FOOD FOR THOUGHT

Citizen participation: the outlook 20 years after the Toulouse disaster

A brief overview of France, Italy, Netherlands and an analysis of the aftermath of the 2019 chemical plant fire in Rouen

"Industrial risk governance and citizen participation at the local level" working group

Publication coordinated by Caroline Kamaté

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THEME

Public participation

Les Cahiers de la sécurité industrielle

FONCSI
Foundation for an Industrial Safety Culture

The FonCSI, Foundation for an Industrial Safety Culture, is a public interest research foundation created in 2005, located in France.

The FonCSI finances research projects concerning potentially hazardous industrial activities and their interaction with society, and aims to encourage open dialogue with all stakeholders (regulators, associations and NGOs, local government, researchers, industrial firms, trade unions, etc.).

Its originality is the interdisciplinary nature of its activities, in France and internationally, as well as a strong commitment to innovation and to anticipating tomorrow's issues.

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- ▷ Identify and highlight new ideas and innovative practices
- ▷ Develop and fund research into industrial safety and the management of technological risks
- ▷ Contribute to the development of a research community in this area
- ▷ Transfer research results to all interested parties

FonCSI's values

- ▷ Foresight and innovation
- ▷ Knowledge and know-how
- ▷ Openness and exchange

FONCSI
Foundation for an Industrial Safety Culture

Foundation for an Industrial Safety Culture
Public interest research foundation

http://www.foncsi.org/

6 allée Emile Monso – CS 22760
31077 Toulouse Cedex 4
France

Telephone: +33 (0) 532 093 770
X: @TheFonCSI
Email: contact@foncsi.org

This document

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This publication in the *Cahiers de la sécurité industrielle* collection presents the findings of the FonCSI "Industrial risk governance and citizen participation at the local level" working group, which met ten times between September 2020 and December 2021.

About the authors and the coordinator

The working group was composed of **René Amalberti** (Director of FonCSI), **Jean Pariès** (Former Scientific Director at ICSI-FonCSI), and four academic experts:

Corinne Bieder, (Scientific Director at FonCSI), École Nationale de l'Aviation Civile (ENAC), Toulouse, France;

Paolo Crivellari, Université Toulouse III - Paul Sabatier, France;

Emmanuel Martinais, École Nationale des Travaux Publics de l'État (ENTPE), Lyon, France;

Olivier Guillaume, EDF R&D and University of Versailles, France.

Caroline Kamaté (FonCSI) led the group with **Jean-Marc Vaugier** (FonCSI-ICSI), and coordinated the production of this Cahier.

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- Marco Ziron, ARPAV, Italy

Foreword

> *What emerges from all these debates is the need for information, transparency and consultation in order to develop a genuine culture of industrial safety in our country. This culture is both a civic and a political issue requiring an open debate between the State, local authorities, industrial companies and all stakeholders concerned, on the acceptance of industrial risk by our society.*

Philippe Essig, January 2002
Excerpt from the report to the French Prime Minister regarding
the National Debate on Industrial Risk which took place in France
in October-November 2001 following the AZF disaster

> *The Rouen accident highlights the glaring lack of a safety and industrial risk culture. Today, 90% of French people feel that they are ill-informed about the risks associated with industrial and chemical facilities, and barely 10% state that they would know how to react if an accident were to occur near their home!*

Excerpt from the report by the Senate Inquiry Committee
following the Lubrizol and Normandie Logistique fire, June 2020

Why are there still so many difficulties when it comes to citizen information and participation in the development of a risk/safety culture[1] in areas home to high-risk industrial facilities? What solutions can risk governance provide to ease the persistent tensions that exist between the various stakeholders in the parts of France and Europe that host potentially hazardous and polluting industries?

The "Industrial Risk Governance and Citizen Participation at the local level" working group assembled by FonCSI in late 2020 endeavoured to analyse these questions. It presents its findings here, after first exposing an overview of the current situation in France, Italy and the Netherlands. The group conducted its work in a context where, in the wake of the Lubrizol and Normandie Logistique fire that had shaken the Rouen region, the French government was making major changes in terms of industrial risk and warning management, and the world was in the grip of an unprecedented health crisis. This publication will also serve as a preliminary study for FonCSI's strategic analysis focusing on "The Dynamics of Citizen Participation and Industrial Safety". The scientific group tasked with this analysis began its work in the second half of 2022 and could use the findings outlined in "Cahier" for theory consolidation and operationalisation purposes.

Caroline Kamaté,
Foundation for an Industrial Safety Culture (FonCSI)

1. "Safety culture" or "risk culture"? "Risk culture" is the term most widely used in the institutional reports published in the aftermath of the Rouen fire. "Safety culture" also appears in them, but it is more generally associated with a company or an organisation (ICSI, 2017); when the context is broadened to include the population, these documents sometimes use the term "civil safety culture" as an alternative to "risk culture". The two terms/concepts are polysemous and their meaning and usage are a source of debate (Hopkins, 2018). We will briefly discuss what institutional stakeholders mean by "risk culture" in the second chapter of Part Two of this "Cahier".

Introduction

Study context

The topic of cohabitation with high-risk industries is not new to FonCSI. In fact, it is a key focus of the foundation, which was established in Toulouse in 2005 following the disaster that occurred there in the AZF fertiliser factory on 21 September 2001. FonCSI's earliest work focused mainly on the risk management debate, and in particular on the contributions and limitations of the consultation process required by law. Between 2009 and 2018, the findings of the research projects supported by the foundation were the subject of numerous academic publications, but also of documents in FonCSI's *Cahiers de la sécurité industrielle* series (Martinais, 2015; Leborgne, 2014; Le Blanc, Gibout, & Zwarterook, 2013; Suraud M.-G., 2012; Kamaté, 2016).

These days, technological advances and the regulatory requirements imposed on high-risk companies are aimed at making industrial processes safer. However, the complexity and interdependence of socio-technical systems, the combination with other risks (natural, economic, social, etc.), and the higher expectations of civil society with regard to safety, health, the environment and transparency, can considerably worsen the consequences of accidents — particularly their social and political impact — or even cause new, previously unimagined vulnerabilities to emerge. Even though the law requires local communities to be informed about and to have their say in environmental issues, and even though some organisations go above and beyond their legal obligations and this bears fruit in terms of "peaceful coexistence", the realities differ greatly from one country to the next, and even from one region to the next within a same country. And often, because the high-risk industry plays a key role within the community, as an employer and a driver of economic development, but is also a source of major accident risks and/or chronic health risks, tensions remain high.

Society's ambivalence toward industrial activities is all the more evident when an adverse event occurs. At these times, people's emotions, demands for transparency and search for accountability show the extent to which the presence of high-risk industrial activities within communities remains a sensitive subject. The fire at the Lubrizol plant and the Normandie Logistique facilities in Rouen in September 2019 and the tension created by the way the crisis was managed revealed this very clearly and very powerfully. The trust in industrial companies, government bodies and the words of experts which was already tenuous in France was once again shaken by this event. And the management of the unprecedented pandemic crisis that swept the globe in early 2020 did nothing to help restore this trust in decision-makers. The subject of information about industrial risks and pollution, of the lack of knowledge of what to do in the event of a warning, of crisis management, and of "risk culture", once again become a priority on the agenda of public policy makers.

The working group

Drawing on its earlier work on this topic and looking through the lens of the context following the Lubrizol accident, FonCSI offered to form a small working group to examine the scientific principles and the operational conditions required for constructive debate to take place between local stakeholders, as this is an essential prerequisite for a pragmatic and more peaceful cohabitation between high-risk activities and civil society.

The working group was composed of René Amalberti (Director of FonCSI), Jean Pariès (Scientific Director at ICSI[1]-FonCSI), and four academic experts external to FonCSI:

- Corinne Bieder, École Nationale de l'Aviation Civile (ENAC), Toulouse, France;
- Paolo Crivellari, Université Toulouse III - Paul Sabatier, France;
- Emmanuel Martinais, École Nationale des Travaux Publics de l'État (ENTPE), Lyon, France;
- Olivier Guillaume, EDF R&D and University of Versailles, France.

1. Institute for an Industrial Safety Culture: www.icsi-eu.org

The group, led by Caroline Kamaté (FonCSI) and Jean-Marc Vaugier (ICSI-FonCSI), met ten times between September 2020 and December 2021.

It conducted a literature review and interviewed actors in regional risk management:

- from the Venice region in Italy: Marco Ziron, Regional Agency for the Prevention and Protection of the Environment (ARPA Veneto), Italy;
- from the town of Gonfreville-l'Orcher in France: Jean-Paul Lecoq, member of parliament for Seine-Maritime and former mayor of Gonfreville-l'Orcher (1995-2017), Christian Chicot, head of the "Population" division, and André Valin, a local resident and town councillor.

The working group also worked closely and complementarily with the "Alert processes and crisis management" discussion group led by Marc Sénant from ICSI and Delphine Favre from AMARIS (the French National Association of Municipalities for the Management of Major Technological Risks), with cross-participation of the group leaders.

Scope, objective and structure of the "Cahier"

This "Cahier" briefly presents the results of the analysis carried out by the working group, along with the identified avenues to explore. Its scope of study is limited to public information and participation around the risks connected with industrial facilities outside of times of crisis[2].

Part One of this "Cahier" presents a brief overview of citizen information and participation in industrial risk and pollution related issues in France (chapter 1), then focuses on the transposition of European regulations in this domain in Italy and the Netherlands (chapter 2). In chapter 1 of Part Two we endeavour to analyse the bitterly disappointing conclusion reached in the aftermath of the Lubrizol and Normandie Logistique fire and the strong government response that followed, while in chapter 2 we suggest some possible courses of action and avenues to explore in order for citizen information and participation to be given greater consideration in the complex issue that is cohabitation with high-risk activities.

2. Since public warning processes are a focus area of the ICSI discussion group, they are not covered here by the working group even though the two subjects are closely linked. Similarly, while they may at times be mentioned in this document, the topics of risk reduction at source and land-use planning regulations (widely covered in earlier FonCSI research) do not fall within the scope of this "Cahier".

Part One

An overview of France, Italy and the Netherlands

Contents of Part One

1

Public information and participation in industrial risk related issues in France: an overview

1.1. Introduction to participation

Urban planning, wind turbine installations, major road or rail infrastructure projects... citizen participation concerns all areas of public life. For some time now, we have witnessed a proliferation of theories and practices around consultation, embodied in numerous think tanks, since the theoreticians of participation are also quite often the practitioners of it. The demand for information and the trend toward participation are growing, particularly with the rise of the concept of sustainable development and its practices. This participatory movement is gaining even more ground thanks to the use of digital tools and to the visibility and strike power afforded by social media. The range of technologies, platforms and processes grouped under the term "e-democracy" or "digital democracy" make it easier for citizens to have a say and are aimed at giving them considerably more weight in decision making.

In this landscape, the impact of the presence of high-risk industries within communities has not been overlooked. A whole host of laws, decrees and charters provide an institutional base to make public consultation mandatory. Moreover, alongside this statutory consultation process there are other processes and structures in place which are less institutionally regulated or even completely voluntary and/or experimental. These participatory initiatives which are not required by the law or regulations may be grassroots initiatives, or their origins may be industrial or political. They can also be the result of the joint efforts of several stakeholders.

1.1.1. Citizen participation at a glance[3]

What is citizen participation?

The concept of participation has long been present in the academic literature of the human and social sciences (HSS), particularly in the field of public and urban policy (Arnstein, 1969; Bresson, 2014). The rise of new technologies is bringing a reinvention of the way this participation takes places and how the process is used. While the term "participation" has several interpretations, in the scientific and legal literature it generally refers to a sort of democratic ideal in which the stakeholders "at the bottom" can weigh in on decisions which concern them and are made by those "at the top" (Bresson, 2014). Among the many definitions of participation, here we propose the simple and clear one INERIS, the French National Institute for Industrial Environment and Risks, provides in the consultation guide it developed for the elaboration of PPRTs[4]:

Definition

Participation

Participation refers to all the ways in which stakeholders, including the public, can contribute directly to the development of a project."

(INERIS, 2010)

Citizen participation thus refers to a whole range of highly diverse approaches, methods and mechanisms that can be categorised according to different interpretive lenses.

3. It is not within the scope of this "Cahier" to delve further into the theories of participation. To learn more about this topic, interested readers may refer to the included bibliography.
4. PPRT for "Plan de prévention des risques technologiques" (Technological Risk Prevention Plan).

Michel Prieur, for example, suggests a mapping of citizen participation methods based on the **level of institutional control over the process**. He mentions contestation, as unsanctioned or unofficial participation (protests, petitions, sit-ins, etc.); "concertation" (discussion/negotiation), as an organised but informal and flexible type of participation (through a neighbourhood committee, for example); consultation, an official form of participation (public inquiry, referendum, etc.); and finally, participation in decision making (Prieur, 1988).

The angle adopted can also be the **degree of citizen inclusion** allowed by the different methods of participation. In 1969, Sherry Arnstein proposed a ladder of citizen participation: the higher the position on the ladder, the greater the degree of citizen power, with the top rung representing citizen control (see Figure 1). Put simply, one could consider information as the lowest level of participation, and co-management, where citizens have the same decision-making power as the leaders of the project whose development is subject to public participation, as the highest level. In our societies at least, co-management situations are rare. Particularly in the field of high-risk industrial activities.

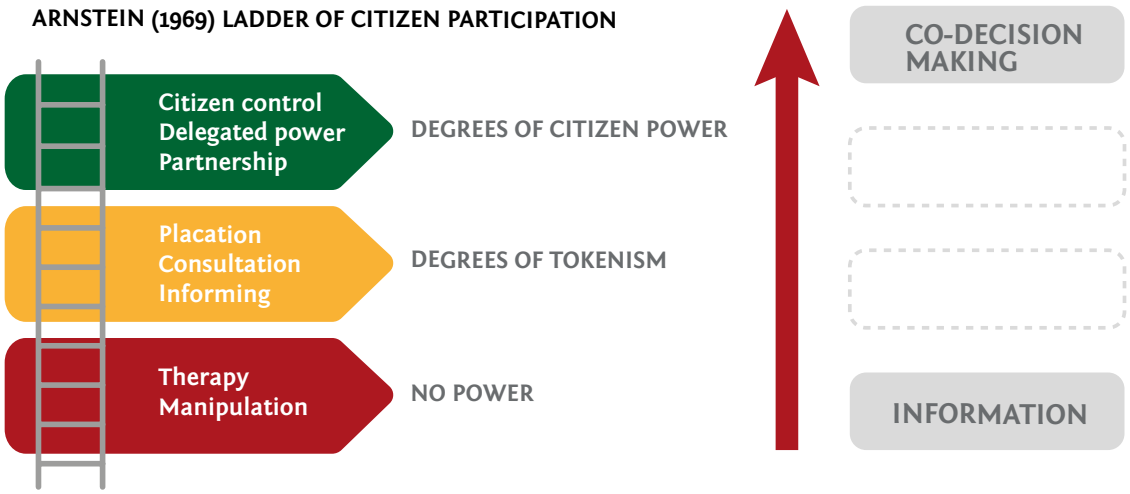

FIG. 1 – "A ladder of citizen participation" (Arnstein, 1969)

FIG. 2 – Degree of decision making according to the form of participation (Kamaté & Daniellou, 2016)

What does citizen participation achieve?

As you can see, in general, participating does not mean co-deciding. However, it is not because all the stakeholders in the debate — citizens included — do not make the final decision that participation is not useful. In fact, citizen participation in the development of projects is recognised as being in the general interest[5]. It helps to arrive at "better" decisions, in the sense that these decisions are the fruit of debate and of decision making informed by a diverse range of perspectives. Through participation, citizens can play an active role in the decision-making process and can be involved in projects that concern them; this empowerment produces recognised benefits. The virtuous aim of participation rests on the principle that an engaged citizenry is better than a passive citizenry and that citizen involvement leads to more democratic and more effective governance (Irvin, 2004; Lukensmeyer, 2014; EPA, 2021).

There are also other "secondary" benefits to participation that are more or less significant depending on the form it takes and these benefits are not always easy to measure: interconnection, confidence building, collective learning, deconstruction of preconceived ideas, development of a common grammar and culture, improved relationships… (Brodie, 2009; Kamaté, 2016)

5. This general interest is specific to participation and should be distinguished from the general interest linked to the project whose development is being decided upon (Fourniau, 2018).

Citizen participation in industrial risk management – limitations and pitfalls

From difficulties in mobilising the public to asymmetry between participants, citizen participation in industrial risk also suffers from many ills. Some of these are linked to participation in general and others are more specific to the actual subject of the debate: industrial risks and pollution. Depending on how it is designed, organised and carried out, the participation process can lead to outcomes that are far removed from its initial objectives, or even to deadlocks. Participation can also be used as a manipulation device to serve the interests of certain stakeholders rather than the general interest. Participation as an end in itself, consultation as an alibi, instrumentalization... These misuses of the participation process are already widely documented and understanding the limitations of participatory projects and the tensions they can create or worsen remains the subject of an abundance of research (Grembo, Le Blanc, Gibout, & Zwarterook, 2013; Zwarterook, 2010; Dziedzicki; Blondiaux, 2001; Allard-Huver & Stein, 2022; Kamaté, 2016). We will come back to this later on in our analysis, with the aim of suggesting avenues for encouraging more inclusive and more virtuous practices that are aligned with the laws and regulations governing citizen participation.

1.2. Citizen participation in environmental issues is enshrined in French law

1.2.1. The European framework

Citizen participation first appeared in non-binding documents such as the World Charter for Nature of 1982[6] and the Rio Declaration of 1992[7]which, in its tenth principle, states that:

"*Environmental issues are best handled with the participation of all concerned citizens, at the relevant level.*"

The Aarhus Convention[8], signed by the Member States of the European Community in 1998, made public participation an essential principle of environmental law, ensuring that civil society is involved early on in the decision-making processes on matters concerning environmental policy in the broad sense.

"*Each Party shall provide for early public participation, when all options are open and effective public participation can take place.*"

(Excerpt of the Aarhus Convention, 1998 Article 6-4).

The Seveso III Directive of 4 July 2012[9] includes as one of its main goals the improvement of public access to information. In the spirit of the Aarhus Convention, it stipulates that:

"*(...) the key information about industrial and technological risks must be available; it must be provided "spontaneously" and regularly. Effective public participation in decision-making is necessary and the public concerned should be given enough time to express their opinions and concerns.*"

(Senate Inquiry Committee, 2020).

The right of the public to information and to participation in matters relating to the major risks and pollution linked to industrial activities has been progressively expanded, in response to industrial disasters and health scandals (see Figure 3). In Europe and in France, it is now a fundamental right guaranteed by law.

6. The World Charter for Nature is a fundamental text that was proclaimed in 1982 under the auspices of the United Nations. This charter is a declaration of innovative ethical and ecological principles (prefiguration of the concept of sustainable development, consideration of the interests of future generations), but it is not legally binding (United Nations, 1982).
7. The Rio Declaration was proclaimed in 1992, under the aegis of the United Nations. It led to the consolidation of the concept of sustainable development and, through its tenth principle, placed public participation at its very heart (United Nations, 1992).
8. Inspired by the United Nations texts that preceded it, the Aarhus Convention, signed on 25 June 1998 by 39 states, is an international agreement promoting "environmental democracy". It is a legally binding international instrument which grants citizens general and concrete rights regarding access to information, public participation in the decision-making process, and access to justice in environmental matters (UNECE, 1998; UNECE, 2014).
9. The Seveso III Directive (Directive 2012/18/EU) is a European directive on the control of major-accident hazards involving dangerous substances (European Parliament, 2012; Ministry of Ecological Transition, 2022).

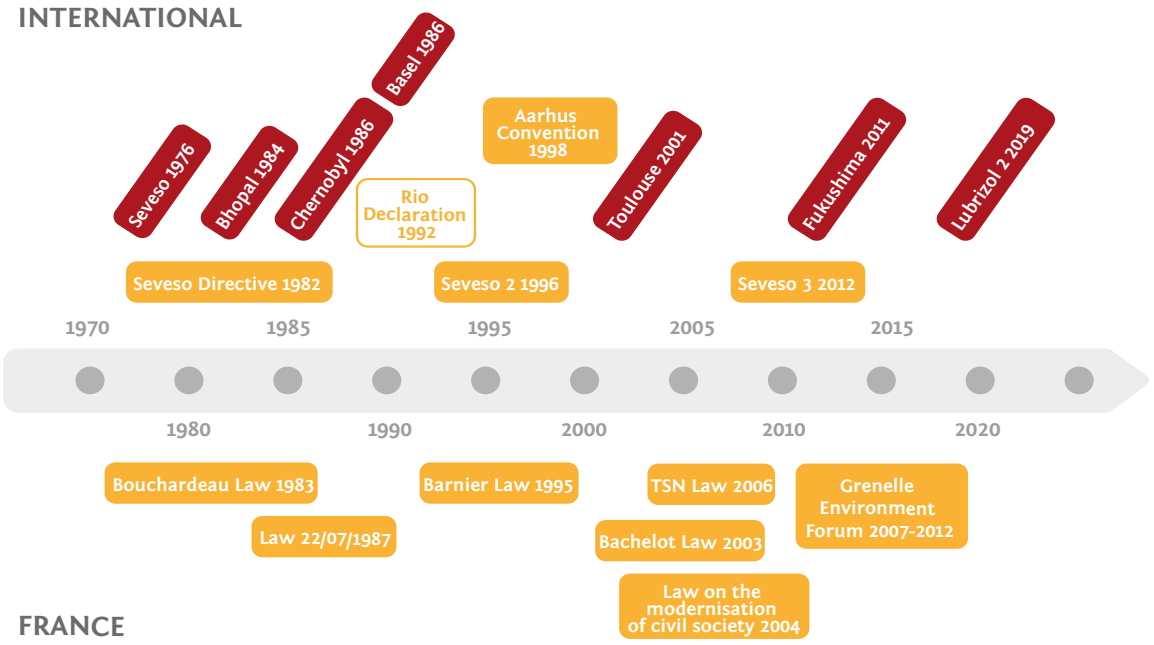

FIG. 3 - Timeline showing some regulatory milestones for information/participation and some major accidents, in France and abroad 1970-2019

1.2.2. Statutory information and participation in France

At the national level, there are many legal and regulatory provisions in place to ensure the principle of citizen participation. Article 7 of the 2004 Charter for the Environment, which has constitutional value according to the French Constitutional Council, states that:

"Everyone has the right, in the conditions and to the extent provided for by law, to have access to information pertaining to the environment in the possession of public bodies and to participate in the public decision-taking process likely to affect the environment[10]*"*

Article L-125-2 of the French Environmental Code guarantees citizens the right to be informed about the major risks to which they are exposed and about the measures taken to safeguard them. The principle of participation implies respect for every individual's right to have "*access to information relating to the environment, including information relating to hazardous substances and activities*" and to be "*involved in the process regarding the development of projects that have a major impact on the environment or on town and country planning.*" (Article L. 110-1 of the French Environmental Code)

Under the IAL (buyer-tenant information) law in France, a seller or landlord must make potential buyers or tenants aware of any technological or natural risks (Senate Inquiry Committee, 2020).

