES SUR LES INONDATIONS

Localisation exposée à une remontée de nappe dans les sédiments : Non



Lorsque le sol est saturé d'eau, il arrive que les nappes des formations sédimentaires affleurent et qu'une inondation spontanée se produise.

- Sensibilité très faible à inexistante
- Sensibilité très faible
- Sensibilité faible
- Sensibilité moyenne
- Sensibilité forte
- Sensibilité très élevée, nappe affleurante

Then it is the responsibility of the Minister of the Interior and its offices to ensure the mobilization and the cooperation between rescue teams, medical staffs, firefighters, Civil Security Squad and army. The rapidity of the answer is of course the key for an efficient rescue operation so that the Minister of the Interior in cooperation with other administrations such as the Ministry of Public Health regularly organize drills in order to test the organization of the rescue operation and the cooperation and communication between all the actors.

Prefects, as a direct servitor of the State and then Mayors, as a responsible for the safety of the population on its territory, have wide powers in order to mobilize quickly forces and rescue forces from police and medical staff and to answer to emergency situation.

All the actors that might intervene in disaster management system are then defined as following with their main responsibilities as they are defined by the French laws.

Actors		Main Missions
Central administration	State and its offices (prefects)	<ul style="list-style-type: none"> <li>✓ Make the regulations,</li> <li>✓ Inform the populations and make public the risks (Risk Prevention Plan, vigilance map...),</li> <li>✓ Prescribe and elaborate <i>Risk Prevention Plans</i> – for predicable risks,</li> <li>✓ Control legality of ground occupation – like city plans,</li> <li>✓ Organize the means of prevention and crisis management that depend on the state,</li> <li>✓ Lead the rescue teams,</li> <li>✓ Manage infrastructures (national roads, forest)</li> <li>✓ Decree the Emergency situation of natural disaster.</li> </ul>



Decentralized authorities	Region	<ul style="list-style-type: none"> <li>✓ Can finance formation and information on risk and work in high-schools depending on its policies,</li> <li>✓ Manage regional infrastructures like roads</li> </ul>
	Department	<ul style="list-style-type: none"> <li>✓ Can finance as well such formations or information in Junior high schools depending on its policies,</li> <li>✓ Finance and manage the departmental service of rescue and fire</li> <li>✓ Manage departmental infrastructures</li> </ul>
	City Mayor	<ul style="list-style-type: none"> <li>✓ Takes an inventory of underground and submarine cavities,</li> <li>✓ Must inform populations about the risks,</li> <li>✓ Takes into account the risks for the city plans,</li> <li>✓ Helps and negotiates with the prefect for the Risk Prevention Plan,</li> <li>✓ Gives the legal authorization for construction on its territory,</li> <li>✓ Establishes the Communal plan for safety,</li> <li>✓ Responsible of the security of populations on its territory,</li> <li>✓ He can also ensure the project ownership of protection facilities.</li> </ul>

	Justice	<ul style="list-style-type: none"> <li>✓ Can take to court actors of disaster management in case of fault following civil, administrative or penal procedure.</li> </ul>
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	Experts, public or private	<ul style="list-style-type: none"> <li>✓ Define the natural phenomenon – beginning, propagation and ending.</li> <li>✓ Analysis the risks,</li> <li>✓ Can propose scenarii of protection like special structures.</li> </ul>
	Insurance	<ul style="list-style-type: none"> <li>✓ Ensure compensation after the disaster and state's decree of natural disaster</li> </ul>
	Private individuals and associations	<ul style="list-style-type: none"> <li>✓ Must follow the rules of urbanism and Risk Prevention Plans,</li> <li>✓ Can participate to the elaboration of the Risk Prevention Plans,</li> <li>✓ Must participate to the preventive information – for acquirer.</li> </ul>
	Propriety owners	<ul style="list-style-type: none"> <li>✓ Manage its territories with responsibility according to the risks</li> </ul>
	Developer contractors	<ul style="list-style-type: none"> <li>✓ Work on maintenance of public facilities,</li> <li>✓ Work on city's settlement.</li> </ul>

Figure 18: Actors and their main missions in disaster management system.

