Technological Risk Prevention Plan
(Plan de Prévention des Risques Technologique – PPRT)

Seminar on Land-Use Planning and Industrial Safety

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Summary

1. Presentation of the PPRT and conception of the PPRT of La Rochelle

2. The implementation of the PPRT

3. Tools to facilitate the implementation of the PPRT and the integration of the industrial risk into planning policies

4. Conclusion: regarding the Sendai Framework priorities
1. Presentation of the PPRT and conception of the PPRT of La Rochelle
Presentation of the PPRT

The Risk law of the 30th July 2003 create the Technological risk prevention plan (called « PPRT » in French), a specific land-use plan for the technological risk

→ The PPRT are only provided for the facilities classified as upper class according to the European Seveso directive.

(Note : The upper class define the facilities with a high amount of hazardous material which can generate a high level of risk)
Objectives of the PPRT:

→ Provide a protection for the current and future population around the site

→ Enable to ensure the compatibility of the industrial activities with the presence of population, the local development projects and the interests of local residents

Some numbers about France:

~ 600 industrial facilities → 392 PPRT to approve

Today, 94% of the PPRT are approved and have started to be implemented
Conception of the PPRT in 3 steps

1. Technical studies

Characterization of the hazards: on the basis of the hazard assessment study realized by the industry operators and pass to the services in charge of the conception of the PPRT

➢ Characterization of the stakes

2. Development of the PPRT Strategy

Consultation with all the stakeholders (industry operator, public entities, representatives of the local residents, etc)

3. Conception of the plan, establishment of the regulation
**Example: PPRT of La Rochelle**

- **Location**: Port of La Rochelle, department of the Charente-Maritime.
- **Industrial plants**: PICOTY and SDLP - Oil depots of ~300,000 m$^3$ (importation, stockage, sale)
  
  *PICOTY is one of the most important oil depot of the Atlantic area*

- The perimeter of the PPRT has been prescribed the **10/09/2008** by the Prefect (representative of the French State) of the department of the Charente-Maritime.
Example: PPRT of La Rochelle

Aerial view of the industrial sites in La Rochelle
1st Step: Technical studies

Characterization of the hazards:

7 levels of hazards depending on the intensity and the probability

<table>
<thead>
<tr>
<th>Niveau maximal d’intensité de l’effet toxique, thermique ou de surpression sur les personnes, en un point donné</th>
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<tbody>
<tr>
<td>Très grave</td>
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<td>&gt;D</td>
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<tr>
<th>Cumul des classes de probabilités d’occurrence des phénomènes dangereux en un point donné</th>
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<tr>
<td>Niveau d’aléa</td>
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<td>TF+</td>
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Hazards effects in La Rochelle:

Overpressure and Thermal from « very hard + » to « low »

Map of the effects of overpressure in La Rochelle
1st Step: Technical studies

Characterization of the stakes:

Level of infrastructure present in the region: dwellings and commercial properties, public buildings, transport infrastructures, outdoor public spaces, public utilities (electricity, gas supplies, ...)

Map of the stakes in the perimeter of the PPRT
The intersection of the map of hazards and stakes enables to draw a preliminary risk map of zones and areas which may be subject of regulation → **the rough area zoning map**.

Supplementary investigations can be lead (vulnerability assessment) in order to serve the constitution of the strategy of the PPRT.

Finally, the PPRT regulations set out specific measures for each zone defined by the regulatory zoning map.
# The principles of the regulation

<table>
<thead>
<tr>
<th>Hazard: Very hard</th>
<th>Hazard: Hard</th>
<th>Hazard: Average</th>
</tr>
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<tbody>
<tr>
<td>Future urban development:</td>
<td>Very strict control of the projects</td>
<td>Strict control of the projects</td>
</tr>
<tr>
<td>Principle of strict prohibition</td>
<td>Or requirement to constructive so that it resist to the technological risk</td>
<td>Or prohibition of some projects</td>
</tr>
<tr>
<td></td>
<td>Principle of prohibition</td>
<td>Principle of prohibition</td>
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<tr>
<td>Current land-use:</td>
<td>Real-estate measures: relinquishment = possibility of the owner to ask the city to acquire their properties (against money)</td>
<td>Real-estate measures</td>
</tr>
<tr>
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<td></td>
<td>Or</td>
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<td>Requirement to protect the buildings</td>
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<td>Requirement to protect the buildings</td>
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</tbody>
</table>
2nd Step: Development of the PPRT Strategy