Table 1 below presents a non-exhaustive list of some of the main changes to citizen information and participation in matters relating to industrial risk over recent decades. Some of these texts have been transposed into French legislation.

10. https://www.conseil-constitutionnel.fr/en/charter-for-the-environment

Text	Date	Main objectives and/or changes produced[11]
Mauroy Circular	1981	Creation of Local Information Committees (CLI)
Bouchardeau Law	1983	Democratisation of public inquiry
Organisation of public safety measures, prevention of major risks	22/07/1987	Special Intervention Plan (PPI), public information regarding the measures relating to facilities subject to a Special Intervention Plan
Barnier Law	02/02/1995	Creation of the National Commission for Public Debate (CNDP)
Charte de la concertation (Public Consultation Charter)	1996	Promotion of citizen participation in projects that concern them
Loi Démocratie de proximité (Local Democracy Law)	2002	Independence of the National Commission for Public Debate (CNDP)
Bachelot Law	July 2003	Local Information and Consultation Committees (CLIC), Technological Risk Prevention Plan (PPRT)
Charte constitutionnelle de l'environnement (Charter for the Environment), Art. 7	2005	Principle of public participation in matters relating to the environment
Loi de modernisation de la sécurité civile (Law on the Modernisation of Public Safety)	2004	PCS or Plan Communal de Sauvegarde (Local Crisis Response Plan), mayor plays a more active role
Nuclear Transparency and Safety Act (TSN)	2006	Establishment of the French Nuclear Safety Authority (ASN) as an independent administrative authority; creation of the High Committee for Transparency and Information on Nuclear Safety (HCTISN); legislative basis given to the Local Information Committees (CLI)
Decree n° 2008-829	22/08/2008	Recognition of Permanent Secretariats for the Prevention of Industrial Pollution (SPPPI)
Industrial risk round tables	2009	Information made available to the public online (consultation regarding high-risk facility applications on prefecture websites; non-technical summary, administrative penalties); public consultation regarding Seveso sites extended to six months, with mandatory holding of a public meeting (Techniques de l'ingénieur, 2011)
Grenelle I Law	2009	Planning of the commitments of the Grenelle Environment Forum[12]
Grenelle II Law	2010	Concrete implementation framework for the Grenelle I commitments

11. This table is far from exhaustive; it only presents changes relating to public information and participation.
12. The Grenelle Environment Forum is a series of political discussions held between July and October 2007 on the topic of sustainable development and based on the principle of five-body governance. The French government made 268 commitments as a result of these discussions.

Text	Date	Main objectives and/or changes produced[11]
Ordinances regarding environmental dialogue	2016	Details on how local consultations are to take place, reform of procedures for ensuring public information and participation
Charte de la participation du public (Public Participation Charter)	2016	Overhaul, amendment of the Public Consultation Charter of 1996

TAB. 1 - Main changes to public information/participation in French legislation (French Ministry of Ecology)

1.3. Brief description of the participatory landscape in France

This landscape features:

- bodies which are permanent more or less institutionalised tools focusing on the risks tied to the presence of activities presenting a serious accident risk or generating pollution, but also, more broadly, on human activities which could have an impact on the environment and/or on health (existing facilities, long-lasting situations);
- participation processes which are mandatory and time-limited, connected with a major project, plan or programme such as a new facility, a facility expansion, a site rehabilitation or conversion, the first phase of a PPRT (Technological Risk Prevention Plan), the choice of an energy source, etc. These processes are not specific to projects subject to facilities classified for environmental protection (ICPE) regulations; they are prescribed by law for any project requiring an environmental assessment: high-speed railway line, wind turbines, relay antennas, etc.;
- processes and organisations of various origins which initiate or encourage dialogue between local stakeholders regarding high-risk activities/projects, beyond what is required by laws and regulations.

1.3.1. The permanent information and consultation tools

Name	Nature
CSS: Site Monitoring Committee	Local information and consultation body associated with one or several Seveso sites
CODERST: Departmental Council for the Environment and for Health and Technological Risks	Department-specific consultation body
SPPPI: Permanent Secretariat for Industrial Pollution Prevention	Consultation body
CLI: Local Information Committee	Local consultation body associated with a nuclear facility
DICRIM: Municipal information document on major risks	Document (pamphlet, film, audio recording…) informing local residents of the major risks that exist within their municipality
IAL: Buyer-tenant information	ERP (risk and pollution status) form to which is added a summary of any incidents or events that have affected the building
PPRT: Technological risk prevention plan	Spatial planning document
PCS: Municipal crisis response plan	Local crisis response plan/tool
PICS: Inter-municipal crisis response plan	Local crisis response plan/tool

TAB. 2 - Information and consultation bodies and tools

Presentation

Site Monitoring Committees (CSS)

Site Monitoring Committees (CSS) were created by decree n° 2012-189 of 7 February 2012. They replaced the former Local Information and Monitoring Committees (CLIS) established pursuant to the 1975 law on waste, and the Local Committees for Information and Consultation (CLIC) established pursuant to the 2003 law on technological risks. They are mandatory for:

- facilities subject to authorisations carrying certain legal obligations (upper-tier Seveso sites);
- any collective storage centre receiving or destined to receive non-inert waste;
- any waste disposal facility at the request of a municipality located within the warning signage radius of a waste disposal facility.

In addition to this, at the request of a third party (environment protection association, local elected officials, local residents), or on his or her own initiative, the prefect now has the possibility of creating a CSS around one or several classified facilities that are subject to this type of authorization.

The CSS is composed of five colleges whose members are appointed for a five-year period: central government, local government, residents, industrial operators, employees.

These committees are mainly responsible for:

- creating the conditions for effective dialogue and information exchange between the various representatives of the colleges on any actions taken, under the control of environmental authorities;
- monitoring the activities of the facilities for which they were created;
- promoting the provision of information about these facilities to the public.

Source: Ille-et-Vilaine Prefecture (http://www.ille-et-vilaine.gouv.fr)

Presentation

Departmental Councils for the Environment and for Health and Technological Risks (CODERST)

CODERSTs replaced the Departmental Hygiene Councils (Conseils Départementaux d'Hygiène) of old and were introduced on 1 July 2006 following order n° 2005-727 of 30 June 2005 laying down several provisions to simplify administrative committees. Their composition, established by decrees n° 2006-665 of 7 June 2006 and n° 2006-672 of 8 June 2006, is as follows: six representatives of state departments and the Director General of the Regional Health Agency or their representative; five representatives of local government; nine other individuals (with an even split of representatives from approved consumer associations, fishing associations and environment protection associations; members of professions that fall within the council's fields of competence; experts in these same fields); and four qualified personalities, including at least one medical doctor. CODERSTs are chaired by the local prefect, who appoints the council members for a renewable three-year period.

CODERSTs are mainly responsible for:

- contributing to the development, implementation and monitoring, within the department, of public policy in the following areas: environment protection, sustainable management of natural resources, and health and technological risk prevention;
- issuing an opinion — in the cases and according to the methods set out in applicable laws and regulations — on individual draft regulations relating to classified sites; waste; the protection of air and atmosphere quality; the policing of water and aquatic environments; special administrative policies regarding water; water destined for human consumption and natural mineral waters; swimming pools and swimming spots; health risks linked to habitat; and mosquito control.

CODERSTs may examine any environment-related public health issues and be associated with any programme or action plan falling within their areas of expertise.

Source: Nord Prefecture

Presentation

Permanent Secretariats for Industrial Pollution Prevention (SPPPI)

Unlike CSSs and CODERSTs, SPPPIs are not a regulatory requirement.

The first SPPPI, SPPPI PACA in France's Provence-Alpes-Côte d'Azur region, was established in 1971 in Fos-sur-Mer, following the set-up of new petrochemical plants along the Etang de Berre and in response to the protests of local residents concerned about water and air pollution (Castel, Cézanne-Bert, & Leborgne, 2010). By affording prefects the possibility of creating them, decree n° 2008-829 of 22 August 2008 recognised the existence of SPPPIs, which nevertheless remain bodies with few regulatory obligations.

They are composed of five colleges: elected officials, administrations, industrial companies, experts, environment protection groups. SPPPIs rely on the voluntary participation of local partners. They provide a space for debate, but they are also a place where the directions for local industrial pollution and risk prevention policy are decided collectively. These informal organisations are evolving. SPPPI PACA has opened up to new members, including employee representatives, and now covers the entire region (Kamaté, 2016).

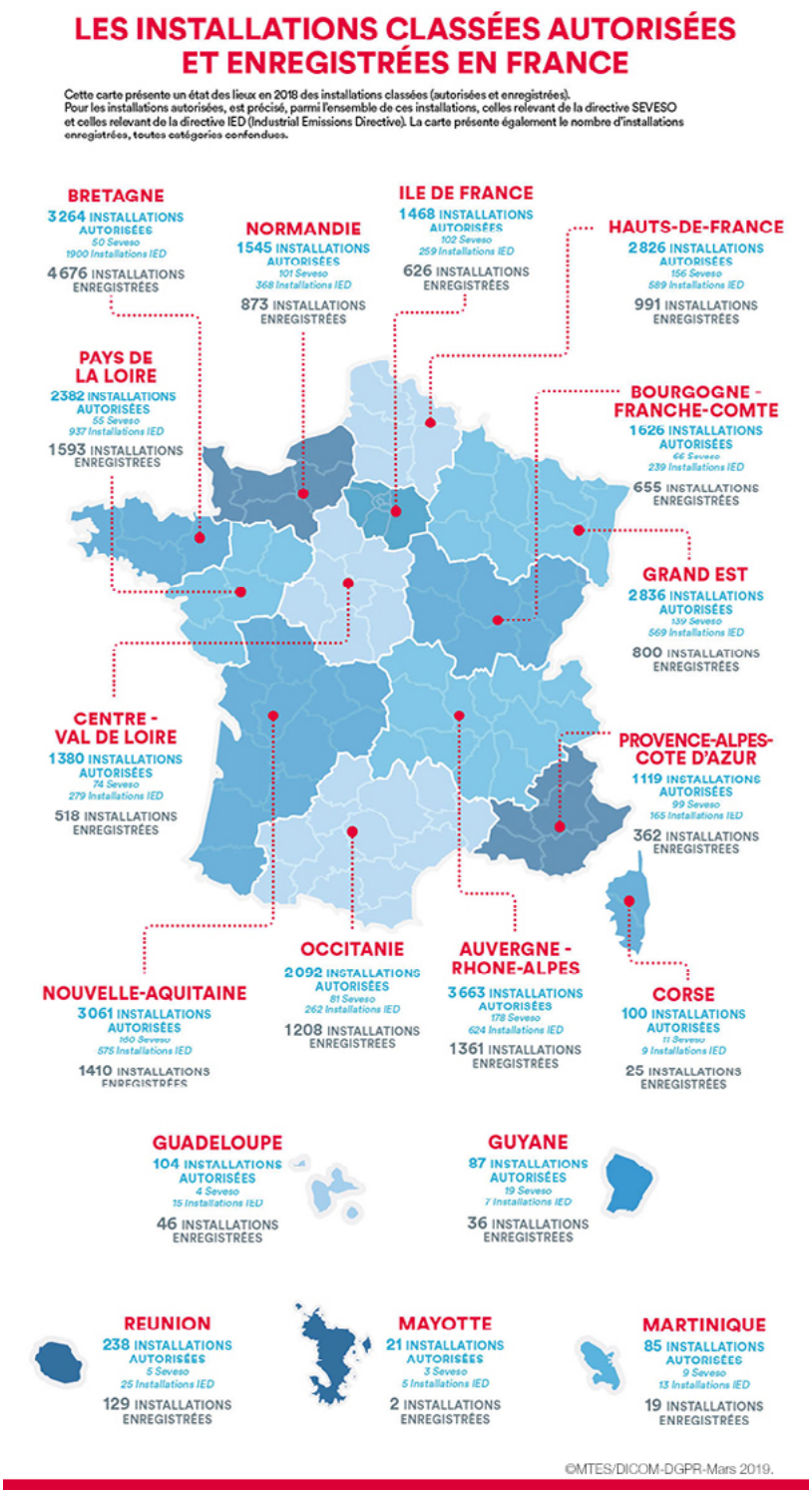

FIG. 4 - Facilities Classified for Environmental Protection (ICPE) in France in 2018. Source: MTES/DICOM-DGPR 2019

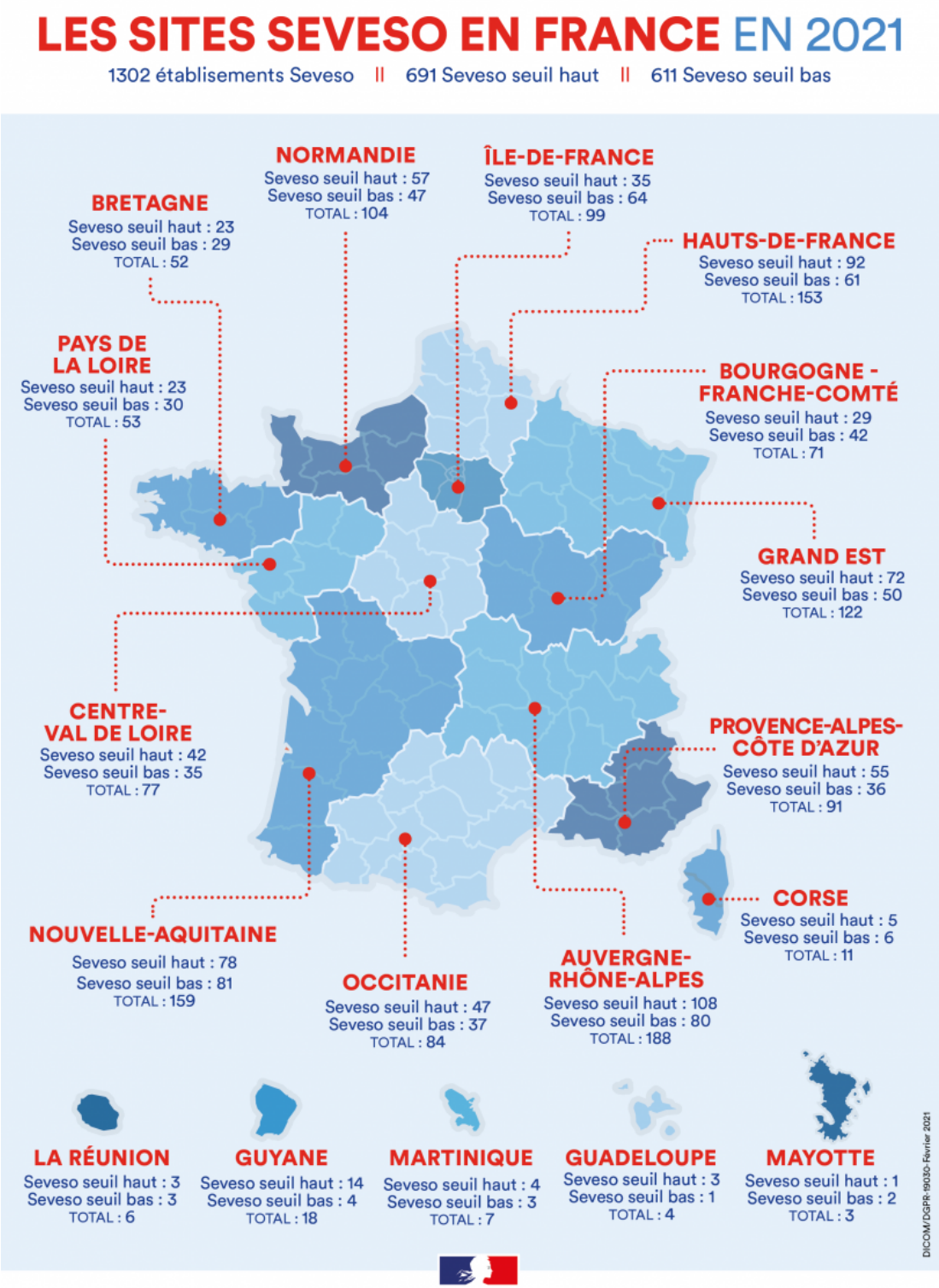

FIG. 5 - Seveso sites in France in 2021. Source: Ministry of Ecological Transition

France is home to a large number of facilities classified for environmental protection (ICPEs)[13]. In 2018, approximately 500,000 were regulated by the state (see Figure 4). The state has the power and duty to inspect ICPEs and it fulfils its responsibilities via its decentralised departments, namely the Regional Directorates for the Environment, Planning and Housing (DREAL), attached to the Ministry of Ecological Transition and placed under the authority of the regional or departmental prefects (KZN, 2022; MTCMT, 2021).

In 2018, there were 1,607 environment inspectors responsible for classified facilities in France (versus 1,627 in 2016 and 1,555 in 2014) and in that year they performed 18,196 inspections (Radisson, 2019). Among the

13. Any industrial or agricultural site likely to create risks or cause pollution or nuisances, particularly those that may harm the safety and health of local residents, is potentially a facility classified for environmental protection (ICPE).

ICPEs, upper-tier Seveso sites are governed by the Seveso Directive. This is the most stringent regulation, not only in terms of providing information to local residents and enlisting their participation, but also in terms of their authorisation to establish and conduct their operations, their functioning, their emissions, etc. For these Seveso-classified sites, of which there were 1,302 in 2021 (see Figure 5), approximately 1,500 inspections (of the 18,000 or so mentioned previously) are conducted annually, which is equivalent to around one inspection per site per year (Assemblée Nationale, 2020).

1.3.2. Ad-hoc tools and processes

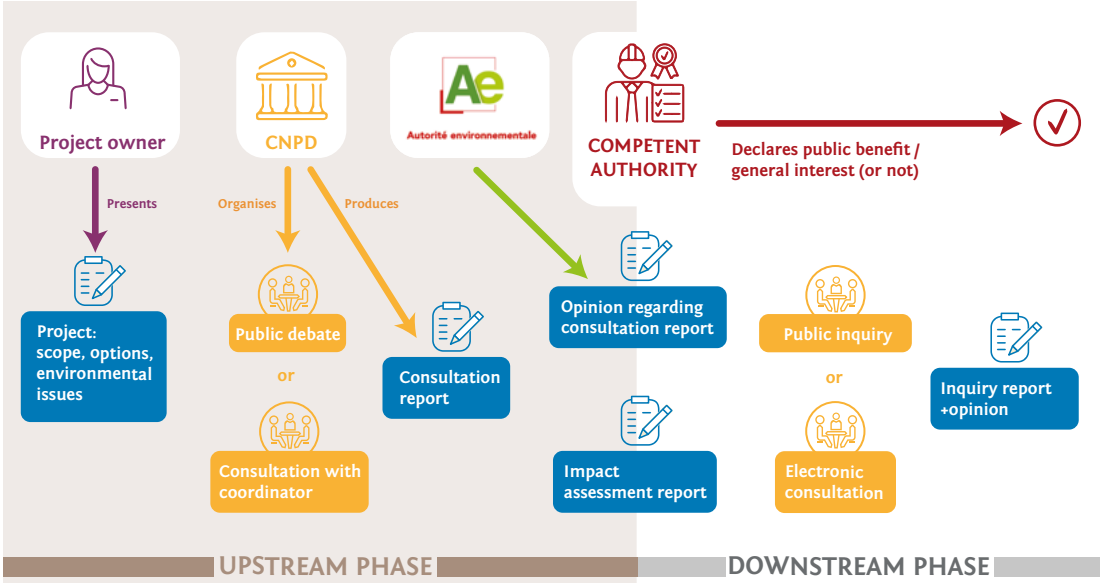

FIG. 6 - Ultra-simplified diagram of public participation (MTECT, 2019)

The organisation of public participation for projects that must undergo an environmental assessment falls under the responsibility of the Ministry of Ecological Transition. It is regulated by a number of French and international laws and procedures which are based on the principles of the Charter for the Environment and described, for the most part, in the French Environmental Code. These French and international laws and procedures form a complex structure, the finer details of which vary depending on the type of project, plan or programme, the sums and time invested, the surrounding context, and the many exemptions and specific adaptations that may apply (CGEDD, 2021). The full description of this complex panorama is beyond our realm of expertise and the scope of this "Cahier"; however, we have endeavoured to present an extremely simplified and generic diagram above to give an idea of the key stages at which citizen participation is sought when a major project is being planned and developed (see Figure 6). Interested readers will find more precise information in the Ministry of Ecological Transition's report on the modernisation of participation (CGEDD, 2021), for example. Broadly speaking, when a major project is being appraised with a view to obtaining all the required authorisations, public participation is planned during the upstream phase, i.e. even before the impact assessment (for a project) or the environmental impact assessment (for a plan or programme) has been finalised. During this phase, and once referred to the CNDP (the National Commission for Public Debate), the project becomes the subject of:

- either a **public debate**, held over a period of four to six months and conducted under the authority of the CNDP, which forms a special committee (commission particulière or CP) for each debate;
- or a **prior consultation**, lasting between 15 days and three months, with a consultation coordinator appointed by the CNDP.