Then the system also defines the précised missions and phases of disaster management. They are actually detailed and defined very deeply with all the different actors, councils or offices that should held and ensure these missions, which is quite complicated so that here is an abstract giving the main mission and their main definition.

Missions	Main lines
<b>Prevention</b>	
<b>Knowing and making public the hazards and risks</b>	<ul style="list-style-type: none"> <li>✓ Learning and improving the knowledge on natural disasters,</li> <li>✓ Defining the risks and vulnerability,</li> <li>✓ Making public the regulations: from the central administration to local authorities through prefects,</li> </ul>
<b>Observation and alerting</b>	
<b>Preventive information</b>	<ul style="list-style-type: none"> <li>✓ From the central authorities through all the public offices to the populations, private owners and private offices or companies.</li> </ul>
<b>Protecting</b>	<ul style="list-style-type: none"> <li>✓ Protection by reducing the hazards – with structures for instance, the idea is to reduce its intensity and its frequency as much as possible,</li> <li>✓ Protection by reducing exposition to the risks – through the Risk Reduction Plan,</li> <li>✓ Protection by reducing the vulnerability (mitigation) through information or structures,</li> <li>✓ Take the risks into account for city settlement,</li> <li>✓ Here is the importance of the Risk Prevention Plan decided by the prefects and made by municipal authorities with consultation of the populations,</li> </ul>
<b>Crisis and post-crisis management</b>	
<b>Anticipate the crisis</b>	<ul style="list-style-type: none"> <li>✓ Observation</li> <li>✓ Foresee</li> <li>✓ Alert</li> </ul>
<b>Manage the crisis</b>	<ul style="list-style-type: none"> <li>✓ Rescue operation: protect, cure, evacuate, and preserve material needs, psychological support....</li> <li>✓ Saving populations: information, alerting, supporting...</li> </ul>

<b>Recovery</b>	<ul style="list-style-type: none"> <li>✓ Compensation by insurance company (personal or materials damages, agriculture damages, ...),</li> <li>✓ Reparation,</li> <li>✓ Finance,</li> <li>✓ Go to court if necessary</li> </ul>
<b>Insuring and learning lessons</b>	<ul style="list-style-type: none"> <li>✓ Public offices or agencies should mobilize team in order to point out and analysis the details of the crisis from the beginning – the disaster and its characteristics – to the management and the recovery. General Inspection of the Environment should endorse such mission in cooperation with other agencies.</li> </ul>
<b>Finance and manage plan</b>	<ul style="list-style-type: none"> <li>✓ Implementation of the results of the reports – like ground division or use, construction of preventive structures, regulations...</li> <li>✓ This step will be divided between the different administrations depending on their remits.</li> </ul>

Figure 19: Detailed steps of crisis management as defined in French regulations

So that the prevention mission is mostly covered by the Ministry of Ecology and decentralized administrators in charge of senior high-school (region) and junior high-school (department), while rescue mission in emergency situation is held by the Minister of the Interior and the prefects and mayors who have the local authority to mobilize quickly rescue forces. Then, recovery is shared between private insurance companies and all administrations depending on their competences. Justice might also intervene in case of wrong management in order to understand where the mistake was and which administration should be improved.

#### **4 Disaster Management Strategy, Policy and Plan**

The main strategy of disaster management in France passes by the Prevention Risk Plan which was defined in the law for the Reinforcement of the Protection of the Environment (1995). The procedure is quite complex but normally it should be initiated by the prefect in each department for each city depending on the background. The mayor and municipal team then should mobilize experts in order to know well the risks and create maps that show the risks on the territory of the city. After consultation of the population, prefect should validate the plan and then work on relevant structures could begin. The plan itself would mostly cover the predictable natural risks by knowing well the grounds and the rivers of the territory. Plan can also be done on predictable technology risks or predictable mining risks. It is a long work, but after nearly twenty years, a database is now available on the website of the Ministry of Ecology which lists all the risks known of every territory so that people can easily find out about their place.