- Results of the rough area zoning map in La Rochelle:
  - 16 expropriations
  - 32 relinquishments
  - 62 housing with works of strengthening

Consequences:
- Too many people impacted
- An important cost (3.5 M€ of real-estate measures)

Further research led by the industrial operators to find a way to limit the risks at its source → possibility for Picoty to install hydrocarbon containers with double walls and to reorganise the depot.
2nd Step: Development of the PPRT Strategy

- This additional measure of risk reduction is financed by PICOTY (1/3), La Rochelle (1/3), the French State (1/3) as would have been the real-estate measures.

The new proposal of the PPRT prescribe:

- 0 expropriations (-16 in comparison with the preliminary forecasts of the PPRT))
- 16 relinquishments (-16)
- 60 houses with works of strengthening (no change)
2nd Step : Development of the PPRT Strategy

Regulatory zoning map of the PPRT of La Rochelle
2nd Step : Development of the PPRT Strategy

The development of the strategy of the PPRT was able to be realized due to:

- Many meetings of information between representative of the industrial facilities, the city council of La Rochelle, the land-use planners and the local residents in the Local Comity of Information and Consultation (9 meetings between 2008 and 2013).

  → aim to create exchanges between all actors involved, to enable the industrial safety experts and the land-use planners to explain the strategy of risks reduction, etc.

- Meetings of cooperation about the draft of the PPRT between representative of the industrial facilities, the city council of La Rochelle and the land-use planners that have to give opinions on the draft before its approval.
The approval of the PPRT

Before the approval of the PPRT, a public inquiry is conducted

→ The PPRT of La Rochelle has been approved the 26th december 2013

The PPRT consists in a document of regulations (which describe all the measures of the PPRT) and the regulatory zoning map.

The PPRT is added to all the other urban planning plans that could existed on a territory

→ All new project must be analyzed by taking into account the rules of those urban planning plans and the rules of the PPRT.
2. The PPRT implementation
Progress of the implementation of the PPRT today in France

The real-estate measures:
~ 400 houses and ~ 300 activities concerned

The total cost is estimated at 480 M€

→ 12% of the real-estate measures

The prescription of works of strengthening for the houses:
~ 16 000 houses concerned
~ 900 houses have received a diagnostic of the vulnerability of their buildings
~ 334 houses have done the works of strengthening

To help the owner of the houses to make those works, a specific support is provided with housing professionals (financed by the French state).

→ Today, 69% of the houses are concerned with this support
Progress of the implementation of the PPRT of La Rochelle

PPRT prescribed since 26/12/2013

- The additional measure of installation of hydrocarbon containers with double walls and reorganisation of the depot is achieved since 2015 by PICOTY

- Real-estate measures:
  - The owners have still 3 years to ask the relinquishment

- Works of strengthening:
  - The owners have still 3 years to do it

La Rochelle is currently looking for a housing professional to support the owners to start the diagnostics of their house and to do the works of strengthening prescribed
3. Tools to facilitate the implementation of the PPRT and the integration of the industrial risk into planning policies
The tools for the people living in the perimeter of a PPRT

- Local Comities of Information and Consultation → to be informed of the risks

- Publication of Handbooks for the housing professionals who help the owners of houses to do the works of strengthening (detail the works that can improve the vulnerability of houses)

- Courses for the housing professionals (3 days: one for each technological effect)
The tools for **the local authorities** (City Managers)

- **Assistance of an association** for the local authorities which diffuse and explain the law and the doctrine and assist the government to develop the necessary tools.

- **Publication of Handbooks**: about the procedure of the real-estate measures, the means of protection for the activities in the perimeter of the PPRT,…

- **Organisation of working group** to improve the integration of the technological risk into the planning policies.

- **Help desk** conducted by the State services.
4. Conclusion : regarding the Sendai Framework priorities
The PPRT regarding the Sendai Framework priorities

The PPRT helps to achieve:

- The targets to « Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020 »

- The priority 2 : « Strengthening disaster risk governance to manage disaster risk »

- The priority 3 : « Investing in disaster risk reduction for resilience »
Thank you for your attention

Any questions?