Presentation

The National Commission for Public Debate (CNDP)

Since the introduction of the French law on "local democracy" on 27 February 2002, the National Commission for Public Debate (CNDP), created in 1995, has been an "independent administrative body" (equivalent to a quango in the UK or a regulatory agency in the US). Its mission is to inform citizens and ensure that their viewpoints are taken into account in the decision-making process. The CNDP allows the public to have their say on development projects or on nationally significant infrastructure projects which could have a major impact on the environment but considerable socio-economic benefits: creation of motorways, railway lines, waterways, nuclear facilities, airports, gas pipelines, hydroelectric dams, industrial facilities, or sporting, cultural, scientific and tourist facilities. The CNDP may also be involved on broader issues in the national interest: nanotechnology, transport policy, waste management, energy policy, etc. (Kamaté, 2016). Over a period spanning 25 years, the CNDP has organised 104 public debates, coordinated 360 consultations, and handled 47 consulting or support projects. Most of this work resulted from the ordinances of 2016 (see Table 1), which multiplied the number of cases submitted to the CNDP sixfold. In order to provide the public with the information and tools needed to participate in the debates, the CNDP completely redesigned its visual identity and its website in 2021 (CNDP, 2022).

In both cases, the CNDP drafts and publishes a report presenting the outcomes of the debates. The Environmental Authority then issues a report on the project in order for the examining authority to reach a decision on the benefits of the project (Ministère de l'Écologie, 2019).

In the downstream phase, once the impact study has been published, projects become the subject of a **public inquiry** initiated by an independent inquiry commissioner. This survey, which the public must be informed about at least 15 days before it is due to begin, is aimed at gathering the views of citizens regarding the impact assessment (or the environmental impact report) and the opinion of the Environmental Authority. This public inquiry should last at least one month. It can be suspended or extended if necessary. At the end of the inquiry, the inquiry commissioner drafts a report and issues a favourable or unfavourable opinion. This opinion informs the decision of the examining authority (the prefect, for example), who can decide whether or not the project is in the general interest or of public benefit and thus authorise the project or approve the plan or programme. The consultation may also be conducted via digital means, in which case an inquiry commissioner is not required (Ministère de l'Écologie, 2019).

It is important to emphasise that, due to the procedural complexity involved in public participation as part of the approval process of projects, plans and programmes, the limitations noted in the quality of exchanges and in the possibility for citizens to weigh in on the decision as early as possible in the process, and the persistent atmosphere of conflict that many projects generate, a reform of the consultation process was undertaken in 2016. It led to the ordinances of 2016 and to a Public Participation Charter, twenty years after the Public Consultation Charter. These appear in the final rows of Table 1 (ICPC, 2018). Despite the significant changes made, public participation in environmental dialogue is still plagued by many weak points (CGEDD, 2021; Vie Publique, 2022).

Presentation

The Environmental Authority

The Environmental Authority, or the competent authority for environmental issues, is an entity in charge of the environmental assessment of projects, plans or programmes. It was created in France in 2009 pursuant to the European directives on the environment, and it also exists in the other Member States of the European Union. It is an emanation of the French Environment Ministry:

- the environmental authority of the General Council for the Environment and Sustainable Development (CGEDD),
- a regional environmental authority
- or, in certain cases, the environment minister, depending on the criteria of the project, plan or programme requiring assessment.

The Environmental Authority is separate from the examining authority that decides whether or not to grant the authorisation (the prefect). Its job is to issue opinions on projects, plans or programmes, but it does not make decisions. Its opinions are aimed at improving the applicant's project and informing the decision of whether or not to grant an authorisation. They are added to the public inquiry dossier and are also intended to facilitate public participation in the decision-making process when these decisions affect them (Ministère de l'Écologie, 2022).

1.3.3. Non-statutory consultation

Besides the participation mandated by law, other structures are developing, processes are emerging, and tools are being deployed on the initiative of (sometimes institutional) stakeholders, but these are not required by current legislation. The handful of bodies and initiatives presented succinctly below as examples are not all

driven by the same participatory "spirit". They differ from each other in terms of the stakeholders behind them, the context in which they emerged, the objectives they seek to achieve, and the effects they produce in terms of inclusion, citizen expertise and/or social acceptance.

A handful of voluntary initiatives

The Conférence Riveraine in Feyzin (a discussion forum)

In 2007, when the Feyzin town council and the top management of the local TotalEnergies refinery wanted to create a new consultation body to focus on the industrial risks and nuisances connected with the refinery, they created the *Conférence Riveraine*, a local community forum. As a partner in this project, ICSI had launched an applied research project led by the sociologists Odile Piriou and Pierre Lénel, to assist with the scientific design of this forum and with structuring and monitoring its beginnings (Piriou & Lénel, 2012a; Piriou & Lénel, 2010a; Piriou & Lénel, 2010b; Piriou & Lénel, 2012b). The objectives of the *Conférence Riveraine* were:

- for the refinery, to cultivate more harmonious relationships with the local community;
- for the town council, to improve the life of the town's inhabitants, particularly those living in close proximity to the refinery;
- for ICSI, which was established in part to encourage debate between high-risk companies and civil society, the objective was to facilitate exchanges between stakeholders and to confirm a prerequisite, namely the importance of consultation in promoting a safety culture.

The *Conférence Riveraine* is an original and experimental consultation forum on the subject of industrial risks, co-constructed by stakeholders. While it was originally created for a three-year term, it has since been renewed regularly, has been broadened to include other industrial companies and, in 2012, France's then Minister for Ecology, Delphine Batho, commended it for being a consultation body that gets "*seemingly siloed worlds to truly talk and listen to one another.*" It should be noted that the public consultation forum established in Feyzin was originally supposed to be rolled out to all TotalEnergies refineries across France, but this never happened.

Learn more about the Feyzin *Conférence Riveraine* in a video (in French): La Conférence riveraine - Et si on se parlait ?[14]

A corporate approach: TotalEnergies' SRM+

While the Conférence Riveraine is an initiative limited to the Feyzin refinery, in the 2000s the TotalEnergies group developed the Stakeholder Relationship Management (SRM+) methodology internally. Its launch by the group was motivated by ongoing issues such as:

- a need to understand the concerns of stakeholders;
- a need to clarify the environmental impact due to TotalEnergies' presence and that due to other industrial companies;
- the growing importance of the issue of chronic risks;
- the general public's image of TotalEnergies, deemed "distorted" by the influence of the trade unions and the media.

The goal was to better prioritise the issues linked to the group's relations with all stakeholders, harmonise practices, and put in place some action plans. The SRM+ methodology is applied in France and in all parts of the world where TotalEnergies is present. It aims to:

- map the main stakeholders;
- understand their perceptions and identify their expectations;
- fulfil their expectations by identifying the right level of response;
- consolidate the dialogue strategies long term.

This method is intended to help build a relationship based on trust and transparency with the stakeholders in the regions where TotalEnergies operates. Within our working group, Jean-Marc Vaugier shared a presentation of the SRM+ as it was applied in Le Havre in 2007, around the Normandy refinery (RN) and the petrochemical plant in Gonfreville-l'Orcher (UGO)[15]. Some sixty stakeholders were consulted at the time, and the differences

14. http://www.conferenceriveraine.fr/2013/10/

15. At the time, the RN and UGO platforms both belonged to TotalEnergies but were managed differently. They are now a single platform.

between the company's internal view of relations with stakeholders and the external view expressed by the stakeholders consulted were analysed.

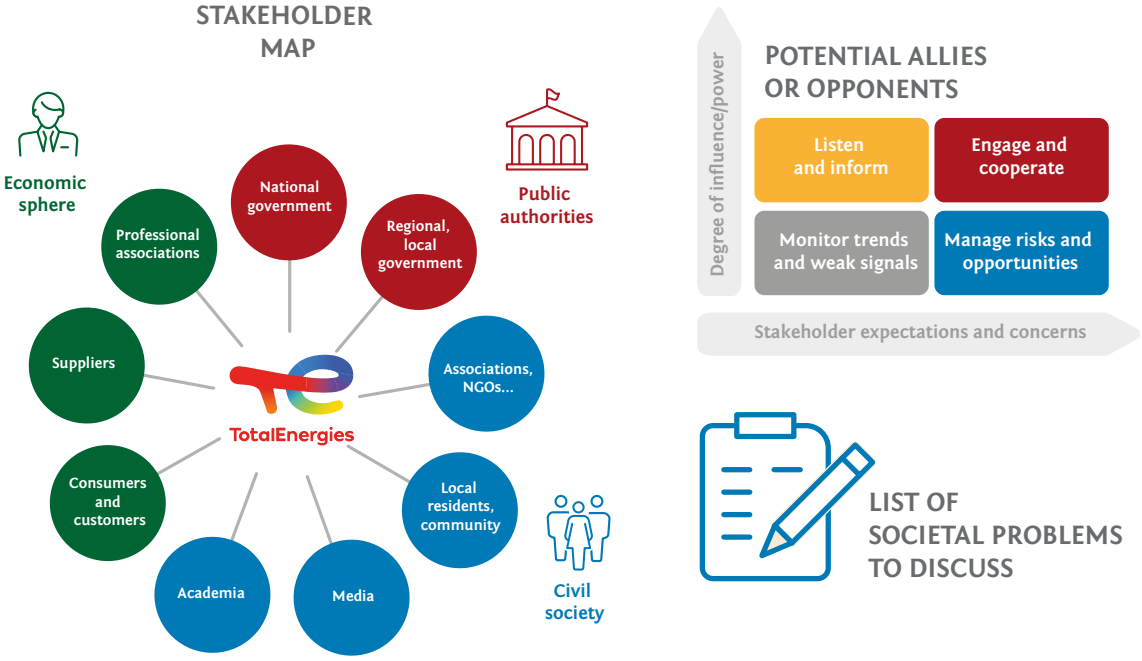

FIG. 7 - Stakeholders consulted as part of the SRM+ methodology (source: TotalEnergies, internal document)

Applying the SRM+ methodology in that area at that time had led to a greater knowledge of local stakeholders, highlighted the gap between the actions implemented there and the lack of understanding of certain stakeholders, revealed new expectations, and helped to identify ways to streamline the industrial company's actions. The SRM+ methodology is still in place at TotalEnergies; FonCSI's strategic analysis, "The Dynamics of Citizen Participation and Industrial Safety", launched in 2022, will provide an update on the status and contributions of this system.

The "Gonfreville consultations"[16]

In 2007, like other local authorities, the municipality of Gonfreville-l'Orcher was feeling rather excluded from the PPRT process (AMARIS, 2018). To remedy this, the town mayor at the time, Jean-Paul Lecoq, along with some groups of local residents organised into associations, initiated a constructive dialogue about the risks, pollution and nuisances associated with the local presence of industrial facilities (Suraud M.-G., 2013). In 2010, the PPRT for the industrial port area of Le Havre, which includes the towns of Le Havre, Gonfreville-l'Orcher, but also Rogerville, Oudalle, Sandouville and Harfleur, was established. This PPRT was approved in 2016, then simplified in 2020. For the past 15 years now, the stakeholders in this part of France have been conferring with each other, exchanging points of view, proposing solutions and implementing concrete actions on issues ranging from risk reduction at source to dwelling reinforcement, the provision of preventive information to local populations, and communication about incidents (Lecoq, Chicot, & Valin, 2021).

The "Réponses" approach

The Réponses project — where Réponses stands for "*Réduire les pollutions en santé environnement*", or "Reduce pollution in environmental health" in English — is an original consultation process involving the residents of the municipalities surrounding the Etang de Berre. It was launched in 2019 to find concrete solutions and answers to their pollution, health and environment related concerns. This is an initiative of the PACA region SPPPI, coordinated by the local stakeholders (five colleges: associations, local government, state, industrial companies, employees) with the support of a committee of experts. The project involves a group of voluntary citizens (the citizen panel) who have committed to being active throughout the consultation process.

16. In French, "les concertations de Gonfreville", an expression coined by Marie-Gabrielle Suraud, a researcher who has studied this part of France in depth (Suraud M.-G. , 2013).

The key objectives of the "Réponses" approach are to:

- establish a constructive dialogue between stakeholders, including the local populations;
- follow the progress of existing actions and propose new actions to implement;
- provide centralised information;
- ensure its own longevity.

Discover the "Réponses" approach in a video (in French).[17]

The Fos-sur-Mer Eco-citizen Institute for Pollution Awareness (citizen science)

Established in Fos-sur-Mer in 2010, the Eco-citizen Institute is a centre that studies the environmental and health effects of the pollution generated by industrial activities. Its participatory nature is original in that its team of experts and its network of scientists work hand in hand with citizens (Citizen Observatory of the Environment). It has three principal missions (IECP, s.d.):

- expand knowledge regarding pollutants and their effects on the environment and on health;
- involve citizens in the process of identifying pollution-related problems, of elaborating protocols, and of implementing the studies;
- inform and fuel debates about the areas exposed to specific types of pollution.

The CIPC, supporting voluntary consultation initiatives

The Interministerial Centre for Citizen Participation (CICP) is a body within the Interministerial Directorate for Public Transformation (DITP)[18]. It is while working on assessing public policies that the DITP looked at citizen participation, now a key focus of the government. Since a growing number of consultations are now voluntarily initiated by the project owners, the CIPC was created and tasked with providing strategic and methodological assistance to institutional project owners (ministries, government departments) as they pursue their goal of involving the public in the elaboration of public policies. The CIPC only works on voluntary consultations initiated by the project owner institution, not on statutory consultations organised by the CNDP. While the CIPC was originally very focused on central government programmes, it is now increasingly providing support for local-level projects, such as the *Réponses* approach (Pelletier, 2022). However, the challenge lies in the reality of application in the field.

1.3.4. The law, regulations, and the reality in the field

Given the substantial array of laws, regulations and technical tools at its disposal, France should be perfectly equipped to guarantee the right to information and public participation in matters relating to environmental risks. However, in order to be effective, laws must be applied (and applicable) and regulations observed. The compatibility of these laws and regulations with the reality of practices is far from optimal. Some legislation is not applied (issue with non-transposition of the law), and other laws and regulations are only applied superficially to create the illusion of participation (inaccurate transposition of the law).

France has even been the subject of European Commission decisions concerning infringement procedures, notably for failing to comply with certain elements of the Seveso III Directive relating to information and public participation. Despite France being given formal notice by the European Commission in October 2019, the latter noted that our country "*has still not correctly transposed into national law the information to be made available to the public. It also has not ensured that the public concerned is given a timely opportunity to comment on specific individual projects relating to new developments. This opportunity is especially important when the location of the development or the facilities themselves are likely to increase the risk or the consequences of a major accident.*" (Martin, 2022). To remedy these failures, new orders were issued to adapt French legislation (Martin, 2022).

Another point worth underlining is that, over the past few years, certain normative changes linked to the simplification of the administrative procedures involved in setting up industrial sites (ASAP Law[19]) and to safety risk (terrorism) may have conflicted with the principles of right to information and citizen participation (Martin, 2022). This has led to some regression in the nature and scope of information made available to the public.

17. http://youtu.be/s-sCXwWGBLo
18. The DITP is in charge of modernising public services. The DITP oversees and coordinates programmes to transform public actions; it supports government departments with the changes.
19. Decree n° 2021-1000 of 30 July 2021, containing various provisions for implementing the public action acceleration and simplification and environmental simplification Act.

2

Public information and participation elsewhere in Europe: the case of Italy and the Netherlands

As indicated in the appendix to the Committee of Inquiry report issued by the French Senate following the Lubrizol and Normandie Logistique fire (Senate Inquiry Committee, 2020), European directives are transposed literally and accurately into the legislation of the Union's member states; only the administrative procedures and competent authorities differ. We chose to focus more particularly on Italy and the Netherlands. For Italy, our group was able to draw on the expertise of one of its members, the sociologist Paolo Crivellari, who had conducted extensive research on the Porto Marghera site in the Veneto region. For the Netherlands, on the other hand, the information presented here was found by conducting a non-exhaustive literature search.

2.1. Italy: some elements for analysis

From 2009 to 2014, Paolo Crivellari conducted a comparative study of citizen mobilisations and institutions on the Porto Marghera site in Italy and in Le Havre in France (Chesta, Crivellari, & Santana-Bucio, 2014). He also analysed the design and set-up of SIMAGE[20], an innovation for managing industrial risks and crises. Born of a collaborative effort between the public and private sectors, it remains unmatched in Europe (Crivellari, 2019). Finally, we were also afforded the opportunity to speak with Marco Ziron, a chemical engineer at the Veneto Regional Agency for the Prevention and Protection of the Environment (ARPAV) (FonCSI, 2020).

2.1.1. A literal and accurate Seveso transposition but some regional inequalities

In Italy, the Seveso directives were transposed rather late, even though the country was the theatre of the eponymous disaster in 1976 (De Marchi, Funtowicz, & Ravetz, 1996). The first directive was transposed in 1988, Seveso II in 1999, Seveso II-bis in 2005, and Seveso III in 2015. According to the directive, citizen information and participation must occur at several levels and via different channels:

- a **notification** of the risks and the steps to follow in the event of an accident is produced by the industrial operator, who must provide it to the relevant authorities. The local council is then responsible for publishing this notification on its website;
- an **external emergency plan** for which the prefecture (the local authority) is responsible. In order for this plan to be approved, citizen participation is required to assist the prefecture in ensuring that the information provided to the public is understandable and not overly technical;
- a **consultation involving the public** is also required during the authorisation phase of Seveso sites (transposition of Directive 2014/52/EU and 2011/92/EU and decree n° 152/06);
- the transposition of directive 2003/4/EC and the "**Freedom of Information Act**" in the decree n° 124/2015 of the Italian Environmental Code. This information may be provided to anyone on request. However, some sensitive information is not accessible to the public.

As stated previously, the Seveso Directive is accurately transposed into Italian law. But to what extent is this right to information and public participation translated into the reality of practices?

The inspection of classified facilities is the responsibility of the regional environment protection agencies called ARPA (*Agenzia Regionale per la Protezione dell'Ambient*). Italy is composed of 20 regions. There are 19

20. Stands for *Sistema Integrato per il Monitoraggio Ambientale e la Gestione delle Emergenze* (Integrated System for Environmental Monitoring and Crisis Management).

regional agencies (ARPA), as well as two provincial agencies (APPA) since the Trentino-Alto Adige region has a special status (it is divided into two autonomous provinces: Bolzano and Trento). The director of each ARPA is appointed by the regional council. Compared to the DREALs in France, which are decentralised state departments, ARPAs are designed as stakeholders in decentralisation and not as an emanation of the state. However, they are federated at the national level in Rome by the Italian Institute for Environmental Protection and Research (ISPRA), a scientific and technical body under the authority of the Ministry of Ecological Transition. There is a desire in Rome to homogenise and standardise this set-up, but this is more of a wish than a factual reality. The ARPAs are predominantly technical organisations serving as a technical body for the region, as inspector of classified establishments, as judicial police, and as policymaker. While they are not directly responsible for informing the public, they do at times assist other bodies with their duty to inform the public.

In Italy, there are significant economic inequalities between the regions but also vast differences in the way industrial risks are managed. The ARPAs were created one after the other. They do not all have access to the same resources and the skill level of their technicians varies. These differences are due in part to the size of the industrial sector, which varies from one region to the next; for example, Lombardy and Veneto are more industrial and have more resources than Calabria. However, even in regions with an equivalent industrial density, there are also differences in terms of:

- the regional interpretation of legislation;
- the relationships these agencies have with the region's industrial companies and with the municipality.

For example, ARPA Veneto (ARPAV) has more resources at its disposal than ARPA Puglia. Moreover, its technicians, some of whom are former employees of chemical companies, still enjoy somewhat special relationships with the companies in Porto Marghera (in comparison to what is observed with other ARPA). This has significant spillover effects on the collaboration between companies and the public authorities. If the SIMAGE system — which works well — has not been transposed to other regions of Italy, it is for reasons connected with the inequality of resources and skills, but also because the relationship between industrial companies and inspectors in Veneto is particularly good. In a way, the SIMAGE system is "custom" designed for the Porto Marghera petrochemical plants in the municipality of Venice. The relationship between the government agency in charge of risk management and the municipalities is essential and, as the Rouen accident showed once again, some mayors of France — particularly those of small towns — sometimes feel a little excluded and powerless. Besides the fact that it can be difficult for them to understand the technical aspects of risk management, they sometimes feel abandoned: they are responsible for protecting the members of their community, but with insufficient help from the state. In Italy, this also depends a great deal on the size of the municipalities. If they are very small, they turn to the ARPA and/or regional or provincial government bodies for help. The municipality of Venice, however, has administrative personnel dedicated to risk management. Generally speaking, the ARPAs collaborate a great deal with the departmental fire brigade.

The regional inequalities observed in Italy raise several questions, particularly with regard to a certain "decomposition of the state" when it comes to industrial matters. This decomposition phenomenon results in certain state actors becoming dis-invested, with the state now lacking key skills because certain tasks have been contracted out. In Italy, where industrial risks are concerned, the state – represented by the Ministry of Ecological Transition (MITE) – retains control of the elaboration and drafting of guidelines. However, it is then up to the regions concerned, via the ARPAs, to figure out how to apply them with dwindling resources at their disposal. This has an impact on the level of control.

Decomposition of the state

Definition

We use the term "decomposition of the state" as the opposite of the sociological concept of "recomposition of the state", which corresponds to a recentralisation in many domains including the management of risks and serious crises: the state takes back control of tasks or missions for which it had devolved responsibility.