After the terrible storm of 2010 that claimed so many lives and the observation that between 1982 and 2010 floods had claimed 200 lives and caused 20 billion Euros of damages, central administration has worked on a special plan against rapid submersion in case of failed dykes for instance or heavy rain. This plan aims to improve city settlement and to encourage a better knowledge about the risks. It also aims to promote education as a way to raise awareness of populations. This plan is actually a first step for a national strategy for flooding management. The first studies were led from 2012 and in July 2014 first results were available. They pointed out that now 1 inhabitant on 4 and 1 job on 3 are subjected to flooding risks which is always more important because of the global warming and the elevation of mean sea level. Every year, floods cause between 650 and 800 million Euros damages so that for the first time, central administration has adopted a proactive strategy against flood for the whole territory – exposed territory but also non exposed territory. The strategy involves all the administrations but also citizens, companies and private offices.

Three main objectives have then been adopted through this strategy:

- Improve the security of populations,
- Reduce the cost of damages,
- Reduce the time of recovery in damaged territory.

The national strategy is now on the tracks under the observation of the Mix Commission of Floods, maybe the next step would be a European strategy for the longest rivers crossing several countries.



Since several disasters have struck France and Europe more often these last decades, central administration has also worked on special plans to prevent the most common hazards. For instance after the heat wave of 2003, authorities created a heat wave plan also known as *Plan Canicule* following different steps of action depending on the temperatures. Every summer, the authorities establish a close observation of the temperature and can activate different level of the plan depending on the situation in order to mobilize special means and tools.



# Le plan canicule

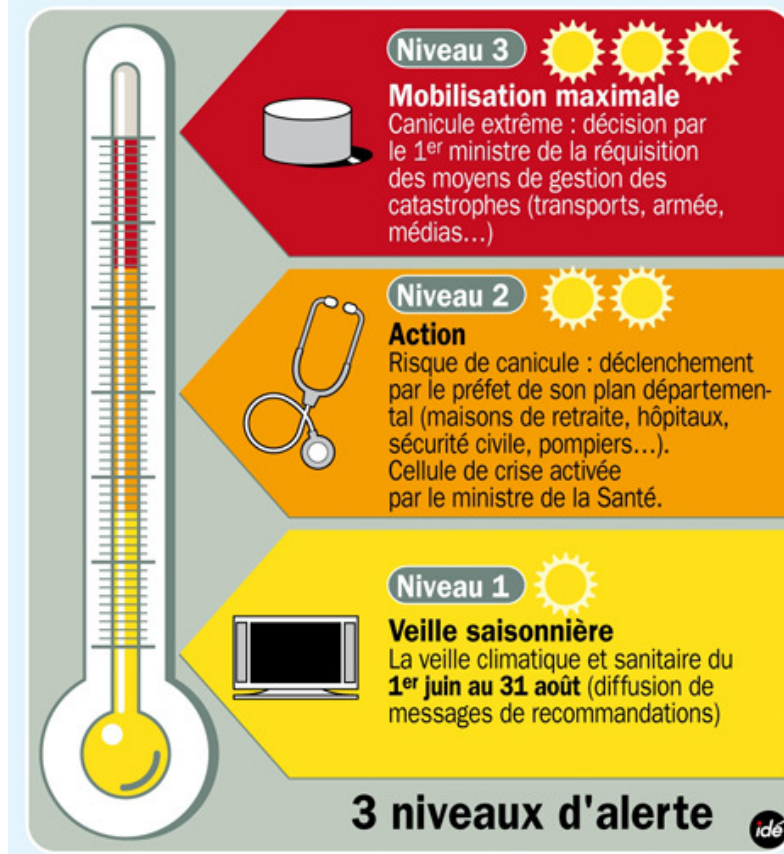


Figure 20: Plan Canicule

Level 3, Maximal mobilization: the Prime Minister decides requisition of tools like army, transportation, media...in order to manage extreme temperature.