2.1.2. A highly technocratic model

In France, a national law introduced in 2003 (Loi Bachelot) makes the presence of Site Monitoring Committees (CSS, formerly called CLICs) — consultation bodies in which local residents are represented — compulsory. In fact, France was the first European country to have enacted a law on the subject of consultation. In reality, though, the way these CSSs function remains rather technocratic, as largely underlined by a number of studies,

even well before the Rouen fire... We will come back to this further on in this document. Italian legislation, on the other hand, has not introduced the creation of such bodies, which is all the more reason why the country has a very technocratic model for managing the industrial risks linked to Seveso establishments, a model where the two worlds — authorities and industrial companies on one side, citizens on the other — are highly siloed. In parallel, citizen-led actions have emerged (referendum that led to the closure of the Dow Chemical plant in 2006, for example).

Focus on the Veneto region

The Porto Marghera industrial site includes some fifteen Seveso chemical companies that have formed an industrial association called EZI (*Ente Zona Industriale*) which unites their interests. During the field research carried out in Porto Marghera, two meetings were held with the president of the EZI, the sole spokesperson for the group of industrial companies; however, it was not possible to meet with the members representing the respective companies, which indicates that the association is somewhat guarded. The ARPAV works closely with the industrial companies, but the interactions are relatively invisible to the outside world. The expertise resides with the ARPAV technicians on one side, and the industrial companies' HSE specialists on the other. The two groups of experts, from the public sector and industry respectively, share a common language and exchange with one another. Moreover, ARPA engineers cannot be denied access to industrial secrets. The Veneto region invested four million euros in the SIMAGE systems, but the experts from both the private and public sectors worked together and were not swayed by political influence. Originally, the Veneto region was counting on the SIMAGE system as a tool for dismantling and transforming the chemical industries. Instead, the SIMAGE system has become a tool supporting the sustainability of industry! The two spheres interact and the 'hinge' is represented by the risk of major industrial accidents (see Andrew Abbott's Linked Ecologies theory) (Abbott, 2003). If there is no conflict in the confined ARPA-industrial players space, the problem does not spill over to the public sphere (on this topic, see Gilbert & Henry, 2012).

ARPA Veneto

Presentation

The Veneto region is composed of 563 municipalities. It is home to 49 upper-tier Seveso sites and 42 lower-tier Seveso sites. ARPAV's principal responsibilities are to:

- prevent pollution;
- manage sources of environmental pressure;
- monitor air, water and soil quality;
- provide technical support to local and central public authorities.

It employs 800 people (a figure that has been falling over the past ten years) and is organised into three core departments

- innovation and development;
- personnel and legal affairs;
- technical and management.

Five regional departments:

- risk management and support services;
- laboratories;
- technological and physical risks (industrial hazards, pressure equipment, electrical, noise sources), the department most focused on informing about risks;
- air quality;
- regional safety.

And seven provincial departments.

ARPAV activity in 2019:

- 12,000 plant audits
- 29,000 inspections
- 68,000 samples tested
- 20,000 technical reports
- 4,000 technical committees

Source: interview with Marco Ziron, November 2020 (FonCSI, 2020)

2.1.3. Citizen information and participation

In Italy, the issue of major industrial accident risk emerged more recently than in France. For a long time, the media focused its attention on employment, worker health, and chronic industrial pollution. Greenpeace, which has a local branch in Venice, did not bring any attention to the issue of major industrial hazards, but instead focused on waste, asbestos, brownfield land, etc. As mentioned previously, unlike France with CSSs, Italy has not introduced a legally mandated consultation process around upper-tier Seveso sites. Theirs is more of a top-down communication model, with information flowing down from the transmitter (ARPA) to the receiver (the citizens). While the SIMAGE system is an innovation in terms of public/private collaboration, it includes little or no involvement on the part of citizens, who remain the passive receivers of the communication (Crivellari, 2015).

ARPAs give citizens the possibility of knowing what steps to follow during and after a disaster. Citizen information is mandatory and comes under the purview of the municipality, responsible for civil protection. It therefore falls upon the municipality to manage this transmitter/receiver system. For example, the mayors have had the documents translated into several languages (see Figure 8).

FIG. 8 - Example of a public information document from the Montecchio Maggiore municipality (Source: municipiumapp.it)

Even in Venice, where civil protection is very active and where high-risk industry is very present, the industrial risk civil protection unit was not maintained. It was converted into a unit dedicated to natural hazards, climate change, etc. There is talk of a need to standardise policies, but at the same time, at the regional level, there are inequalities in resource availability.

Although information is available on the municipality website, it is difficult to know whether the population reads it. Very few people request information under the Freedom of Information Act. Some citizen requests for information do come through, particularly during the authorisation phase for a new establishment, but this is quite rare. Where the organisation of the external emergency plan is concerned, citizens are consulted via public meetings which are a mandatory part of the plan approval process. But discussions during these meetings are rather difficult, as the local residents and the risk managers do not share the same perception, understanding and knowledge of the risks. And it is not easy to evaluate how much the laypeople present understand of the technical information provided. Unfortunately, it may not be possible to evaluate how well

the public has assimilated and understood the information, and particularly the steps to take in the event of a disaster, until a real emergency occurs.

The citizens themselves do not seem to be calling for the creation of consultation bodies. Might this be due to the fact that they have not had to live through an accident such as the one that occurred at the AZF plant, an accident which caused damage and casualties beyond the perimeter of the site[21]?

Getting back to the case of the SIMAGE system, while citizens protest about some of its characteristics, they do not demand to be included in it. The public expresses more concern over the relocation, closure or reduction of the chemical industry than about not being democratically included in the debate[22]. Because there are no consultation bodies, citizens are less aware of industrial risks and thus less able to ask questions (Crivellari & Chesta, 2022). ARPAV's decision not to include citizens in the SIMAGE project and the decision by the municipality of Venice to have citizens relay the technical information communicated by the municipality, particularly via the creation of a group of volunteers called GIPS or *Gruppo Informazione e Promozione per la Sicurezza* (Information, Promotion of Safety Group), have no doubt also limited citizen-led actions. Thus, on one side we have a sort of discreet technocratic bubble in which industrial companies and authorities quietly go about their business, and on the other side we have the citizens, who have more of a committee-centred culture and oppose the chemical industry by trying to reduce the number of sites.

2.2. The Netherlands: an overview

2.2.1. A tradition of natural hazard management

FIG. 9 - Risk of flooding in the Netherlands (source: Blog – Netherlands)

21. The 2002 explosion at the Dow Chemical plant in Porto Marghera caused burns to plant workers, but there were no external victims.

22. To them inclusion meant, for example, the referendum on stopping the production of phosgene, a referendum which led to the closure of the Dow Chemical plant in 2006 (Chesta, Crivellari, & Santana-Bucio, 2014).

With polders making up one third of its surface and with a high population density (416 inhabitants per km² in 2018[23]), the Netherlands is a very compact country. Since it is geographically very vulnerable to flooding and to marine submersion (see Figure 9), water control and management are of crucial importance and have been for a long time. It would seem that the Dutch are highly aware of these risks: taking them into account, preventing them, and constantly adapting to them appears to be deeply embedded in the culture. The Netherlands thus has extensive experience and unparalleled expertise in flood risk management. This expertise in natural hazards informs and influences policies and discussions on industrial risk management (Barthélémy, Blancher, & Marris, 1998).

2.2.2. Risks tied to the Seveso industry

In 2018, the Netherlands was home to 396 Seveso establishments, including 260 upper-tier sites (Senate Inquiry Committee, 2020).

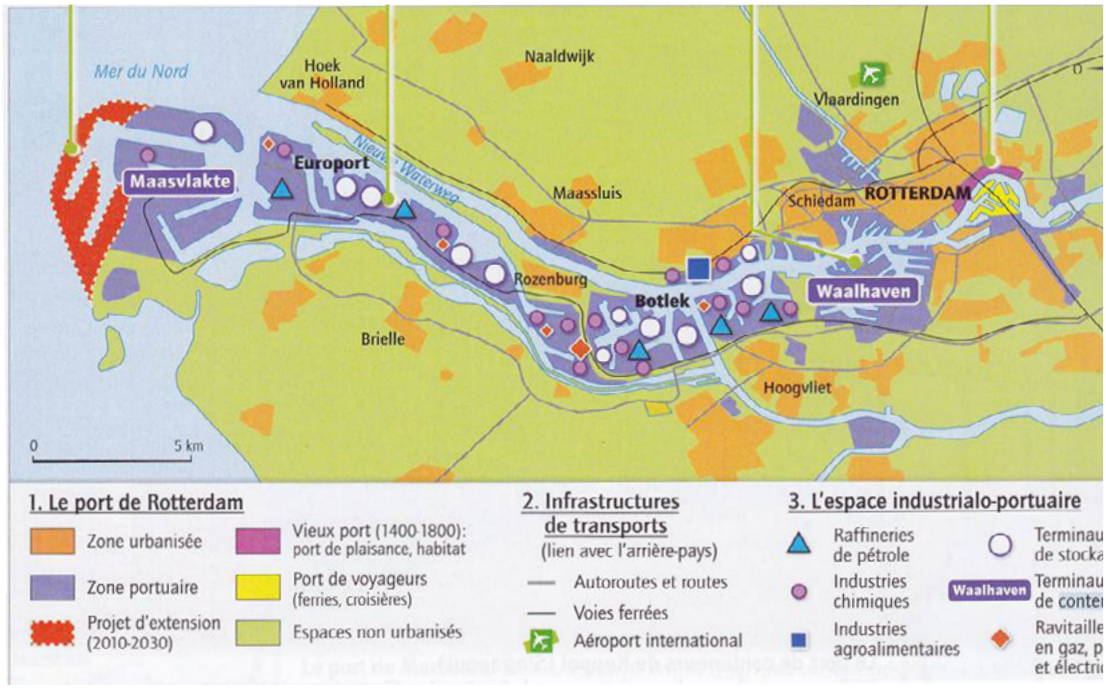

FIG. 10 - The Port of Rotterdam industrial complex (M. Confais)

The Netherlands has suffered several industrial accidents. The list and factual characteristics of those that took place between 2000 and 2014 are presented in Table 3 below.

Date		Location	Sector, company	Cause	Victims
2000	12 May	NL-Drachten	Waste treatment, ATF	Fire, PCB, dioxins	124 injured
	13 May	NL-Enschede	Fireworks storage	Explosion	23 fatalities, 950 injured
	13 Sept.	NL-Dongen	Glue factory, Trobas	Explosion	2 injured
	6 Oct.	**BE-Antwerp**	**Refinery**	**Maintenance, explosion**	
	6 Dec.	**NL-Geleen**	**Process manufacturing, DSM**	**Hydrogen cyanide emission**	

23. In comparison, there were 117 inhabitants/km² in France that same year.

Date		Location	Sector, company	Cause	Victims
2001	19 Sept.	NL-Amsterdam	BP terminal	Fire	1 injured
	15 Oct.	NL-Velsen-Noord	Steelworks, Corus	Fire	2 injured
2002	4 Jul.	NL-Putten	Fourageretail Hamstra	Explosion	2 fatalities
	7 May	NL-Hengelo	Metalworking, Hengelo	Explosion	1 fatality
	7 Nov.	**NL-Vlissingen**	**Refinery, Total**	**Fire**	**3 injured**
	12 Dec.	**NL-Europoort**	**Refinery, Kuwait**	**Desulphurisation, explosion**	**1 fatality, 1 injured**
2003	**1 Jan.**	**NL-Botlek**	**Process manufacturing, Vopak**	**Explosion, benzyl alcohol emission**	
	1 Apr.	**NL-Geleen**	**Process manufacturing, DSM**	**Start-up**	**3 fatalities, 2 injured**
	15 Jul.	NL-Eindhoven	Tank car	LPG fire	1 fatality
2004	30 Jul.	BE-Ghislenghien	Gas pipeline	Explosion	24 fatalities, 132 injured
	4 May	**NL-Vlissingen**	**Refinery, Total**	**Explosion**	**3 injured**
	5 Aug.	**NL-Bergeijk**	**Storage, Diffutherm**	**Oil sands extraction, explosion**	**4 injured**
2005	15 Mar.	NL-Groningen	Process manufacturing, PerkinElmer	Sodium borohydride, explosion	1 fatality, 1 injured
	31 May	NL-Warffum	Natural gas processing, NAM	Maintenance, gas cloud explosion	3 fatalities, 2 injured
	23 June	**NL-Rotterdam**	**Process manufacturing, Cerexagri**	**Carbon disulfide explosion**	**2 injured**
	25 Oct.	**BE-Kallo-Antwerp**	**Refinery, crude oil storage**	**Tank rupture, oil leak**	
2006	**8 Mar.**	**NL-Rotterdam**	**Process manufacturing, Nerefco**	**Explosion**	**1 injured**
	30 Mar.	**NL-Botlek**	**Container, AVR**	**LOC C6H4CLCCL3HCl**	
2008	**28 Nov.**	**NL-Rotterdam**	**Process manufacturing, Vopak**	**Explosion**	**2 injured**
	2 Sept.	**BE-Antwerp**	**Refinery**	**Power cut, hydrogen sulfide emission**	
2009	**13 Feb.**	**NL-Botlek**	**Refinery, Kuwait**	**Fire**	
	11 Jul.	**NL-Nijmegen**	**Process manufacturing, Kelko**	**Carboxymethyl cellulose, fire**	**1 fatality**

Date		Location	Sector, company	Cause	Victims
2011	**5 Jan.**	**NL-Moerdijk**	**Process manufacturing, Chemie Pack**	**Fire**	
	6 June	**NL-Botlek**	**Rubis terminal**	**Fire**	**1 injured**
	7 Nov.	**NL-Farmsum**	**Process manufacturing, Dow Benelux**	**Sodium fire**	
2013	**19 Nov.**	**BE-Antwerp**	**Refinery, Total**	**Vapour explosion**	**2 fatalities**
	5 May	**NL-Botlek**	**Process manufacturing, Akzo**	**Ethylene explosion**	**1 injured**
2014	**3 June**	**NL-Moerdijk**	**Process manufacturing, Shell**	**Explosion**	**2 injured**

*TAB. 3 - Major accidents in the process industry in the Netherlands and Belgium, between 2000 and 2014. BE: Belgium; NL: the Netherlands; **in bold**: BRZO companies. Adapted from (Swuste & Reniers, 2016)*

The fireworks factory explosion that occurred in Enschede in 2000, killing 23 people and injuring nearly a thousand, is no doubt one of the most major accidents in the industrial history of the Netherlands (ARIA, 2006). It was a watershed event in the management of industrial risks in Europe, ushering in changes to the Seveso Directive (Seveso II) and the creation of the Dutch Safety Board, a government agency under the authority of the Ministry of the Interior, in charge of investigating major industrial accidents in practically all sectors. The board's remit covers air, sea and rail transport, but also the chemical and petrochemical industries, the medical and construction sectors, and even military incidents. In comparison, before the creation of the BEA-RI (Bureau of Investigation and Analysis of Industrial Risks, see Chapter 1 Part II of this Cahier) in December 2020 following the Lubrizol and Normandie Logistique fire, France did not have a specific body in place for investigating and analysing accidents in the chemical and oil industries.

2.2.3. Dutch legislation

The relevant European Union directives and treaties are transposed into Dutch legislation, notably:

- the **Industrial Emissions Directive (IED)** which sets out the obligations of large industrial facilities with regard to avoiding or reducing their emission of pollutants into the atmosphere, the water and the soil, as well as in terms of reducing their waste. The Netherlands is one of the 33 European countries to have adopted the European Pollutant Release and Transfer Register (E-PRTR), a publicly accessible inventory of chemicals or pollutants released to the air, water and soil, of off-site transfers of waste, and of pollutants in wastewater from industrial activities (EEA, 2022);
- the **Offshore Safety Directive (2013/30/EU),** in which the European Union established rules to improve the prevention and management of accidents connected with offshore oil and gas operations;
- the directive on access to information, public participation in decision-making and access to justice in environmental matters (**Aarhus Convention**) (UNECE, 1998; UNECE, 2014);
- the **Seveso III Directive** (European Parliament, 2012).

In the current legislation, the transposition of the Seveso III Directive is based primarily on the implementation decree of 2015, the BRZO[24], supplemented by the decree on the right to information in times of crisis and by the decree on "safety regions" (Safety Regions Act 2010, amended in 2017) for the prevention and management of major accidents (Ministry of Security and Justice, 2013). By extension, companies that fall under the BRZO regulation are called "BRZO companies".

24. For *Besluit risco's zware ongevallen* ("Major Accidents (Risk) Decree" in English).

All the elements of the European legislation can be found in the texts:

- ▷ the operator's responsibility;
- ▷ the inspection;
- ▷ the internal/external safety plans;
- ▷ information and transparency (public access to information, in accordance with the Aarhus Convention);
- ▷ etc.

The Environment and Planning Act (*Omgevingswet* in Dutch) is intended to modernise, harmonise, and simplify Dutch spatial planning and environment protection legislation. It should come into effect on 1 July 2023 (Government Information for Entrepreneurs, 2022; MiW, 2016).

FIG. 11 - Environment and Planning Act: "Fewer rules and more space for initiatives" (literally)
Source: Ministry of the Interior and Kingdom Relations (Omgevingswetportaal.nl, December 2017).

2.2.4. Operational implementation

In the Netherlands, there are different levels of responsibility when it comes to risk management. At the central level, the Ministry of Infrastructure and Environment, the Ministry of Social Affairs and Employment (MinSZW[25]), the Ministry of Justice and Security, and the Ministry of Health via the National Institute for Public Health and the Environment (RIVM[26]) are all involved in some way. At the regional level, risk management is the responsibility of the provinces and the so-called "safety regions"[27] (which include several municipalities). At the local level, it is the responsibility of the municipalities.

A common framework is in place which encompasses:

- ▷ the safety of facilities;
- ▷ the management of major accidents (both natural and technological);
- ▷ occupational health and safety.

This framework ensures coordination and communication between the authorities responsible, thanks to an integrated inspection system.

25. *Ministerie van Sociale Zaken en Werkgelegenheid* in Dutch.
26. *Rijksinstituut voor Volksgezondheid en Milieu* in Dutch.
27. *Veiligheidsregio* in Dutch.

Cooperative inspections are organised through the cooperation of three government institutions, the "BRZO partners":

- ▹ the Netherlands Labour Authority (MinSZW), for which the inspectors work;
- ▹ the local and regional inspection partners, which operate within the framework of environmental legislation:
  - the inspection initiator or organiser
  - the regulator responsible for issuing companies permits and the licence to operate
- ▹ and the fire brigade as the main authority for all emergency and disaster related activities. They operate within the bounds of the safety regions and disaster mitigation law (Lindhout, van der Werff, & Reniers, 2020).

BRZO+ is a joint platform for coordinating the different actors. It is aimed at:

- ▹ ensuring the consistency and uniformity of public action at the national level;
- ▹ ensuring companies comply with BRZO regulations;
- ▹ developing safety culture in major accident hazard establishments.

Each year, the BRZO+ network publishes a report on the state of safety in BRZO companies (internal and external safety). This report is submitted to the government and to parliament and is also made public via the website brzoplus.nl (Lindhout, van der Werff, & Reniers, 2020).

2.2.5. The Dutch approach to risk management

Dutch legislation seems to make a formal distinction between 'crisis' and 'disaster' situations. **A crisis** is defined as a situation that can threaten the vital interests of the State (political stability, etc.). Crises are managed at the central government level, with ministerial instructions being applied at the local level. At the central level, each ministry has its own crisis department. Each ministry is responsible for managing the crises that occur in their sector. Any strategic decisions are taken by the ministry concerned or by a Ministerial Crisis Management Committee. The Minister for Justice and Security chairs this Ministerial Crisis Management Committee, unless the Prime Minister takes over command. There is also a crisis coordination agency called the National Crisis Centre (NCC) (Steenbakkers, 2012).

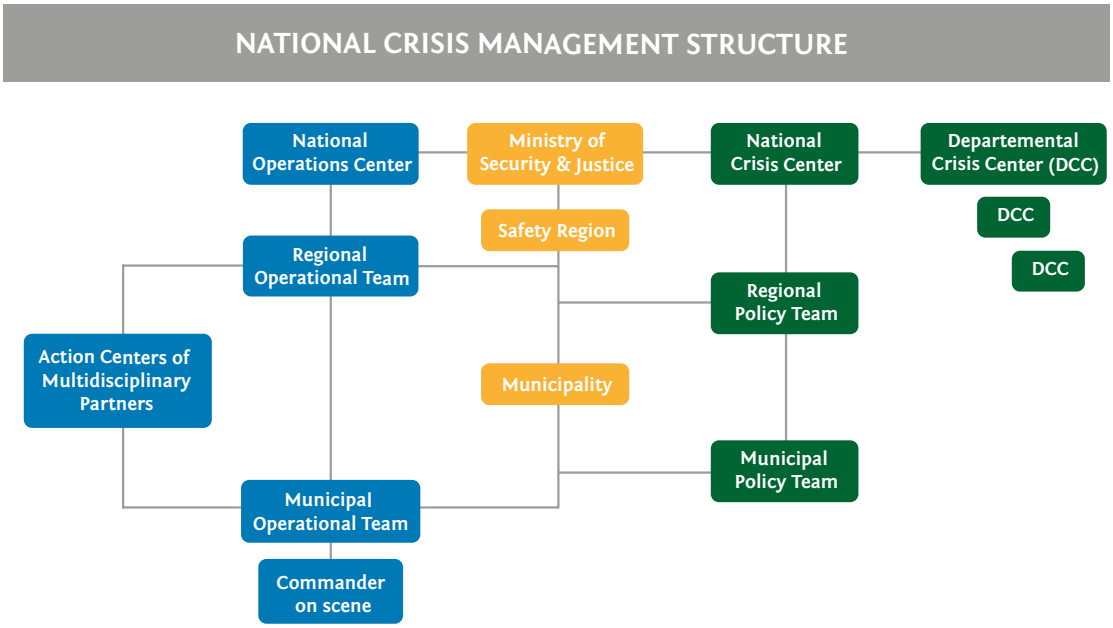

FIG. 12 - Crisis management structure (adapted from Steenbakkers, 2012)

A disaster, on the other hand, is defined as a major incident or accident which seriously threatens or affects the life and well-being of citizens, the environment or property. In the first instance disasters are managed locally, and their management is escalated to the next relevant competent authorities as the need arises (Kuipers & Boin, 2014).

Currently, natural and technological disasters fall into the second category and their management is decentralised, using a bottom-up approach. The mayor of the municipality where the incident or accident occurred is the first person responsible for safety and disaster management within their municipality: local incident = local response. However, if the event extends beyond the boundaries of the municipality, the regional level is activated and the Safety Region takes over. Finally, if several regions are affected then cross-regional coordination takes place, the response becomes bilateral or multilateral, and the national government may be asked to assist and/or intervene. The national government may also decide to do so unsolicited.

At the regional level, there are 25 so-called 'safety regions'. Since the *Safety Regions Act* of 2010 (updated in 2017), **the safety regions play a crucial role in risk prevention and disaster management.** They are public bodies (*openbaar lichaam*) responsible for inter-municipal management (decentralised government bodies). They have access to expertise and skills in a number of areas:

- civil protection;
- fire safety;
- medical emergencies;
- the natural and technological disaster plans.

They are headed by the mayors of the municipalities in the region (the general council). The mayor of the largest city is the chairperson of that region. If a disaster affects several municipalities in a safety region, the chairperson/mayor is ultimately responsible for response and decision making. (Kuipers & Boin, 2014).

2.2.6. Public information and participation

In the Netherlands, just as in the other countries of Europe, public information and participation are required by law (see Figure 13).

At the safety region level, the mayors are responsible for:

- informing the public about the risks in the area and the measures in place for preventing and managing disasters, as part of pre-disaster preparedness;
- communicating with citizens about what to do in the event of a natural or technological disaster, and informing them about the emergency plans in place;
- providing information about sites presenting a risk:
  - name, location, Seveso classification, activities,
  - and mentioning a number of additional elements: permits, safety report, handling of hazardous substances, prompt reporting of serious accidents, internal emergency plan (IEP)…

A great deal of information is also available online. For example:

- a risk map: www.risicokaart.nl (the equivalent of the French Géorisques website)
- what to do in the event of a crisis: www.crisis.nl
- safety reports (internal/external safety reports): www.brzoplus.nl
- the PRTR
- Environmental Protection Agency Rotterdam, Rijnmond: www.dcmr.nl

Have your say!

If you live in an area potentially affected by a major accident involving dangerous substances, EU legislation requires that you are involved in the decision making, even if the establishment concerned is located in a neighbouring EU country.
You will be consulted when:

- new establishments are planned
- significant modifications are made to existing ones
- new developments are planned around existing establishments
- external emergency plans are drawn up for high risk establishments

Information on how you can protect yourself in case of an emergency needs to be made available by operators and the authorities.

FIG. 13 - EU legislation requires that the public be involved in matters relating to major accident risks (Source: European Commission)

As is the case in France (see previous chapter), ordinary-law procedures require that the public be consulted prior to major infrastructure projects (EEC-UN, 1998). In accordance with Article 15 of the Seveso Directive, specific procedures are in place for the planning/development of high-risk industrial establishments.

We did not find any permanent consultation bodies equivalent to the French CSS, whose existence is a regulatory requirement. We did identify the existence of organised groups of local residents (neighbourhood councils, *Participatieraad*…), however during our study we were unable to learn more about the concrete, operational, statutory or voluntary details of citizen participation on the issue of cohabitation with hazardous industrial establishments[28]. Thus, while we did note that the Dutch public seems to be well mobilised where flood risk is concerned (citizen volunteers, non-governmental organisations) and public-private partnerships are being developed to manage disasters (Kuipers & Boin, 2014), we were unable to learn more on the subject of the involvement of civil society on matters relating to industrial risks in "uneventful" times, or in other words outside of when an incident or accident has occurred.

2.2.7. Is the grass greener in the Netherlands?

In France, the Lubrizol and Normandie Logistique fire in Rouen revealed a number of deficiencies in industrial risk management and, in particular, in public information and participation. In the Netherlands, the Chemie-Pack disaster which occurred in Moerdijk in 2011 bears some similarities to the Rouen disaster (the Dutch Safety Board, 2012). Following the fire that broke out at a hydrocarbon storage facility, a toxic cloud spread over the country. It took thirty hours to contain the fire. The accident did not result in any fatalities or serious injuries, but it did cause significant material damage along with air and water pollution (Kuipers & Boin, 2014).

28. It is worth underlining that a great deal of information is available in English on institutional risk management websites. However, the language barrier prevented us from going further in our literature search on the organisation of the consultation process and, unfortunately, we did not manage to interview a Dutch expert to refine our understanding. This is a blind spot which the strategic analysis could tackle.

FIG. 14 - Aerial view of the Chemie-Pack site in Moerdijk one year after the fire
(Source: Het Parool: Raad Moerdijk mort over brandweerkazerne | Het Parool)

Can this accident be compared to the Lubrizol and Normandie Logistique accident in 2019? Our study does not go into sufficient depth to allow us to reach a conclusion on this. However, we did note certain crisis management limitations that were revealed by this accident in the Netherlands and which echo the case of the Rouen fire:

- uncertainty as to the nature of substances that were burning;
- coordination issues between regions;
- communication problems (official/social media);
- etc.

The investigation revealed compliance, inspection and verification problems for many companies. New measures will be taken to overcome the deficiencies.

Part Two

The Rouen fire of 2019: the consequences and some avenues to explore

Contents of Part Two

1

Rouen fire: after the shock, major social and political changes

1.1. Introduction

On 26 September 2019 in Rouen, a fire broke out at the Lubrizol chemical plant, an upper-tier Seveso site[29]. The fire, which also affected the neighbouring Normandie Logistique premises, caused a thick cloud of smoke to spread for miles around. To date, it is not yet known exactly where and how the fire started. Fortunately, the fire did not cause any fatalities and no immediate injuries were reported. However, the stakeholders in the Rouen region and beyond were left deeply shocked by this dramatic event. The crisis management that followed was the target of strong criticism and a number of crisis communication failures were identified (Blay & Gidelle, 2020). There is still considerable concern among the population regarding the possible medium- and long-term environmental and health risks associated with the cloud of smoke that spread across the region (Mallaval & Bretton, 2019). The economic consequences of this fire, which occurred just a few short months prior to the COVID-19 crisis and the associated lockdown measures, are significant.

FIG.1 - The front page of the French daily newspaper Paris Normandie on 27 September 2019

The combination of all these elements and the track record of the Lubrizol site in the region (see box below) make the social and political consequences of the fire considerable. Eighteen years after the AZF disaster, which traumatised the city of Toulouse and led to unprecedented changes to the way major industrial accident risks are managed in France, the Lubrizol and Normandie Logistique fire was a watershed in risk management policy.

29. The Lubrizol industrial site in Rouen produces and stores phosphorus and organosulphur chemicals used as lubricant additives.

This chapter begins with a brief, factual and non-exhaustive summary of the actions either taken or planned over time in the wake of the fire, at different levels and in different domains. It continues with a more detailed presentation of the public information and participation recommendations resulting from the various studies and analyses.

Background

Lubrizol in Rouen: some details about the plant prior to the fire on 26 September 2019

In January 2013, a mercaptan leak occurred at the plant. While these highly malodorous sulphur gases did not harm anyone's health, their odour spread as far as the Paris region and southern England, causing great discomfort to the population. The incident, which took almost a week to resolve, triggered a nationwide media storm in France (CGEDD, 2013).

Due to other incidents having occurred there, the company had undergone several inspections since 2017. However, a formal notice issued by order of the Prefecture on 8 November 2019 mentions persistent failures to comply with stated requirements (Senate Inquiry Committee, 2020).

In early 2019, several months prior to the September 26th fire, the Seine Maritime Prefecture had authorised Lubrizol to increase the quantities of certain hazardous substances stored, without carrying out a reassessment of the safety case (Radisson, 2019).

FIG.2 - Photograph of the Lubrizol fire taken by Daniel Briot (Creative Commons CC0 – Public domain).

1.2. The response from national institutions

In addition to the legal proceedings initiated as soon as the accident occurred, and the administrative investigation requested by the Prefect and completed by a general inspection (CGEDD-CGE), the Lubrizol fire prompted a rapid and large-scale response from the French government (see Figure 3). Three ministries in particular are involved:

- Ecological Transition;
- Health;
- Interior.

On the initiative of both the Senate (with the unanimous support of all political groups) and the Conference of Presidents of the National Assembly, a Senate parliamentary committee of inquiry and a National Assembly fact-finding mission were set up (Senate Inquiry Committee, 2020, p. 23; Assemblée Nationale, 2020, p. 15).

In summary, this reactive response to the accident will have most notably led to the production of:

- 3 lessons learned reports requested by the government;
- 3 action plans;
- 2 decrees, 9 orders, 5 circulars;
- 6 laws, 2 budget laws (Martin, 2022).

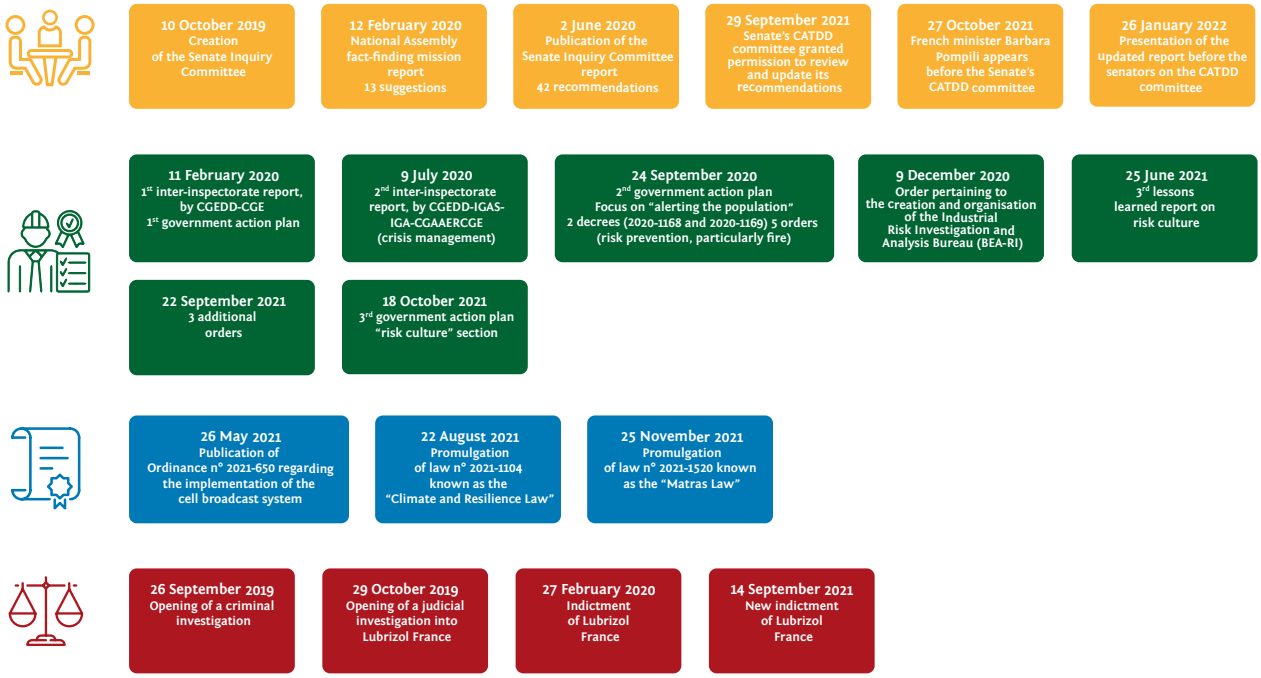

FIG. 3 - Lubrizol fire: the response from national institutions. Adapted from: (Martin, 2022)

1.3. Associations, researchers and other actors

From the moment the fire broke out, numerous teams of scientists were involved, including some from INERIS. They assisted during the emergency phase, first of all, to help understand and analyse the event in real time. They later assisted with a variety of matters and, in particular, supported the Ministry of Ecological Transition in changing French regulations governing the storage of inflammable or combustible substances (INERIS, 2022). Over the medium term, this fire greatly mobilised French academia, particularly on the themes of crisis management and alert processes, drawing on their knowledge and expertise in various technical disciplines, but also in the human and social sciences (sociology, communication science, management science, political science, etc.). This led to an upsurge in scientific publications[30] and to the launch of major research projects/programmes[31]. One example is the RA-SIOMRI-2021 call for project proposals launched by the ANR (French National Research Agency), encouraging a multidisciplinary approach.

Associations contributed greatly to analysing the accident and its consequences, and were proactive in offering suggestions and solutions. Reports were published, including one by France Nature Environnement (FNE, 2020) and a press kit put together by the French National Association of Municipalities for the Management of Major Technological Risks (AMARIS, 2019). IRMa (the Grenoble Major Risks Institute) devoted two technical conferences in its "Les matinales de l'IRMa" conference series to the Lubrizol accident and the lessons learned from it. They were held in Grenoble and Saint-Fons and are available for viewing online (in French).

30. For example, a search for the keyword "Lubrizol" on Isidore: 225 results; a search for the term "Lubrizol & incendie" on Cairn.info over the past three years: 54 results; a search for "Lubrizol fire" on Google Scholar since 2020: 229 results. Searches performed on 17/10/2022.
31. Nevertheless, it is important to remember that the COVID-19 pandemic that swept across the world in early 2020 completely changed the research priorities worldwide, shifting the main focus of risk management research and publications to understanding and managing the health crisis.

They included presentations by the DREAL Auvergne-Rhône-Alpes (Regional Directorates for the Environment, Planning and Housing), along with input and insights from local industrial players. With a view to proposing possible operational solutions in consultation with the various stakeholders, ICSI, the Institute for an Industrial Safety Culture, launched the "Alert processes and crisis management" discussion group, with which our group worked closely.

FIG. 4 - The response from national associations. Sources: ICSI website (www.icsi-eu.org), AMARIS website (www.amaris-villes.org), FNE website (https://ged.fne.asso.fr/), and IRMa website (http://www.irma-grenoble.com/)

1.4. The local response

Strong decisions specifically targeting the Rouen conurbation were taken at the central level; the local stakeholders in this area rocked by the disaster are tackling the issues revealed by the fire and working to find solutions. Numerous groups, projects and actions deserve a mention; however, we mention just some of the most significant here.

1.4.1. Committee for Transparency and Dialogue (CTD)

The government set up this committee in Rouen on 11 October 2019, with the aim of bringing together all the stakeholders concerned by this accident (local residents, elected officials, industrial companies, environment protection associations, representatives of the agricultural sector, trade unions and professional associations, economic agents, government departments, health services, etc.) in order to: "*(...) monitor, over the long term, all the issues associated with the consequences of this industrial disaster, and share all available information.*" (Senate Inquiry Committee, 2020).

We will discuss this committee further in the next chapter, to provide more details about how it works and what it contributes.

1.4.2. Creation of associations

Rouen Respire (Rouen breathes) is an association of citizens formed in October 2019 "*to ensure transparency regarding the Lubrizol accident and to defend its victims*". Founded by Olivier Blond, Aurélie Liebmann and Clément Auvray, this association affiliated with Respire (a national association for the improvement of air quality) has three objectives:

- to obtain as much information as possible about the fire that occurred at the Lubrizol plant and the Normandie Logistique facility, and about the environmental and health risks resulting from it;

- to help defend the rights of citizens affected and obtain compensatory damages;
- to combat all forms of pollution in Rouen and the surrounding region, and to prevent a similar disaster from ever happening again.

The *Union des victimes de Lubrizol* (Union of Lubrizol Victims) was founded a few weeks after the fire, by victims who had filed civil claims. The aim of its members is to initiate criminal proceedings and obtain compensation.

The *Association des sinistrés de Lubrizol* (Association of Lubrizol Disaster Victims), also known as *Collectif Lubrizol*, runs a Facebook group created on 26 September 2019. Its members discuss any and all topics connected to the Lubrizol fire: its causes, its consequences, its media coverage, its impacts on health and the environment, the compensation of victims, protection of the public, court proceedings, etc.

1.4.3. The commitment of the City of Rouen

Since 2020, each year around the anniversary of the fire, the Rouen Normandy Metropolitan Area (MRN) has organised a "Resilience Forum" as part of the "*Rouen, capitale du monde d'après*" event focusing on the resilience of the region.

A partnership has been established between MRN and ICSI, one of the aims of which is to set up a durable structure for local dialogue on industrial risks (based on a research project mentioned below).

1.4.4. Research

- The *COnsequences POtentielles pour l'Homme et l'Environnement, perception et RésiLience* (Potential Consequences for Humans and the Environment, Perception and Resilience) project (COP HERL: http://turn.univ-rouen.fr/cop-herl/);
- The DySoLab laboratory's 2020 seminar[32]: *"Risque, technique, démocratie. La sociologie face aux risques industriels et environnementaux"* (Risk, technique and democracy. Sociology in the face of industrial and environmental risks). DySoLab had also planned to hold a one-day conference on 27 September 2021, entitled "*Deux ans (d'enquêtes) après Lubrizol*" (Two years (of studies) after Lubrizol). This event was cancelled at the last minute for somewhat obscure reasons (Derouet, 2021). It was eventually rescheduled and held on 26 September 2022, exactly three years after the disaster[33];
- Set-up of the Lubrizol-funded UsinoVerT Chair on the UniLaSalle campus in Rouen;
- A sociological diagnosis of the population, the results of which will help to give shape to a permanent forum for discussing the risks and nuisances associated with industrial activities in the area (Goujon, 2022; ICSI, 2022).

1.4.5. Regional development

Recommendations have been made to boost Rouen's attractiveness and restore its image. They have three main focal points:

- an "attractiveness plan" for Seine-Maritime;
- a communication campaign co-financed by Lubrizol;
- the development of a "21st century industrial project"… (see Figure 5).

32. The University of Rouen Normandy's social dynamics laboratory.

33. View the day's programme here: Multidisciplinary Study Day: Three Years (of Studies) After Lubrizol – Monday 26 September – Contemporary Social Dynamics (hypotheses.org)

FIG. 5 - Programme to boost the attractiveness of the Rouen region (Adam, 2020)

1.5. Thorough analyses, numerous recommendations

The investigation committees, government departments and associations spared no effort to deliver detailed analyses of the accident and the crisis management and, more broadly, to gain an accurate understanding of how industrial risks are managed in France and make recommendations for improvements.

The **French National Assembly's fact-finding mission** convened 35 times and interviewed 150 people ranging from public authorities, state government departments and emergency services to scientists and experts, representatives of associations, elected officials and citizens. The aim of this work was to propose solutions in four areas in order to "combat the risk of accidents more effectively, from upstream to downstream:

1 **preparedness** for industrial risks by embedding a genuine, sustainable risk culture in France;

2. **prevention**, by better combating industrial risks;
3. **information provision** to at-risk populations;
4. **reparation**, particularly for the specific and serious damage suffered by the city of Rouen." (Assemblée Nationale, 2020, pp. 15-16)

In February 2020, the mission published a hefty report (729 pages) presenting 13 proposals.

The **French Senate Inquiry Committee** interviewed 80 people and conducted an online consultation of local officials. The goal was to perform a critical analysis of the role government departments played in the management of the fire, but also, further upstream, in the prevention of technological risks. Its 300-page report published in June 2020 presents a large number of suggestions (more than 40), divided into **six areas of focus**:

1. Create a true industrial risk culture;
2. Improve industrial risk prevention policy;
3. Improve crisis management;
4. Ensure better coordination between national and local government;
5. Provide compensation for any loss, damage or injury suffered;
6. Apply the precautionary principle in the health monitoring of populations affected by an industrial accident" (Senate Inquiry Committee, 2020, p. 11).

Also in February 2020, the **CGEDD-CGE released its general inspection report** (CGEDD-CGE, 2020). This mission was ordered by the then Environment Minister, Elisabeth Borne, to support the administrative

investigation conducted by the DREAL following the accident, and with the aim of formulating recommendations regarding:

- ▷ fire regulations;
- ▷ the handling of industrial site modification requests;
- ▷ the nature and availability of the information industrial facility operators place at the disposal of the authorities;
- ▷ the monitoring of facilities benefiting from 'acquired rights';
- ▷ finding the balance between inspection and application review duties for inspectors of classified facilities;
- ▷ *(...)* the modernisation of preventive information tools and ways to strengthen the risk culture in areas home to high-risk industrial facilities (see E. Borne's mission letter dated 9 October 2019, (CGEDD-CGE, 2020, p. 62).

While this report is 74 pages long and thus shorter than those produced by the Senate Inquiry Committee and the National Assembly's fact-finding mission, it contains 17 recommendations.

The ministers for the Environment, Health, Agriculture, the Interior, and Labour then jointly asked the **CGEDD-CGE-IGA-IGAS-CGAAER** to conduct a more precise analysis of the way the Rouen fire crisis was managed. Their 135-page report published in May 2020 contains 18 recommendations (CGEDD-CGE-IGAS-IGA-CGAAER, 2020).

The next section of this 'Cahier' presents a summary of the main recommendations made in these reports with regard to public information and participation, in addition to those made by the French National Association of Municipalities for the Management of Major Technological Risks (AMARIS, 2019); the Parliamentary Office For Scientific and Technological Assessment (OPECST, 2020); the National Environment Federation (FNE, 2020); the Regional Economic, Social and Environmental Council of Normandy (CESER, 2020); and, later on, those made in the so-called "Fred Courant" report focusing on "risk culture", a report commissioned by Barbara Pompili, the Environment Minister who succeeded Elisabeth Borne (Courant, et al., 2021).