Level 2, Risk of heat wave: any prefect can activate the departmental plan to mobilize all the offices in charge of care (hospital, civil security squad, firefighters, retirement home...). The Ministry of Health will hold crisis center to support the situation.

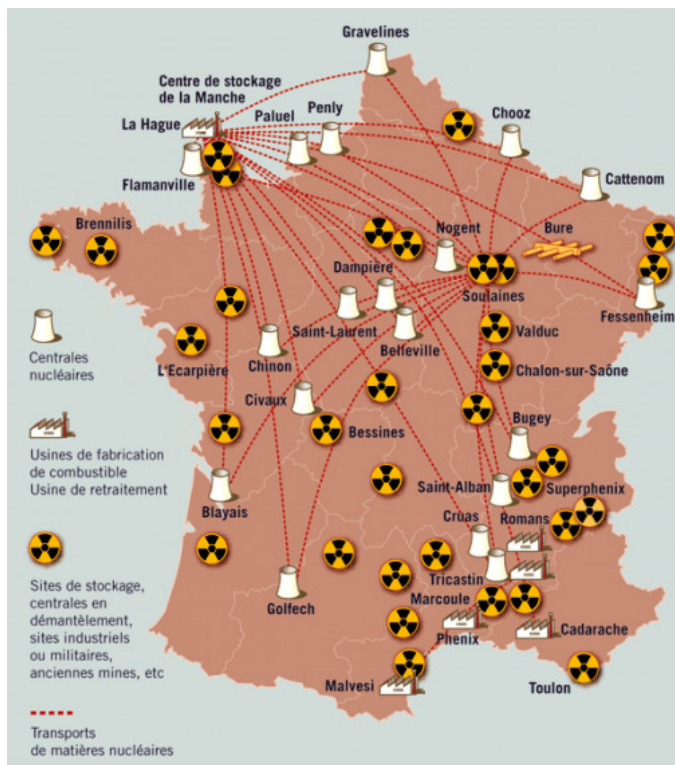
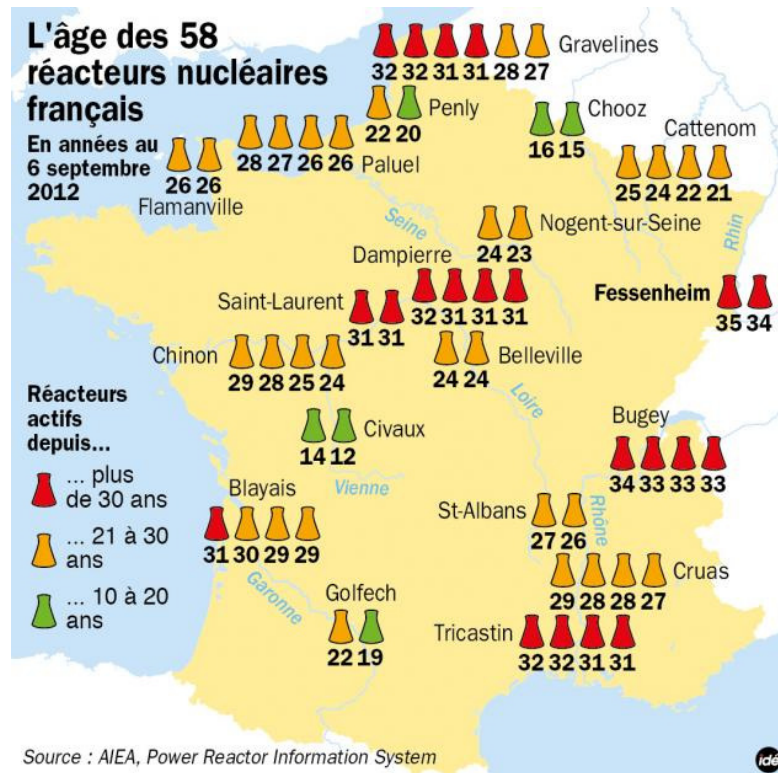
Level 1, from June the 1<sup>st</sup> to August 31<sup>st</sup>, seasonal observation with publication of advices.

French administration usually deals with natural and technological disasters in the same way so that the disaster management system is following the same steps with the same actors. Nevertheless, as France is the first nuclearized country of the world, the prevention against nuclear accident is a main part of public issue.

Here are two maps to remember the importance of nuclear industry in France and why it is a main issue in prevention risk. The attention is also focusing on the oldest plants from the first technologies and on factories that may release radioactive elements in the environment.

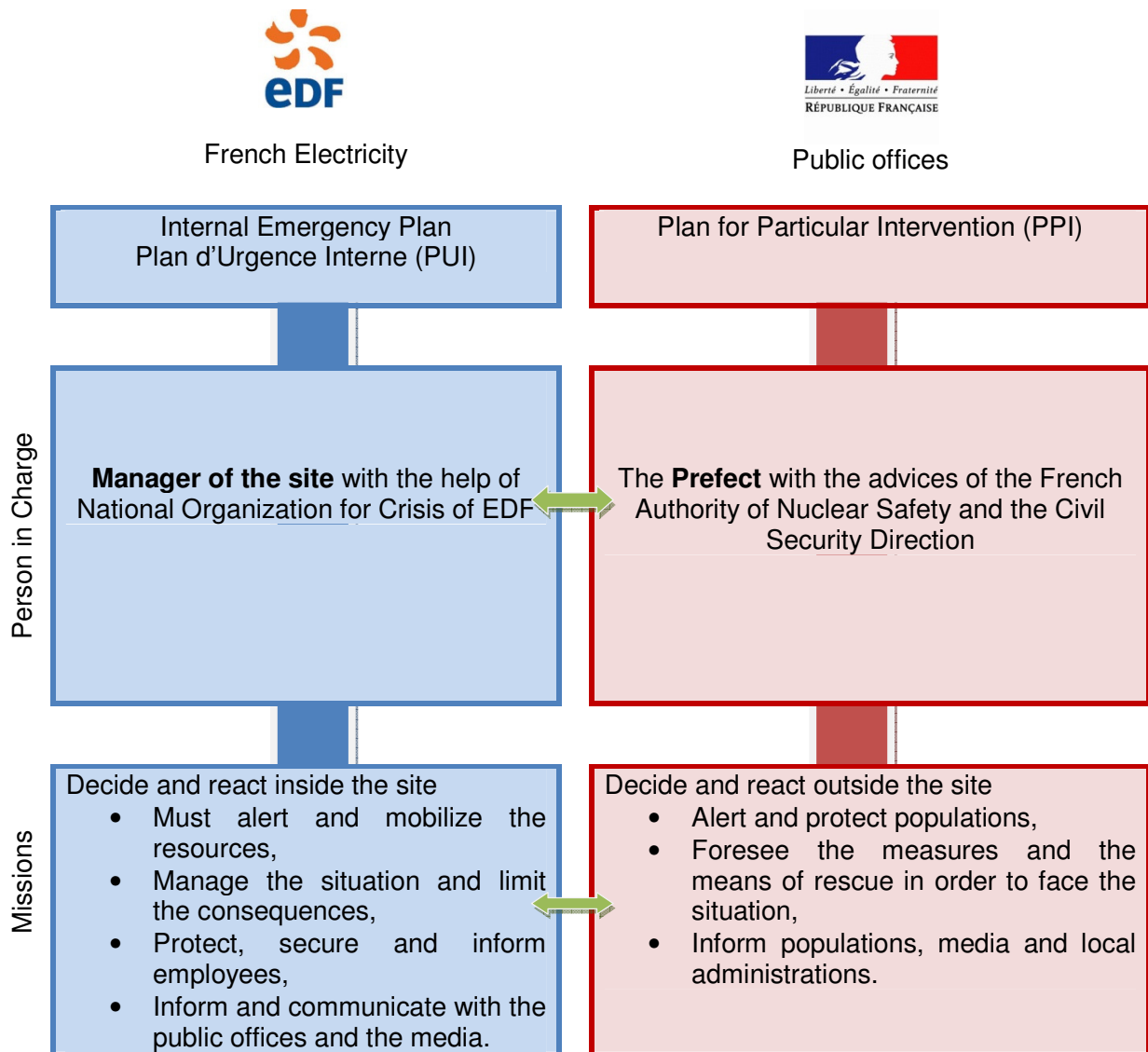
When France chose nuclear energy as the national energy strategy and by learning from the different accidents that happened in Chernobyl, Three Miles Islands and Fukushima – but also the minus accidents/incidents – a special plan has been adopted in case of disaster. A prevention policy as well is existing to inform populations living in the direct neighbor of the plants. This prevention policy, with education also passes by the distribution of medication to local population: in case of official alert, population should stay at home and closed all the doors and windows and by listening to the national radio or television they will get information on the situation. If necessary they should take the special medication that protect thyroid from radioactivity.