1.6. Focus on public information and participation

This section presents some of the recommendations that were made by these different entities, in particular the recommendations which seem to us to be most aimed at improving public information and participation. The recommendations made by the National Assembly are presented in Figure 6.

FIG. 6 - The French National Assembly's recommendations following the Rouen fire (Adam, 2020)

The main recommendations of the other entities are summarised in the tables below, organised into specific themes (see Tables 1 to 4). The elements outlined in the government's action plan (February 2020) are not presented, since in our view this plan does not contain any recommendations on public information and participation (this part was addressed in the Fred Courant report, which followed the plan and filled the gaps).

Issuer	Recommendations for the consultation bodies (CSS, CODERST, SPPPI)	Source
Senate	Diversify their composition and responsibilities Create a national association to coordinate them Industrial operator participation in CSS in a consultative capacity when the CSS is required to issue an opinion; reinforce the CSS as a tool for citizen control.	(Senate Inquiry Committee, 2020).
CGEDD-CGE	Give the CSS and CODERST a greater role by broadening the debate there Modify the CODERST composition to ensure more balanced representation Remove the CSS from the institutional sphere; make the operator accountable for risk management and the state accountable for inspections Make public information and consultation a more open, continuous process Order of the day based on the concerns of the public Involve citizens in the co-construction of site safety Develop the possibility of turning to third parties for expertise, "inspection" visits Communicate more about the work of the CSS (own website, press conferences, contact with journalists under certain conditions, etc.).	(CGEDD-CGE, 2020)
FNE	CSS and CODERST: ▷ rebalance governance ▷ restore initial status as consultation or co-decision bodies ▷ improve the funding of associations; volunteer status like that of trade union representatives ▷ provide training to association members of consultation bodies ▷ include a panel of scientists and technicians recommended by both the industrial company that initiated the project and association representatives. SPPPI: ▷ create "regional SPPPIs" around the perimeter of the existing SPPPIs, to work on different industrial risk-related themes ▷ put together a best practice guide ▷ provide them with long-term funding	(FNE, 2020)

TAB. 1 - Main recommendations for consultation bodies

Issuer	Recommendations for local authorities and the state	Source
Senate	Increase synergy between PPI and PCS Involve elected officials in PPI drills and exercises for emergency preparedness Extend advance information and crisis communication to municipalities neighbouring those home to Seveso sites	(Senate Inquiry Committee, 2020).
CESER	Train elected officials in crisis communication and the right ways to react Strengthen links between the communications departments of local government and the media, emergency services and industrial companies Extend the use of GALA (automated local alert management system) to all municipalities covered by the PPI Create, update and disseminate the DICRIM Department dedicated to the prevention of major technological and natural risks within conurbations Regain the public's trust through clear messaging, decompartmentalising the departments of the different ministries, improving the dissemination of information to healthcare professionals, and increasing the presence of prefectural departments on social media	(CESER, 2020)
Fred Courant Mission	Raise awareness and provide in-depth training tailored to each region Appoint a single “risk liaison” between the mayor and the state Create an annual nationwide environmental competition for municipalities Consider setting up a dedicated interministerial “multi-risk” entity	(Courant, et al., 2021)
AMARIS	Question coherence between actions of industrial companies and those of the public authorities Question the role of elected officials and the management of information provision to citizens Evaluate public risk prevention policies Organise regular drills and exercises involving local government	(AMARIS, 2019)

TAB. 2 - Main recommendations for local government and the state

Issuer	Recommendations for developing a "risk culture"	Source
Senate	Include training on industrial risks in France's Education Code Conduct unannounced full-scale drills involving the public Share local best practices Hold open days at industrial plants	(Senate Inquiry Committee, 2020).
CGEDD-CGE	Increase specific ICPE communication and open it up to the public	(CGEDD-CGE, 2020)
OPECST	Actively involve citizens via educational prevention initiatives (e.g.: "*Nez experts*")	(OPECST, 2020)
CESER	Rewrite product data sheets in plain language (coordination by France Chimie) Simulation, training: ▷ more drills and exercises ▷ serious game (ESCAPE-SG) Train the safety officers of public-access buildings in how to react	(CESER, 2020)
Fred Courant Mission	Create an annual national event Develop a national teaching kit Modernise the Géorisques platform Create mobile awareness-raising units (risk experience) Make research results available in plain language Set up a public alert system that is standard across all regions, known to and recognised by all Utilise traditional and social media more effectively	(Courant, et al., 2021)
AMARIS	Engage in collective, multi-partner brainstorming based on lessons learned Diversify information formats and channels to develop greater public awareness and to increase reach Ensure better coordination and cooperation in prevention and crisis management, multiply drills, exercises and role-plays Take a holistic approach to managing risks and nuisances	(AMARIS, 2019)
FNE	Establish a national plan for risk information, awareness and training (particularly for exposed local residents and any decision-makers and officials concerned). Mobilise resource centres (ICSI, IRMa, etc.)	(FNE, 2020)

TAB. 3 - Main recommendations for developing a "risk culture"

Issuer	Proposed changes to environmental law	Source
CGEDD-CGE	Review the instruction of 06/11/2017 on the provision of sensitive information and the risk of facilitating the commission of malicious acts	(CGEDD-CGE, 2020)
FNE	Review the instruction of 16 November 2017 Suspend the Kasbarian measures reducing the time frames for processing applications, to the detriment of the information, consultation and discussion phases involving stakeholders (local residents, associations, elected officials, etc.)	(FNE, 2020)

TAB. 4 - Main proposed changes to environmental law

1.7. Epilogue

In February 2020, a **government action plan** was announced by the then Environment Minister Elisabeth Borne. It was completed by her successor, Barbara Pompili, in September 2020. It focused on 5 areas:

- anticipating and facilitating crisis management;
- strengthening risk culture and increasing transparency;
- improving accident prevention measures;
- increasing monitoring of the health and environmental consequences of an accident;
- allocating more resources to inspection and investigation.

The regulatory portion of the government action plan was published in France's Official Journal on 26 September 2020. It includes significant increases in:

- the obligations of Seveso sites;
- the requirements for preventing fire risks and limiting their consequences, at sites storing flammable and combustible liquids as well as in warehouses (includes the gradual banning of certain types of mobile fusible containers).

It also includes rules applicable to new facilities as of 1 January 2021, but also mainly to existing facilities (with staggered compliance deadlines extending to 2026).

In accordance with the recommendations made by the French National Assembly, the Senate and CGEDD-CGE following the fire, an **industrial risk investigation and analysis bureau, the BEA-RI,** was created on 9 December 2020. It comprises one prefigurator and four technical investigators. Since October 2020, 21 technical investigations have been carried out and ten are underway[34].

The work of the Senate Inquiry Committee was **followed up**, on 29 September 2021, with hearings of victims' associations and of organisations specialising in risk management plus, on 27 October of the same year, a hearing of Minister Barbara Pompili. A **report evaluating the implementation of this committee's recommendations** was also published in 2022 (Martin, 2022).

34. As at 1 February 2023. As early as 2017, one of ICSI's discussion groups had recommended setting up a BEA-RI (ICSI, 2017).

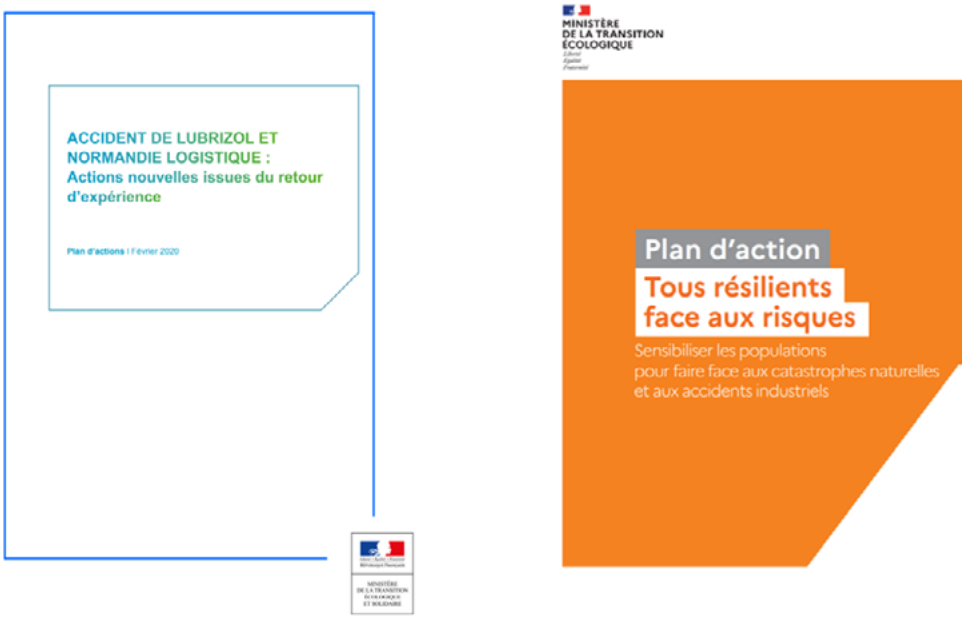

FIG. 7 - Government action plans published in February 2020 and September 2021 (Risk culture focus). Source: Ministry of Ecological Transition.

For "risk culture" aspects more specifically (and more broadly too, since this incorporates natural hazards), the government roadmap is deployed in the "**Tous résilients face aux risques**" action plan resulting from the findings of the Fred Courant Mission. One of the key actions recommended was the creation or appointment of a national, cross-disciplinary, multi-risk entity responsible for developing a risk culture throughout the country. This responsibility was eventually entrusted to the French Association for the Prevention of Natural Disasters (AFPCN), which then extended its expertise to technological risks and became the **AFPCNT**. The government also introduced an annual "**National Resilience Day**", held on 13 October each year under the auspices of the AFPCNT.

We can only welcome the strong political will to truly make big changes in the wake of the Lubrizol accident. The next chapter presents a critical assessment of the approach taken in the aftermath of the accident and of the actions undertaken and planned in terms of citizen participation in industrial risk. It then suggests avenues to explore in order to make further progress in dealing with this complex issue.

2

Information and participation after the Rouen fire: a look at the government's plan and some avenues to explore

2.1. Introduction: a strong political signal

> *The industrial risk prevention policy deployed in France over the past 40 years has revealed some major and unacceptable blind spots.*
>
> (Senate Inquiry Committee, 2020, p. 9)

The reports published in the wake of the Lubrizol fire are critical of the state's role in industrial risk management and place great emphasis on "risk culture" and the need to inform the public (Assemblée Nationale, 2020; Senate Inquiry Committee, 2020).

All the work and investigations undertaken, the decisions made, the action plan and the resources deployed are a strong signal from the French government. They reflect both the need to further improve industrial safety in France and an undeniable determination to place public information and participation at the heart of democratic imperatives.

Two years after the fire, the report evaluating the implementation of the recommendations made by the Senate Inquiry Committee concluded that:

- nearly 80% of the recommendations had led to the implementation of government measures;
- significant changes in the regulatory obligations of operators in the chemical, petrochemical and hazardous substance storage industries will gradually come into effect between now and 1 January 2027 (Martin, 2022).

In this chapter, our working group draws on the in-depth, pragmatic assessment made in this and previous reports, as well as on earlier work by FonCSI and others. In the first three sections of this chapter, it offers a critical analysis of the recommendations made and, more broadly, of the angle adopted to advance citizen information and participation. The final section presents some avenues and questions to explore. Note that our report does not include alert procedures and crisis management, two areas in which strong measures have already been taken (ICSI, 2021).

2.2. A significant turning point: recommendations and actions undertaken or planned for the future

2.2.1. Local government: a more active role and better coordination with central government

The results of our previous work are consistent with the findings of the Senate committee regarding the crucial role of local government, but also the difficulty in transposing legislation and regulations on informing the public and involving citizens in risk management on the ground. Local elected officials do not feel sufficiently involved in industrial risk prevention policies. They lack information, which is generally disseminated from the top down. They sometimes struggle with drawing up their municipal crisis response plan (PCS) and their municipal information document on major risks (DICRIM). As a result of the administrative approach to local risk management, some municipalities are excluded even though they could be affected by the effects of an accident. On the whole, some elected officials feel relegated and passive vis-à-vis government departments and would like to take back responsibility for risk management in their communities, as they sometimes feel it has

been taken away from them. However, mayors are trusted by their constituents and have a detailed knowledge of their territory. As shown in Figure 8 below and according to the elected officials consulted, the main sources of public information on the risks associated with Seveso facilities are municipal departments (29.7%) and word-of-mouth (26.5%), far ahead of central government departments (17.6%) and industrial companies (0.4%!).

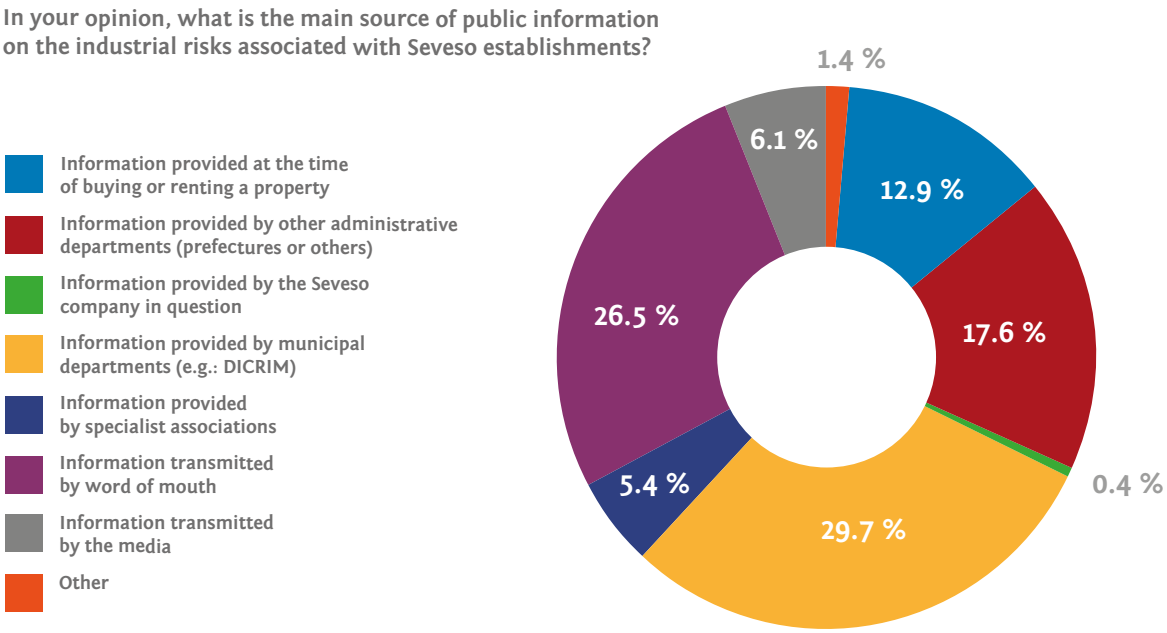

FIG. 8 - Consultation of elected officials on their constituents' main sources of risk information, adapted from the Senate Inquiry Committee report (Senate Inquiry Committee,2020, p. 190)

Coordination between the state and local government thus needs improving. For this, the mayor and local authorities are an essential link to target in order to improve the cohabitation of industry and residents as well as citizen participation on risks. The recommendations that seek to do this look promising. They include:

- encouraging the mutualisation of PCSs and DICRIMs at the inter-municipal level and the set-up of a risk management department in all major inter-municipalities (Senate Inquiry Committee, 2020);
- evaluating, by the end of 2023, the actions taken by central government departments to assist local authorities in preventing industrial risks and to support inter-municipality initiatives designed to set up a risk management department (Martin, 2022);
- always involving the mayor in the organisation of drills and exercises as part of the special intervention plans (PPI);
- extending CSS participation to municipalities that are not included in the PPRT but could potentially be affected by an accident;
- ensuring that the responsibilities of the AFPCNT[35] include supporting and assisting communities in implementing their risk prevention and public information strategies;
- raising awareness of natural and technological risks among elected officials and offering them a range of tailored courses to train them on the challenges facing their area (MTE, 2021).

> *"In a way, the "risk culture"defies regulatory logic (...) in this respect, mayors are undoubtedly the best placed to do the job."*
>
> Yves Blein on the "Conférence Riveraine" in Feyzin, during his hearing by the Senate Committee (Senate Inquiry Committee, 2020).

35. Association française pour la prévention des catastrophes naturelles et technologiques (French Association for the Prevention of Natural and Technological Disasters) - see next section.

2.2.2 The AFPCNT and “National Resilience Day”

The French government chose to place the AFPCN in charge of structuring the “risk culture" and promoting a "culture of resilience" at the national level. Although previously limited to the prevention of natural hazards, this entity’s field of expertise has now been extended to include technological risks, adding a T to the organisation’s acronym. To ensure the success of this major undertaking, it launched the SKarabée project (AFPCNT, 2022). The AFPCNT’s new responsibilities also include coordinating the annual "National Day of Resilience to Natural and Technological Risks” introduced by the government. The aim of this day is to make the general public aware of the consequences of natural and industrial disasters, and of the means used by the authorities to mitigate them (MTE, 2021; AFPCNT, 2022). The date chosen for this day is 13 October, to correspond with the long-established International Day for Disaster Risk Reduction initiated by the UN (Thiébaud, 2022).

Rather than create a new entity, the government opted to extend the prerogatives of an agency recognised for its expertise in natural hazards, by entrusting it with the task of promoting risk awareness and cultivating a "risk culture". The choice of a cross-functional, multi-risk approach is an interesting one. This approach should make it possible to draw on the experience gathered in the field of natural hazards which, in terms of mobilising the public, is more “advanced” than the field of industrial risks. While the annual Resilience Day must not let us lose sight of the importance of ongoing dialogue and action, the unifying power of a regular event for the general public can be considerable. Its success could be a key element in the development of a common culture. Another action that promotes the emergence of a shared vocabulary and common points of reference is the introduction of a single, consistent visual style guide to standardise prevention messages (MTE, 2021).

2.2.3 Modernisation of the Géorisques website

The IAL (buyer-tenant information) system has been modernised, with the ERRIAL module (where buyers and potential tenants can check the regulated risk status of a property) now available online through the “Géorisques” website (see Figure 9). The list of natural and technological risks to which a property is exposed must now be communicated at the time of the first visit, and not just when the deed of sale or lease is signed, as used to be the case. Furthermore, this list should become available as soon as the property ad is posted, since the latter will automatically redirect the viewer to the ERRIAL module (MTE, 2021).

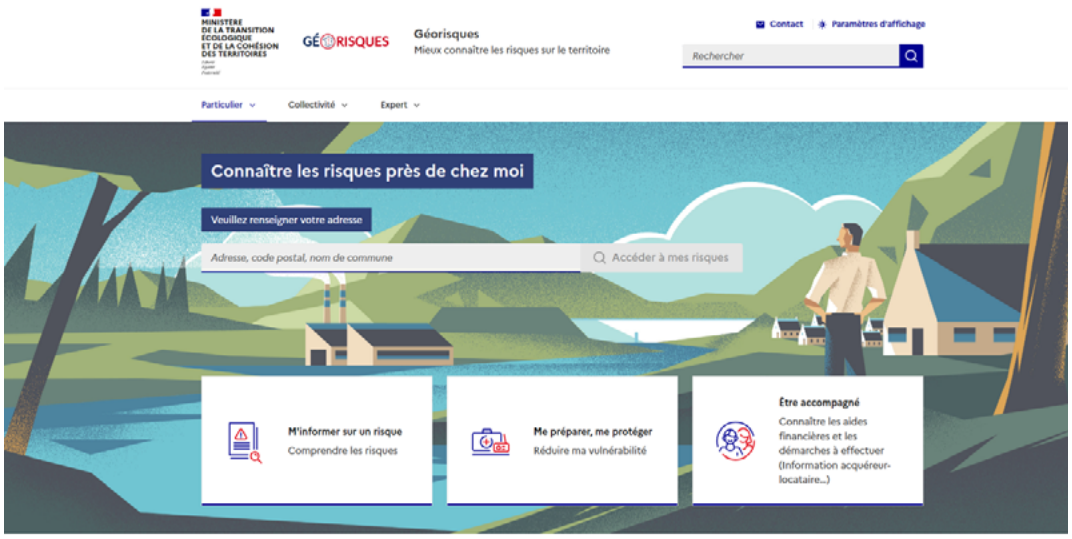

FIG. 9 - Home page of the redesigned Géorisques website (viewed on 27/01/2023)

There is evidence that the public is more inclined to take an interest in the issue of industrial risks when it affects their daily lives (Kamaté, 2016, p. 15). In this respect, anything affecting real estate assets is particularly mobilising, as we saw with the introduction of PPRTs, which was the source of some conflict (Martinais, 2015). Placing a property in the context of the risks to which it is exposed at an early stage in the process, and making more visible what was often mentioned later on and sometimes expeditiously, should be a significant step forward (as long real estate professionals have the information they are supposed to and follow the rules).