Figure 21: all the nuclear power plants in France and their age in 2012. In red are those more than 30 years old, in orange those between 21 and 30 years old and in green those between 10 and 20 years old.



In parallel to these first security measures, the plan for nuclear disaster management is defined as follow; it actually combines two plans from internal point-of-view of the company and public point-of-view.

Figure 23: Nuclear Crisis Organization



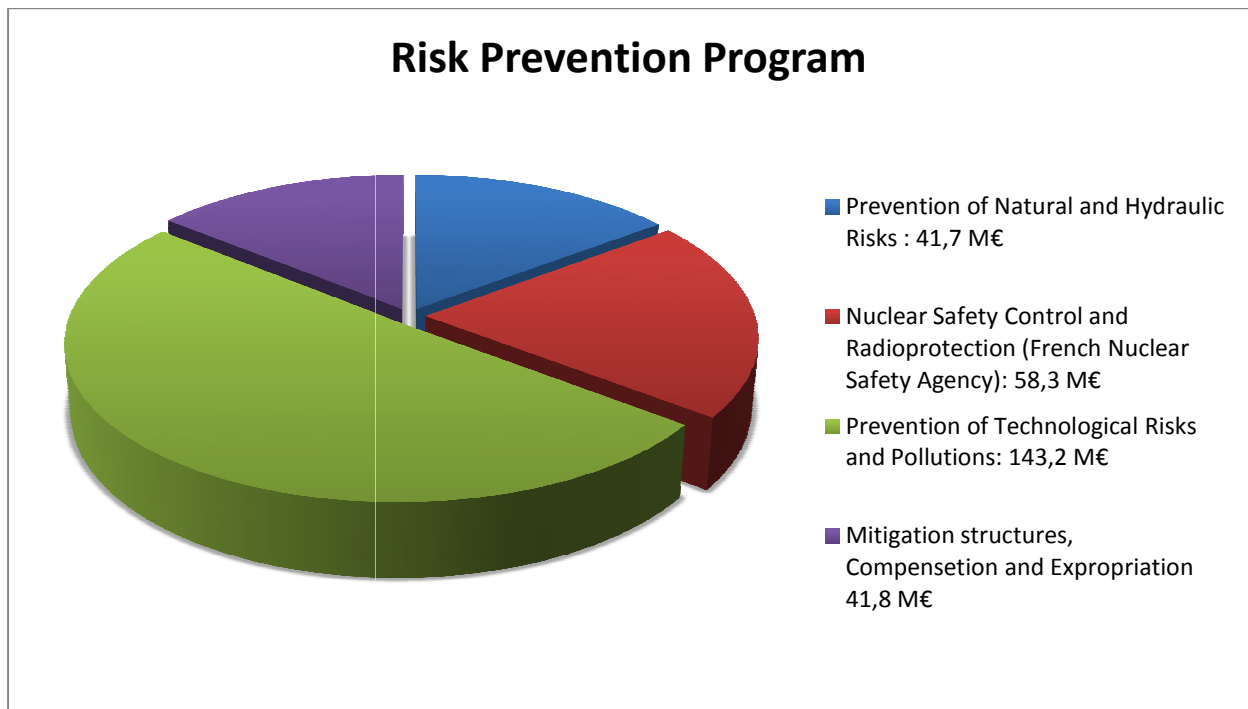
After the nuclear disaster in Japan, the central administration in France has worked on a [new plan](#)<sup>1</sup>, much more detailed in order to resume clearly which office and which person should held this or this charge, in order to reassure populations as well.