2.3. Mixed results

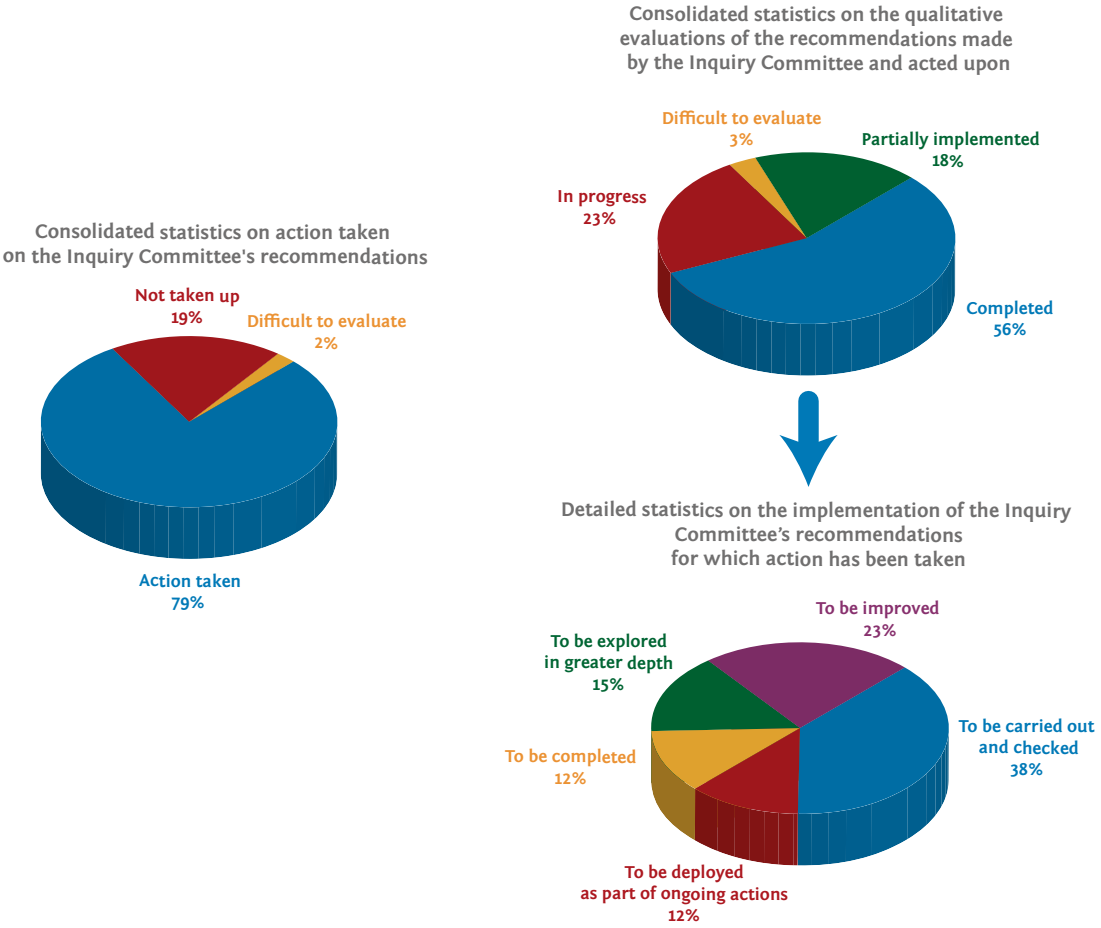

FIG. 10 - Statistics on the uptake and implementation of recommendations made by the Senate Inquiry Committee. Source (adapted from Martin, 2022)

As mentioned in the introduction, the Martin report generally takes a positive view of government action in this area since, two years after they were issued, almost 80% of the recommendations made by the Senate Inquiry Committee had been taken up (Martin, 2022)[36]. However, it is more circumspect about certain points on which the proposals have had little or no effect, and about the quality and implementation of the recommendations selected (see Figure 10). In particular, it considers that further action needs to be taken to "*guarantee industrial safety and the full and effective implementation of the principles of environmental democracy*", and presents eight new recommendations "*which imply amendments to the organic law on the application of Articles 34-1, 39 and 44 of the Constitution and to several provisions of the Environmental Code, the Internal Security Code and the Insurance Code, as well as regulatory changes that are complementary to those already made by the government since 2019*" (Martin, 2022, p. 14 and 113). The main elements of the recommendations regarding public information and participation are outlined below.

Ensuring public information and participation that reflect the importance of industrial safety

Designate, in the first half of 2022, the national association in charge of risk awareness policy and the development of the industrial safety culture (action completed: the AFPCNT was designated).

Make radial changes to the framework applicable to CSSs:

- the prefect is required to set up a CSS if a request is made by local residents, local authorities or industrial operators;
- the committee's composition must allow for a greater representation of elected officials, local residents, residents from other potentially exposed areas, and environmental protection associations.

Improve public information:

- draw inspiration from French nuclear safety legislation to organise the information aimed at the populations living or established within an area covered by a PPI;

36. This refers to all recommendations, not just those concerning public information and participation.

▷ clarify the distinction between information that may be communicated and is useful for reinforcing the safety culture, and what is deemed an industrial secret or sensitive information that could jeopardise national security.

Increase the usefulness of other consultation bodies (CODERST, SPPPI):

▷ "obligation to create" at the request of elected representatives or the public;

▷ set up a CTD-type unit in the event of an accident on a scale comparable to Lubrizol.

(Martin, 2022, pp. 19-21)

In addition to these findings and the new recommendations stemming from them, let us look at different aspects of the "response" and, more generally, at the approach taken in the wake of the Lubrizol and Normandie Logistique fire with regard to having civil society participate on the issue of industrial risks.

2.4. Repeated findings, relatively few new solutions put forward, and some questions to gain a deeper understanding

Some of the limitations identified in the wake of the Rouen fire in September 2019 are in fact long-standing. From improving consultation bodies to better informing the population and instilling a "risk culture", for example, a number of the recommendations made are similar to others advocated in the past. While the same finding does not necessarily lead to the same solutions, it is clear that many of these are based on the same approach. Since the AZF disaster in Toulouse and the many developments that followed, what has not worked and why? Are these weaknesses not deeply structural in origin? What levers can be activated?

2.4.1 Institutional consultation once again seen as a problem... and a solution

Some bodies still fail to achieve all their initial objectives

The Rouen accident once again highlighted the limitations of institutional consultation bodies (CSS, CODERST, SPPPI[37]). First of all, there are regional inequalities in the way these bodies function. And clearly, in Rouen, institutional consultation was not at its most dynamic. The consultation process was hardly flourishing prior to the fire, since the Rouen CSS had been dormant from 2014 to 2016 [38]and the Basse-Seine SPPPI had been virtually at a standstill since 2014. In the aftermath of the fire, the number of consultation meetings increased. According to the prefecture, fifteen CODERST and three CSS meetings were devoted to the accident, and the SPPPI was reactivated (Martin, 2022). It is worth noting that these bodies, originally set up to enable an ongoing consultation process around high-risk sites (including outside of times of crisis), have turned out to be particularly useful and even indispensable arenas for dialogue in response to the accident, for managing the crisis and allowing conflicting points of view to be expressed. This is somewhat reminiscent of the post-AZF crisis situation: the only pre-existing body, namely the Toulouse SPPPI, met on numerous occasions (more than thirty), thus increasing the visibility of certain stakeholder groups and ensuring that their demands were taken into account (Suraud, 2007). Initially called CLICs and set up under the Bachelot Law following the AZF accident, CSSs have since been widely criticised for not sufficiently including citizens and for being a space for information rather than consultation. There are a number of reasons why these bodies fail to achieve their objectives in terms of inclusion and citizen participation. These include:

▷ an over-representation of government departments;

▷ under/misrepresentation of citizens:

- competition between the interests of the associations and those of local residents;
- lack of public interest in industrial risks;

▷ poor communication:

- late transmission of meeting agendas and documents;
- problems with accessing meeting minutes;
- limited information available online (even more so since 2015, to prevent the risk of terrorism).

37. The SPPPIs, which initially had a very loose framework and only came to be institutionalised later on, do not generally suffer from the same ills as CSSs: when they do function, they are more flexible and more inclusive.

38. CLIC meetings from 2005 to 2013, then CSS meetings from 2017 onwards. For 2014, 2015 and 2016, no meeting minutes were found on the DREAL Normandie website: https://www.normandie.developpement-durable.gouv.fr/les-clic-css-dans-la-seine- maritime-a1227.html#CSS-de-la-zone-industrielle-ouest-de-l-agglomeration-rouennaise-CSS-nbsp

- ▷ an asymmetry of technical and/or deliberative skills between stakeholders;
- ▷ mistrust between stakeholders;
- ▷ top-down meetings, with public kept at a distance:
  - divisive meeting configurations (experts up on stage, audience in front like spectators);
  - technical presentations;
  - presentation of decisions actually taken in other arenas (fait accompli);
  - industrial presentations focusing on the company's usefulness to society and its effective safety management;
  - etc.

These points have already been widely reported in the past, along with suggestions for improvement (Le Blanc, Gibout, & Zwarterook, 2013; FNE, 2009; Martinais, 2021; Le Blanc, Grembo, Gibout, & Zwarterook, 2013). Most of them are mentioned again in the reports following the Lubrizol and Normandie Logistique fire, as evidenced by the excerpts presented below.

Persistent limitations of consultation bodies

Excerpt

"(...) the main bodies in place for consulting with the public on industrial risk prevention (CSS, S3PI, CODERST) suffer from two main shortcomings:

- ▷ *an **insufficiently diversified and balanced composition** which does not allow for openness to civil society (...)*
- ▷ *a lack of **activity** at the local level and of **coordination** at the national level."*

(Senate Inquiry Committee, 2020).

"this information forum (the CSS) is (...) probably too formalistic, with discussions taking place in a rather bureaucratic atmosphere that gives rise above all to a dialogue between the prefect and the industrial operator."

(Assemblée Nationale, 2020)

" (...) the Site Monitoring Committees (CSS) have had little or no success with citizens or their representatives. The formalism and rigidity of these meetings, plus the fact that they are held in "intimidating" venues, leave little room for spontaneity or even conviviality in this approach, which nevertheless has merit."

(Courant, et al., 2021)

"Today, these committees (CODERST, CSS, S3PI) are more like rubber stamps than consultation bodies."

(FNE, 2020)

And once again, the recommendations — and they are interesting — are aimed at improving the representation and weight of local residents in these bodies, and at reinforcing or even restoring the latter's initial role as a space for dialogue and genuine consultation, by changing their regulatory framework. But how can we ensure that these reforms are translated into actual practice?

A strong regulatory response, but what guarantee is there that the changes will be applied in practice?

Many of the recommendations for improving public information and participation hinge mainly on regulatory changes. However, previous studies, including our own, have highlighted that even though availability of information and the right to participate are enshrined in law and are regulatory obligations, this does do not guarantee effective citizen information and participation. The CTD's limited success with citizens' associations is further evidence of this (see further on). There are many reasons besides the application/applicability of the law and compliance with regulations. For a citizen to exercise their right to information and participation, they first need to know about this right; they must want to use it and see a concrete benefit in it (accessibility of information, consideration of their point of view, "return on investment" in terms of collective interest, common good, etc.). Moreover, while it is in the interest of the stakeholders in charge (industry, government, local authorities) to ensure that regulations are applied and to be able to prove it, is it truly always in their

interest to ensure that the systems created actually work in practice and fully achieve the objectives initially set for them? We will discuss this in the final paragraph of this section.

The persistence of the technocratic model: the "impossible" inclusion of citizens

The factors impeding the CSSs in their mission of inclusion and participation were mentioned again earlier in this section. Here, we present some elements to help understand this state of affairs, why it persists, and how we can make progress in certain areas.

Formerly known as CLICs (local committees for information and consultation), CSSs (site monitoring committees) were set up after the AZF disaster as consultation bodies dedicated primarily to discussing the implementation of the technological risk prevention plan (PPRT). However, the PPRT approach was devised and designed by the government, with considerable debate taking place between representatives of the Ministry of Public Works and those of the Environment Ministry (inspectors of classified facilities) on the extent to which the system should be opened up to civil society. Some were in favour, while others were strongly opposed. In the end, local residents were rarely involved in this technical and technocratic process. Those who were, were mainly representatives of associations and local elected officials or trade union representatives rather than “ordinary” citizens. While there are still people within the government who are convinced of the value of including the public (CGEDD-CGE, 2020), this inclusion is still not effective in practice. This reflects a kind of cultural determinism, a reproduction of the way PPRTs came into being and the way citizen inclusion in the CSSs is organised; consultation in the CSSs reproduces the dynamics that led to its creation (Martinais, 2021; Martinais, 2022).

So, while the participatory model is very widely promoted in political discourse, some of the recommendations made in the wake of the Rouen accident are still more aligned with the public education model (Callon, 1999), with information being transmitted one way from the top down (expert to lay people), communication designed primarily from the viewpoint of the originator, and the authorities being responsible for educating the population. Some authors speak of a positivist approach to risk management based on the "deficit model”, according to which the population not only lacks scientific knowledge, but also demonstrates little rationality when confronted with risks (Joly, 2005; Wynne, 2009; Rocle, Bouet, Chasseriaud, & Lyser, 2016).

More broadly speaking, a strong technocratic culture in industrial risk management is often highlighted as not being conducive to citizen participation. The extent to which this technocracy persists depends on how three dimensions are configured (Crivellari & Chesta, 2022):

- close collaboration between industrial operators and public authorities, the traditional managers of industrial risk;
- the way the European directives are transposed nationally (leading to more or less pressure to publicise);
- the level of interest from the public: do people care? Do they want to participate, i.e. is their goal to give their opinion or is the aim of their mobilisation direct opposition?

Creation and dissolution of a new entity to promote dialogue (the birth, life and death of the CTD)

Two weeks after the fire, government ministers set up a Committee for Transparency and Dialogue in Rouen, with the acronym CTD (see previous chapter). This committee was created with the aim of bringing together all the parties concerned by this accident (local residents, elected officials, industrial companies, environment protection associations, representatives of the agricultural sector, trade unions and professional associations, economic agents, government departments, health services, etc.) in order to monitor the consequences of this industrial disaster over the long term and engage in dialogue in complete transparency (as its name suggests). It was very positively received by all involved. However, it should be acknowledged that the CTD did not really live up to the expectations of certain stakeholders, and particularly those of citizens. The "dialogue" aspect in particular seemed to be lacking. In fact, attendance by people other than representatives of government departments and members of parliament fell sharply, from over 65% at the first meeting to 38% in January 2020 (Martin, 2022). The Rouen Respire association even described the CTD as dysfunctional.

> *One final example of the lack of transparency and dialogue with the official authorities is the way the transparency committee functions. It started out as a good idea. But it turned out to be completely dysfunctional. Around a hundred people are gathered in a prestigious hall. But during the session, the citizens' associations are only allocated a tiny amount of speaking time. We don't have time to ask questions. On the rare occasions when someone does get to ask a question, the prefect doesn't even bother to answer it. In fact, this is neither true transparency nor true dialogue.".*
>
> President of Rouen Respire, December 2019
> (Assemblée Nationale, 2020)

The Rouen prefect decided to dissolve the CTD after 10 meetings.

There is no real consultation, but that suits everyone

As we have seen, and as the analyses carried out following the Lubrizol and Normandie Logistique fire confirmed once again, the regulatory framework in place does not allow for genuine consultation. However, one might be so bold as to say that there is a kind of implicit agreement between the stakeholders which this situation ultimately suits for a variety of reasons:

- the departments in charge of authorisations and permits, because it is important for them to comply with the rules in order to ensure the integrity of procedures and the legitimacy of their decisions. For these departments, this "illusion of consultation" is also a way of avoiding conflicts and disputes, which are most often seen as problems rather than opportunities;
- the industrial companies, because it is always complicated for them to enter into debates about what is going on inside their organisations (outside of their dealings with the classified facilities inspectorate);
- the elected officials, who are not always very favourable to institutional consultation because they sometimes perceive it as likely to divest them of their local leadership and their ability and legitimacy to speak on behalf of the people they represent (paternalism);
- and even certain associations that fear competition between their own interests and those of local residents.

So, in the end, most of the stakeholders accept this situation that sidelines local residents (Martinais, 2021). All these elements and the previous ones mentioned help to explain why this consultation is complicated, if not almost impossible, and why this dysfunction contributes to creating a **performative governance** model (Futrell, 2002):

- the illusion of the possibility of consultation is maintained but, in reality, the inclusion of citizens is negligible;
- the tools are considered solely from the angle of legitimising decisions. Rather than actually establishing dialogue, the aim is to give the impression that dialogue is not prevented;
- a mode of (non)-relation to the public persists, which is not seen as a problem because it presents advantages for all stakeholders, including local residents.

On this last point, note however that while it may sometimes seem at first that local residents are reluctant to get involved in existing processes, we can presume that they would be more willing to be included in processes which they had helped to devise and develop.

2.4.2. Social science experts called in, but belatedly

If we want to take into account all the factors that influence people's involvement in industrial risk issues, and if we want to talk about a "risk culture", as the public authorities largely do, we cannot ignore the anthropological, social, psychological and emotional dimensions of the complex attitude to risk and the presence of risky industrial activities. And in the various reports produced after the fire, risk perception, the difficulties in mobilising people on the subject of industrial risks, and the public's attitude toward risk managers were all raised. However, while a researcher in industrial sociology and a political geographer from Rouen were interviewed and presented some very interesting points to consider regarding the context, the cohabitation of industry and local communities, and crisis communication (Brennetot, 2019; Crague, 2020; Assemblée

Nationale, 2020, pp. 602-614), there is very little information about the perception of risks and their management, about the upstream communication and participation aspects, and little or no reference to studies that examine these aspects in detail. It would have been useful to hear from an expert in these fields as soon as the accident occurred, particularly one with knowledge of the Rouen area (anthropologist, risk sociologist, political scientist, etc.)[39].

Indeed, specialists in the human and social sciences (HSS) have naturally spent a lot of time studying the subject. A considerable body of work already existed on the perception of industrial risk and citizen participation in industrial risk-related issues, and researchers significantly increased their efforts and output following the Rouen fire (see previous chapter). In general, however, these contributions are not sufficiently taken into account when developing public policy on industrial risk management. Why do the public authorities not call on HSS experts systematically when a crisis occurs, but also (and perhaps especially) before it does? Why is there so much "*political resistance to applying scientific knowledge in the field of risk?*" (Daudé, 2020). Here are some possible answers:

- it takes time and resources: the HSS do not work on the same time line as lawmakers or politicians;
- evaluation in the social sciences is difficult: identifying relevant indicators is not easy; evaluation is less quantitative, more qualitative, and perceived as more subjective;
- while technical and regulatory solutions are more visible and meet substantiation requirements: law enacted, documents produced, technical tools rolled out, money invested, training provided, etc.;
- researchers studying the relationships between technologies, industries (and the associated risks) and society are often suspected of being biased (i.e. they are thought to be necessarily for or against a particular industry or technology), and their independence is constantly called into question.

It should be highlighted, however, that even though it did so belatedly, the government did eventually turn to HSS experts, notably through the so-called "Fred Courant Mission" (Courant, et al., 2021).

2.4.3. "Risk culture" and "resilience" widely mentioned: what do they mean? What are the aims?

The concepts/terms "risk culture" (or more rarely "civil safety culture", see note 1 in the foreword) and "resilience" are widely used by the public authorities among others. But what do these concepts mean to institutions? What should one be mindful of when using them in speeches and actions?

The "risk culture" must be developed among local residents: a roadmap based on "thick-skinned" principles

Looking at the situation in the aftermath of the Lubrizol and Normandie Logistique fire, we cannot help but draw a broad parallel with the situation after the AZF accident. The reports commissioned by the government continue to point to the population's "lack of risk culture", an observation that had emerged abruptly with the AZF disaster and led to an unprecedented watershed in the prevention and management of technological risks in France. The Rouen fire revealed the still-tenuous relations between local industrial plants and residents, and that despite the efforts made and the progress achieved the public remains largely absent from risk prevention policies. In Rouen (as in other parts of France), the population lacks knowledge of Seveso risks, knows little about the warning signals in place and the "right things to do" in the event of an accident, and in fact some members of the population do not even know that they live right near a high-risk establishment (Senate Inquiry Committee, 2020; IRSN, n.d.; Zwarterook, 2010)... A sadly prescient sociological survey conducted in the Rouen area showed this in 2018:

> *"Over 70% of respondents did not know the national warning signal emitted by sirens, and almost 60% were unaware of the instructions associated with it in the event of an industrial accident."*
>
> (Fenet & Daudé, 2018)

39. In addition, it might have been interesting to hear from an association of "ordinary" local residents (a neighbourhood committee, for example), to contrast with the analysis provided by the environmental protection associations and the Lubrizol local residents' committee (created by the company) that were interviewed.

A previous survey carried out in 2009 in the Dunkirk area by Irénée Zwarterook yielded results along the same lines, and also gave indications as to the population's lack of knowledge regarding the PPRT and CSS (Zwarterook, 2010). More than ten years on, it would seem that little has changed[40].

A "risk culture" seen as deficient

"Risk culture" is frequently mentioned in the various reports published in the wake of the fire: it appears 36 times in the report produced by the Senate Inquiry Committee and 167 times in that of the National Assembly. However, it should be noted that "risk culture" is often only mentioned in these reports because of its absence:

> *People's inappropriate behaviours were due to a lack of risk culture.*
>
> (Assemblée Nationale, 2020).

> *Lack of risk culture in our country: not only are citizens unprepared to respond in the event of a serious industrial incident, they also lack the information they need to understand what the public authorities are doing.*
>
> (Senate Inquiry Committee, 2020).

What do the public authorities mean by "risk culture"? The words they use suggest that for the actors in charge of risk management its meaning is limited to the population's knowledge of crisis management protocols and the instructions to follow and behaviours to adopt if a disaster were to occur. In the literature, this lack of "risk culture" is often reduced to a lack of information:

- the population is poorly informed about industrial risks, so it does not know how to behave in the event of an accident;
- elected officials lack knowledge and information, and suffer from a lack of involvement in government initiatives (drills and exercises).

In fact, information is the term that comes up the most in texts about public participation in industrial risk management. For example, a simple search for the word "information" in the Senate Inquiry Committee report of 2020 yields 96 occurrences, placing it far ahead of the French words "concertation" (16), "participation" (12) or "consultation" (6) (Senate Inquiry Committee, 2020). Finally, the idea that a "risk culture" needs to be instilled in the population, that the public needs to be educated and "acculturated", is still frequently mentioned. Yet, the term "culture" suggests the idea of a common foundation, of values, a lexicon and practices shared by all involved.