<sup>1</sup> <http://www.risques.gouv.fr/actu-risques-crisis/actualites/nouveau-plan-national-accident-nucleaire-ou-radiologique-majeur> (August 25, 2014)

## 5 Budget Size on National Level (budget for 2013)

Here is the budget of the *General Direction of Risk Prevention (La direction générale de la prévention des risques)* under the authority of the Ministry of Ecology, Sustainable Development and Energy.

- ✓ Figure 24: Risk Prevention Program: 285 M€



- ✓ Research Program on Risk and Sustainable Development fields: 267 M€
- ✓ Human resources: 238 persons in central administration and 2,961 persons in deconcentrated administrations (local administrations).

## 6 Progress of the Implementation of Hyogo Framework for Action (HFA)

In the last national report covering 2011 to 2013, each pillar of the HFA is detailed more or less clearly as followed.



**Priority Action 1:** Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.

**Results and objectives:** several laws and regulations have been adopted in order to promote and insert the risk prevention in each public project. These laws are actually translated in several law codes such as the Environmental Code, Insurance Code and so on. But there is still a lot to do in order to raise the awareness of the citizens and to improve some fundamental aspects such as financial resources and operational capacity. The context of budgetary discipline in Europe is also an obstacle. Nevertheless, the National platform creates the link between every institution from public or private spheres and civil society organizations as well, working on risk prevention and management under the authority of the *Orientation Council for the Prevention of Major Natural Risks*. With the *Association for the Prevention of Natural Disaster* they have actually created a network on the European scale and contribute to cooperation with the UNO and the HFA. Through these networks, tools and means can be exchange or share for any policies or actions. Moreover, France will ensure the presidency of the European Forum for Disaster Reduction in 2015.

**Priority Action 2:** Identify, assess and monitor disaster risks and enhance early warning.

**Results and objectives:** The institutional commitments are now asserted but they must be now realized. Databases have been completed and a National Observatory of Natural Risks has been founded in 2012 in order to collect, share and release information and reports from and for every actor of the risk prevention. Since 2007, an observation system for hydro-meteorological risks has been created in order to look after phenomenon such as storm, rains, floods, heat waves and so on. It gives important information that can help prefects to trigger alert and to take action to protect populations. Nevertheless, there are still lots of improvements to do in order to make communication and action more efficient. It also takes time to implement in the local and national scale the European directives like the one on the floods.

**Priority Action 3:** Use knowledge, innovation and education to build a culture of safety and resilience at all levels.

**Results and objectives:** These last years, lots of efforts have been done in order to communicate to mayors information and definition of natural disasters and risks so that the awareness of local authorities is raising. The same for individuals as since 2006, owners, seller or buyer have to inform the other part of the contract about the local risk prevention plan attached to the property. There is also a network of trainers going to school in order to teach the children about the disasters, but it is still a small network which needs to be develop in coordination with the local authorities in charge of education. As for public sphere, information is a part of the observation program but it still needs to gather the different associations in order to generalize these actions.

**Priority Action 4:** Reduce the underlying risk factors.

**Results and objectives:** Important realizations have been done but still improvement must be done in fields like financial resources or operation capacity. Nevertheless France has now a strong legal framework for construction – in terms of earthquakes, floods, grounds, avalanches and so on. Moreover, every settlement project is now submitted to environmental evaluation. It is also integrated in the phase of recovery and reconstruction. A complete method of feedback is applied in order to find out everything that should be improved or modified like city plan or regulations. The concept of *social memory* after the Xynthia Storm in 2010 has been created in order to create a useful memory that could help to face similar disasters. Nevertheless, there is still work to do in order to define well the different situations and events for a better understanding between all the administrations, offices and actors that intervene on disaster fields.