Besides developing a "risk culture", the population needs to be made more "resilient"

While the term "resilience" is found only rarely in the reports published by the Senate Inquiry Committee and the National Assembly in 2020 (Senate Inquiry Committee, 2020; National Assembly, 2020), it appears very often later on in the information report released by the French Senate in 2022 and, of course, in the government plan entitled "Tous résilients face aux risques" (MTE, 2021)[41]. The concept of resilience has a long history in the fields of physics and psychology, but it only began to appear in French government documents in the economic and environmental fields in the mid-2000s (Dron, 2013). This concept/term is now very popular, both in academic fields and in management practices; however, due to its multiple meanings and its operational translations, the relevance of its "indiscriminate" use is the subject of much debate and questioning (Djament-Tran, Blanc, Lhomme, Rufat, & Reghezza-Zitt, 2011; Pidgeon, 2014).

What do the public authorities and risk management stakeholders mean by "resilience"? What does it look like in practice? What are the implications for the various actors in terms of their roles and responsibilities with regard to industrial risks?

40. Although one must be careful not to make hasty comparisons between two distinct regions, i.e. Dunkirk and Rouen.

41. Note, however, that in between the two, in August 2021, the French "Climate and Resilience Law" was passed, and the term is used for the resilience of populations, but also of facilities.

Resilience(s)

Definition

According to the AFPCNT, Resilience is a collective process that enables populations and regions **to anticipate, react and adapt, on different timescales, to an event that could be particularly traumatic for them**.

Being resilient in the face of natural or technological risks means:

- anticipating and preparing;
- adapting and protecting oneself;

quickly returning to acceptable living conditions.

By harnessing individual and collective capacities, resilience offers concrete solutions that can be applied locally to help people recover from an event causing disruption, shock or stress.

According to Aziza Akhmouch (Head of the Cities, Urban Policies and Sustainable Development Division at the OECD)

Resilience is the process by which, through agile, effective public action drawing on collective intelligence, we can better prepare for future crises and uncertainties, which we know will be more frequent, systemic and concomitant.

Surprisingly, the government's action plan "Tous résilients face aux risques" does not offer a definition of resilience. However, it does advocate the development of a "culture of resilience":

> *This understanding of risk, beyond the very general concepts sometimes conveyed by current tools, is a necessary step toward motivating people. It will enable a shift from a risk culture to a culture of resilience, to encourage the right behaviours for preventing risk and instil the right reflexes to limit the consequences of a crisis if one should occur.*
>
> (MTE, 2021)

The lack of a "risk culture" is widely criticised and already there is a desire to move toward a "culture of resilience"…

The concept of resilience encompasses dimensions including adaptation to a complex and changing world, creativity, the ability to rebuild... Thus, it would seem ideally suited to dealing with risks in general. However, like the term "risk culture" and for similar reasons, the concept of resilience, or rather the idea of demanding resilience, is coming under heavy criticism from civil society, but also from certain members of the scientific community. They denounce its use by those in charge as a communication tool to encourage people to "consent to disaster", to "live with" disasters without necessarily questioning their causes, as highlighted by the work on Fukushima by (Asanuma-Brice, 2015; Ribault, 2019). The use of resilience and risk culture also comes under strong criticism for potentially shifting responsibility for risk and disaster management from the public authorities to citizens. If citizen participation is an essential component of local resilience, where should the empowerment cursor be placed? What is the right balance between the right to information and participation, and the duty to know and get involved? What risk is there that the state (which has a duty to protect us) will disengage as citizens become more empowered to act?

3

Avenues to explore

In light of the foregoing, below we present the main areas where we feel it is important to focus efforts. Some of these can be explored by the strategic analysis "Dynamics of citizen participation and industrial safety", on which work has already begun.

3.1. Find the right balance between a technical/regulatory approach and a human and social sciences (HSS) approach

As mentioned in the previous section, it was only further down the line after the Lubrizol and Normandie Logistique fire that the social sciences, which focus on the socio-cultural and psychological determinants of risk perception, of the attitude to high-risk industry and of citizen involvement, were called on to analyse the situation and put forward recommendations, notably through the so-called Fred Courant Mission. These aspects are incorporated into the below definitions of "risk culture" proposed by Cerema and the Fred Courant Mission.

> *A risk culture means that all stakeholders within an area (elected representatives, technicians, citizens, etc.) are aware of the major risks to which they are exposed and understand the vulnerability of what is at stake. It includes risk perception, which corresponds to the psychological and emotional elements that play a decisive role in the way individuals and groups act.*
>
> (CEREMA, 2021)

> *A risk culture is an in-depth understanding of the interactions between the manifestations of nature and land-use choices (natural hazards). It is a "general knowledge" of our environment (in the broad sense, both natural and industrial) that also draws on past experience, and progresses thanks to advances in scientific and technological knowledge. Like all cultures, it gradually becomes embedded in people's minds and in their behaviour, thanks to the transmission of knowledge and experience. This takes time, which is why it is so important to instil it from an early age and make it accessible to everyone.*
>
> (Courant, et al., 2021)

While it could have been taken earlier, this government action is a good sign. The mission's recommendations were taken on board, with many of them appearing in the action plan "Tous résilients face aux risques" (MTE, 2021).

We would like to underscore once again that technical and regulatory approaches are essential, not least because they provide a formal framework (laws, tools, documents, etc.). However, we feel it is imperative to complement them with contributions from the social sciences, despite the difficulties this may entail and the reservations it may engender.

Indeed, if we wish to improve public participation in matters relating to industrial risks, we cannot overlook the sociological, anthropological and psychological factors involved, and the human sciences can help us to understand these. The human and social sciences (HSS) enable us to analyse the stakeholders' complex relationship to risks (perception, representations, prioritisation, acceptance), the resulting trade-offs between priorities, the ambiguous attitude of citizens to the presence of high-risk industrial activities (to put this somewhat simplistically, we want the benefits of industry, but not its risks: NIMBY syndrome = *not in my backyard*), and the impact of certain gradual changes or sudden events on the social acceptability of risks (climate change, local or global crises) (Gendron, 2014; Guillaume, 2020).

They also help to identify what underlies certain stereotypes, and to deconstruct certain preconceived ideas about consultation, such as:

- "Consultation is a constraint, it is costly, it is a waste of time, but we have to do it" (industrial companies);
- "Holding consultations, talking to the public, that is not our job. But it is not that hard" (government departments);
- "Consultation is pointless, since the decisions have already been made" (local residents);
- etc.

There are undeniable benefits to conducting this type of study on a given area, taking into account its context and its history. It can help to build more appropriate participatory approaches, and it can help with developing, applying or more carefully evaluating public policies for preventing and managing industrial risks in the area[42] (see the sociological assessment ICSI performed in Rouen with a view to setting up a participatory body in the area).

3.2. Foster a culture of participation among those in positions of responsibility

If industrial players, local authority representatives or government officials keep the public at a distance in statutory consultation processes, this is not necessarily deliberate. It is important to underline how difficult it is for them to comply with the regulatory obligations aimed at including local residents. Until now, the way State administration officers were trained, worked and viewed their occupation had often remained a blind spot in analyses. Yet, it appears that they receive little or no training in this consultation process despite it being part of their responsibilities. Because of their institutional background and positions, they struggle to view their relationship with the public in any other way than from an educational, top-down perspective; it is as though they are "trapped" in this way of thinking. Furthermore, the administration officers are not particularly interested in this type of responsibility, which they do not see as a priority, or which they sometimes consider to be outside their remit. Their role is to provide solutions, not facilitate debate. For some, this is compounded by a fear of being exposed, challenged or taken to task.

We must also mention the problems linked to the working conditions and organisation of these State administration officers. Regular government reforms (every 3 years) have a deleterious effect on their availability, as they spend much of their time redefining their administrative tasks. Added to this are new responsibilities such as those linked to the Environmental Authority.

As a result, we often find that government departments will resort to doing the minimum required to fulfil their consultation obligations. This can produce the aforementioned negative effects – effects they do not always perceive –, such as sidelining the public. In addition to the need to develop a "risk culture" or a safety culture among the general public, initiatives including training need to be rolled out, with the aim of developing a "culture of participation" among those in positions of responsibility (Martinais, 2022; Martinais, 2021). This might counteract the fact that, ultimately, most stakeholders have no real interest in entering into a genuine consultation process, and could help deconstruct preconceived ideas on these subjects. Identifying examples of institutions and organisations where consultation and dialogue are the focus of genuine training efforts and interest, and looking at the resulting benefits, would underpin our recommendation.

3.3. Evaluate public risk prevention policies

Perhaps one lever to help change the situation would be to finally organise a general evaluation of prevention policies. In reality, these preventive policies are never evaluated in their entirety. The return on investment (in particular the incredible efforts the departments responsible put into producing knowledge and developing measures that are ultimately not applied) must be terrible. Evaluating the policies could help everyone to realise that prevention efforts cannot work if the people concerned are not included. It is a very serious problem from the point of view of public action.

42. The essential contribution of the human sciences in understanding the behaviour of actors during a crisis and in developing crisis management policies is widely discussed in the work of ICSI's "Alert Processes and Crisis Management" discussion group (ICSI, 2021).

3.4. Encourage participatory citizen-led initiatives and informal consultation

Some CSSs work and that is good news, but most of them are achieving disappointing results. However, if CSSs are only in place and functioning to meet the minimum requirements of compulsory consultation and that is sufficient for some stakeholders, is there any point in trying to improve them? Might we not maintain this “window dressing” part, or even in some cases the "illusion of dialogue", and focus on participation levers aimed at reinforcing or creating more alternative arenas for debate which enable dialogue over the long term? As can be seen in many areas of public life, there is real added value in breaking away from pre-established participatory models, which imply a determined pre-existing audience, and in rethinking participation in terms of the co-production of participatory processes, but also of an audience that constructs itself in the situated action of participating (Chilvers & Kearnes, 2016). To the best of our knowledge, initiatives and experiments of this type, in the context of the long-term cohabitation of a high-risk plant with its local area and community, remain extremely limited in number. Multiplying them could be a real political choice.

3.5. Take inspiration from other domains, other methods

Certain risk domains already have a long experience of public participation and are thus more conducive to "successful" or "effective” participatory approaches[43]. It is worth looking to them for inspiration while keeping in mind the specific issues associated with industrial risks. Here, we will briefly touch on the domain of nuclear risks and natural hazards.

The civil nuclear sector has a long history of public information and consultation: the Mauroy Circular of 1981 instituted Local Information Committees (Commissions Locales d'Information - CLI) around nuclear facilities. The legal basis of these committees was reinforced by the 2006 Act on Transparency and Security in the Nuclear Field (“Loi TSN”). Since its inception in 2002, the IRSN (French Institute for Radiological Protection and Nuclear Safety) has been committed to a policy of openness to society and has continued to focus efforts on this, one of the Institute's four strategic priorities as established in its performance agreement with the French government (IRSN, 2009). Being able to take advantage of the advances and limitations in "nuclear safety culture” and cross-fertilise experience feedback is a plus.

The issue of natural hazards mobilises well with alternative methods: games, theatre, simulations... (Thievent, Borelly, & Chavanis, 2022). Tools and approaches based on “experiencing the risk” for oneself (game, emotions...) are particularly developed for crisis situations (Cerema, 2019), but these levers can also be used to “practise risk in peacetime, debate it...". The parallel between industrial risk and natural hazard can be extended when one reasons in terms of vulnerability. For example, the risks of flooding or lava flows only exist for the population because there are dwellings and human activities close to coasts and at the foot of volcanoes. This can suggest that there is nothing natural about natural hazards, but that, just as with industry, they are the result of public policies that have allowed construction in the vicinity of these zones. Nevertheless, it is important to bear in mind the specific nature of industrial risks. Compared to natural hazards, industrial risks garner less interest from the general public for reasons linked to their perception (too abstract, too stress-inducing, naturalisation of the plant, euphemisation of the risk, etc.) (Kamaté, 2016), but also no doubt due to their direct anthropogenic origin (even though violent natural phenomena are amplified by the actions of humans: global warming, urbanisation...) and to the complex and ambiguous relationship with industry. This relationship can be conflictual, with the finger of blame pointed directly at the plant operator. People need to take responsibility for their choices: how do we evolve toward the “desirable world”?

43. The field of AIDS prevention is edifying in the sense that civil society has enabled very significant progress to be made in understanding and preventing the disease and in developing treatments for it, but also in providing social support for sufferers and increasing social acceptance of the disease.

Conclusion & outlook: Reframing the problem by shifting the focus

FonCSI was created (along with ICSI) in the wake of the AZF disaster in Toulouse in 2001, to fulfil several missions, one of which is to foster debate between all industrial risk stakeholders. A great deal of work has been done on the subject of cohabitation between local communities and high-risk plants, particularly from the angle of PPRTs and the associated consultation process (some fifteen "*Cahiers de la sécurité industrielle*" have been published since 2009). These analyses (and others) present rather mixed results for the post-AZF era. They provide some possible explanations and suggest ways to improve the situation. However, the bitterly disappointing conclusion reached after the plant fire that occurred in Rouen in September 2019 is that despite all the changes brought in since the AZF and Lubrizol disasters, particularly from a regulatory standpoint, progress in terms of public information and participation still falls short of expectations.

This two-part "Cahier" begins by presenting an overview, in chapter one, of the participatory landscape in France as regards high-risk projects and facilities or those with an environmental impact. The second chapter then briefly discusses citizen participation in matters relating to industrial risks and pollution in Italy and the Netherlands. The first chapter of Part Two then looks at the immediate and medium-term consequences of the Rouen plant fire that occurred on 26 September 2019, particularly in terms of public policy regarding informing about, preventing and managing industrial risks. In a final chapter, our working group offers a critical analysis of the institutional handling of public information and involvement in risk-related matters, and makes a number of recommendations for a new approach to tackling the issue, one which we hope will better address current challenges.

We hypothesize that one explanation for this lasting situation lies in the way the problem is framed by the government without involving the other stakeholders. We postulate that what pre-stresses the solutions (which work poorly) is the way in which the problem is constructed. We therefore propose a new narrative, a shift in focus to tackle the issue first and foremost from the angle of the perceptions, expectations, interests and practices of the different stakeholders. Moreover, the challenge is not so much to develop the "risk culture", but rather to develop the "culture of participation". And to achieve this, we need to focus not just on the population, which is as plural as the other stakeholders, but also on those who "speak to the population". Indeed, most of the risk managers working for government departments have no training in either sociology or consultation. It is also important to look at the relationships between stakeholders, and in particular the relationships between institutions and between the government and industrial companies, since these are also key to understanding the problem.

It seems that the momentum generated by the Rouen accident, and which led for example to the publication of the government's action plan [44], represents an opportunity to defend a collective approach that is in the public interest, focused on the importance of putting those who have been left out of public policy-making in industrial risk prevention and consultation – namely the public and experts in the human sciences – back at the heart of the matter, in order to build solutions combining evolving sociological and societal dimensions with technical and regulatory dimensions. This is not an easy task. We hope that FonCSI, in the context of its strategic analysis entitled "The Dynamics of Citizen Participation and Industrial Safety", will shed an international light on these questions and help to identify some theoretical and practical levers for achieving a more peaceful and sustainable cohabitation with high-risk industry in a changing and increasingly complex world.

44. As well as what is said in the "Safety Culture and Radiation Protection" working group of the French Nuclear Safety Authority's (ASN) Steering Committee for the Management of the Post-Accident Phase of a Nuclear Accident (CODIRPA).

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Acronyms

AFPCNT	Association Française pour la Prévention des Catastrophes Naturelles et Technologiques (French Association for the Prevention of Natural and Technological Disasters)
AMARIS	Association Nationale des Collectivités pour la Maîtrise des Risques Technologiques Majeurs (the French National Association of Municipalities for the Management of Major Technological Risks)
ANR	Agence Nationale de Recherche (French National Research Agency)
APPA	Agenzia Provinciale per la Protezione dell'Ambiente (Provincial Agency for the Protection of the Environment)
ARPA	Agenzia Regionale per la Prevenzione e Protezione Ambientale (Regional Agency for the Prevention and Protection of the Environment)
ARPAV	Agenzia Regionale per la Prevenzione e Protezione Ambientale del Veneto (Veneto Regional Agency for the Prevention and Protection of the Environment)
ASN	Autorité de Sûreté Nucléaire (French Nuclear Safety Authority)
BEA-RI	Bureau d'Enquêtes et d'Analyse sur les Risques Industriels (Industrial Risk Investigation and Analysis Bureau)
BRZO	Besluit Risco's Zware Ongevallen (Major Accidents (Risk) Decree)
CATTD	Commission de l'Aménagement du Territoire et du Développement Durable (Committee on Regional Planning and Sustainable Development)
CESER	Conseil Économique Social et Environnemental Régional (Regional Economic, Social and Environmental Council)
CGEDD	Conseil Général de l'Environnement et du Développement Durable (General Council for the Environment and Sustainable Development)
CGAAER	Conseil Général de l'Alimentation, de l'Agriculture et des Espaces Ruraux (High Council for Food, Agriculture and Rural Areas)
CGE	Conseil Général de l'Économie (General Council for the Economy)
CGEDD	Conseil Général de l'Environnement et du Développement durable (General Council for the Environment and Sustainable Development)
CICP	Centre Interministériel de la Participation Citoyenne (Interministerial Centre for Citizen Participation)
CLI	Commission Locale d'Information (Local Information Committee)
CLIC	Comité Local d'Information et de Concertation (Local Committee for Information and Consultation)
CLIS	Commission Locale d'Information et de Surveillance (Local Information and Monitoring Committee)
CP	Commission Particulière (Special Committee)
CNDP	Commission Nationale du Débat Public (National Commission for Public Debate)
CODERST	Conseil Départemental de l'Environnement et des Risques Sanitaires et Technologiques (Departmental Council for the Environment and for Health and Technological Risks)
CODIRPA	Comité Directeur pour la Gestion de la Phase Post-Accidentelle d'un Accident Nucléaire (Steering Committee for the Management of the Post-Accident Phase of a Nuclear Accident)

COP HERL	COnsequences POtentielles pour l'Homme et l'Environnement, perception et RésiLience (Potential Consequences for Humans and the Environment, Perception and Resilience)
CSS	Commission de Suivi de Site (Site Monitoring Committee)
CTD	Comité pour la Transparence et le Dialogue (Committee for Transparency and Dialogue)
DCC	Departementaal Coördinatiecentrum Crisisbeheersing (Departmental Crisis Centre)
DICRIM	Document d'Information Communal sur les Risques Majeurs (Municipal Information Document on Major Risks)
DITP	Direction Interministérielle de la Transformation Publique (Interministerial Directorate for Public Transformation)
DREAL	Direction Régionale de l'Environnement, de l'Aménagement et du Logement (Regional Directorates for the Environment, Planning and Housing)
E-PRTR	European Pollutant Release and Transfer Register
ERP	Etat des Risques et Pollution (Risk and Pollution Status)
ERRIAL	État des Risques Réglementés pour l'Information des Acquéreurs et des Locataires (Regulated Risk Status for the Information of Buyers and Tenants)
FNE	Fédération Nationale de l'Environnement (National Environment Federation)
GALA	Gestion de l'Alerte Locale Automatisé (Automated Local Alert Management System)
GIPS	Gruppo Informazione e Promozione per la Sicurezza (Information, Promotion and Safety Group)`
HCTISN	Haut comité pour la transparence et l'information sur la sécurité nucléaire (High Committee for Transparency and Information on Nuclear Safety)
HSS	Human and social sciences
IAL	Information Acquéreur Locataire (Buyer-Tenant Information)
ICPE	Installations Classées pour la Protection de l'Environnement (Facilities Classified for Environmental Protection)
IECP	Institut Ecocitoyen pour la Connaissance des Pollutions (Eco-citizen Institute for Pollution Awareness)
IED	Industrial Emissions Directive
IEP	Internal Emergency Plan
IGA	Inspection Générale de l'Administration (General Inspectorate of State Administration)
IGAS	Inspection Générale des Affaires Sociales (French General Inspectorate of Social Affairs)
IRMa	Institut des Risques Majeurs (Major Risks Institute)
IRSN	Institut de Radioprotection et de Sûreté Nucléaire (Institute for Radiological Protection and Nuclear Safety)
ISPRA	Instituto Superiore per la Protezione e la Ricerca Ambientale (the Italian Institute for Environmental Protection and Research)
MRN	Métropole Rouen Normandie (Rouen Normandy Metropolitan Area)
NCC	Nationaal CrisisCentrum (National Crisis Centre)
OPECST	Office Parlementaire d'évaluation des choix scientifiques et technologiques (the Parliamentary Office For Scientific and Technological Assessment)
PCS	Plan Communal de Sauvegarde (Municipal Crisis Response Plan)
PICS	Plan Intercommunal de Sauvegarde (Inter-municipal Crisis Response Plan)
PPI	Plan Particulier d'Intervention (Special Intervention Plan)
PPRT	Plan de Prévention des Risques Technologiques (Technological Risk Prevention Plan)
PRTR	Pollutant Release and Transfer Register

RN	Raffinerie de Normandie (TotalEnergies' Normandy refinery)
SPPPI (or S3PI)	Secrétariat Permanent pour la Prévention des Pollutions et des Risques Industriels (Permanent Secretariat for Industrial Pollution Prevention)
TSN	Transparence et Sûreté Nucléaire (Nuclear Transparency and Safety)
UGO	Usine pétrochimique de Gronfreville-l'Orcher (Gonfreville-l'Orcher petrochemical plant)
UNECE	United Nations Economic Commission for Europe

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Foundation for an Industrial Safety Culture
Public interest research foundation

http://www.foncsi.org/

6 allée Emile Monso – CS 22760
31077 Toulouse Cedex 4
France

Telephone: +33 (0) 532 093 770
X: @TheFonCSI
Email: contact@foncsi.org

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FONCSI
Foundation for an
Industrial Safety Culture

6 allée Émile Monso
ZAC du Palays - BP 34038
31029 Toulouse cedex 4

www.foncsi.org