**Priority Action 5:** Strengthen disaster preparedness for effective response at all levels.

**Results and objectives:** Lots of things have been done to improve preparedness such as the generalization of drills. Preparedness is mostly the responsibility of mayors and prefects but

every administration or public office now has a plan for continuing action in case of disaster in order to ensure that public work will not be stopped. Some companies as well have prepared this kind of plan mostly during the epidemics of H5N1 and H1N1. Moreover, different funds are available immediately after disasters and mainly the *Funds of immediate help* in order to help injured people for basic needs. Different NGOs or the Red-Cross as well have this kind of emergency funds. Finally, a vast study has been led in order to know the flooding risk better. The study actually pointed out that 1 inhabitant on 4 and 1 job on 3 might be impacted by floods. From that result in 2013, the establishment of local map and cartography of zones liable to flooding is now a priority.

## 7 Recent Major Projects on Disaster Risk Reduction

Recently, central authorities have focused on the flooding risk so that they led national studies in the framework of the National Strategy for flooding prevention (see p. 15). The new issue is now to develop European cooperation as Europe has a quite similar environment and climate, disasters such as storms, floods, cyclones, heat waves, earthquakes and so on, often affect wide areas and several countries. Nearly all the capital cities built several centuries ago on long rivers now suffer from high flooding risks. Even if the cooperation does exist for material support in case of forest fires or floods, it is still depending on each country's will. It did not exist a true European strategy until the first European Directive on flooding management adopted in 2007, but as usual in Europe, it takes lot of time for each state to translate it in its national regulation. So the work to do is still important to coordinate the different states' strategy.

Moreover, the economical situation of Europe dominated by budget restriction and discipline does not help the process to go quickly and further.

Nevertheless, following the Hyogo Framework for Action, France has pointed out three objectives in order to improve the risk reduction.

- 1. Integrate risk reduction in every policy and plans linked to sustainable development.** Mostly by integrating climate changes in the new policies and regulations following the European tendency which aims to reduce the consequences of floods.
- 2. Develop and reinforce institutions, mechanism and capacity to increase resiliency against hazards.** Mostly through the National Platform and the National Strategy against flooding risk which gather many actors from different backgrounds.
- 3. Take into account risk reduction for every program of preparation to emergency, crisis answer and recovery.** Important efforts are done for instance to modernize the tools and means of prevention, to generalize the use of model from the past experiences, and to reinforce the chain of transmission and elaboration of data.

## 8 ADRG Counterpart



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## References

### ✓ **State offices**

Ministry of Ecology, Sustainable Development and Energy  
<http://www.developpement-durable.gouv.fr/>

French Platform  
<http://www.prim.net/>

Official webpage on risks' web portal  
<http://www.georisques.gouv.fr/>

Minister of the Interior  
<http://www.interieur.gouv.fr/>

Official webpage on risk prevention  
<http://www.risques.gouv.fr/>

French Documentation, the Citizens' Library  
<http://www.ladocumentationfrancaise.fr/>

### ✓ **Other institutions**

Official Website of the European Union – database of the European laws can be found and several languages  
<http://europa.eu/>

French Association for Natural Disaster Prevention – Association Francaise de la Prevention des Catastrophes Naturelles  
<http://afpcn.org/>

CATNAT – Permanent Observatory of Natural Disaster  
<http://www.catnat.net/index.php>

The International Platform on Risk reduction  
<http://www.preventionweb.net/english/>

The Emergency Events Database, EM-DAT made by Centre for Research on the Epidemiology of Disasters, Université catholique de Louvain  
<http://www.emdat.be/>

### ✓ **Database of French laws**

Legifrance, the whole codes of laws and regulations are digitized in it, sometimes translated in English  
<http://www.legifrance.gouv.fr/>