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**Corinne Bieder · Hervé Laroche ·
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Public Participation in Governance of Industrial Safety Risks

An Uneasy Journey



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Editors

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Preface

In most fields of public life, and notably on environmental and sustainable development issues, decision-making theories and, to a lesser extent, practices are moving toward greater citizen participation. In fact, in Europe and in Western countries, the public's right to information, access to justice and participation in environmental matters is now enshrined in environmental law as one of its pillars. Nevertheless, the design and organization of public participation in decision-making relating to industrial risks remain a sensitive and complex issue.

What are the current challenges in terms of public participation in the governance of industrial safety risks? What principles underlie citizen participation? What forms can such participation take; for what purpose? To what extent should public participation be contextualized?

This collective volume is the fruit of a “strategic analysis”, a research methodology developed by FonCSI. One original feature of this approach is that it involves a working group composed of academics, as well as representatives of the Foundation's partner organizations. FonCSI therefore warmly thanks the participants in this analysis—Corinne Bieder (French National Civil Aviation School) and Hervé Laroche (ESCP Business School) on the academic side, and Stéphane Corcos (French Civil Aviation Authority), Olivier Guillaume and Thierry Taponard (EDF), Jérôme Poénou (GRTgaz), Renaud Martin, Benoît Gautier and François Jeffroy (IRSN), Christophe Karlin and Julie Taldir (SNCF), Nabila Gadelhacq and Irene Roca Ortíz (TotalEnergies) on the industry side—for their involvement throughout this project. The book combines the contributions both of international experts, invited to participate in the key event of the strategic analysis, namely a two-day residential seminar held in May 2023, and of some members of the working group. By describing and analyzing various participatory models and cases, this book aims to address the complex question of public participation in the governance of industrial safety risks and to provide its readers with keys to better understand the issues at stake in engaging in citizen participation (or not).

Toulouse, France
May 2024

Caroline Kamaté

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Chapter 1

The Push Toward Public Participation in the Governance of Industrial Safety Risks



Decoy or Breakthrough?

Corinne Bieder and Hervé Laroche

Abstract This introductory chapter first provides a brief overview of the evolution of public participation in risk governance. Initially intended to strengthen accountability and empower citizens, civil society participation is now recognized as a component of decision-making processes in many areas of public life. The emergence of high-risk technologies and facilities has increased public interest in political and industrial decisions, and legislative efforts have been made to promote citizen participation. However, the implementation of public participation varies considerably between contexts and often falls short of expectations. Despite the challenges, there is growing recognition of the need for industrial companies and regulators to engage alongside the public in decision-making processes related to risk governance. This chapter highlights the complexities and contingencies involved in public participation and, as reflected in subsequent chapters, the importance of understanding diverse perspectives and approaches. Finally, in a second section, this introduction provides an outline of the chapters of the book.

Keywords Public participation · Risk governance · Decision making · Complexity · Participatory approaches

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1.1 Slow but Steady: The Rise of Participatory Practices in Safety Risk Governance

The push for more direct involvement of citizens in certain decisions traditionally made by institutions on their own but affecting society started in the 1960s and has spread to many countries around the world since then (Bherer et al. 2016, p. 225). The intention behind this participatory turn was to make “elected leaders accountable for their decisions, and for citizens to become empowered through the participatory process” [(Bherer et al. 2016, p. 225), citing (Fung and Wright 2003)]. As such, it was a way to complement existing democratic processes. With the advent of ambivalent technologies able to significantly improve citizens’ lives but also critically affect them or even take them away, characterized as the “risk society” by Beck (1992), a new era of close and direct interest from the public in political or industrial decisions emerged. As analyzed by Fischhoff (1995), the way to interact with the public on these risks dramatically evolved over time from the assumption of blind trust and no direct interaction, summarized as “All we have to do is get the numbers right”, to an involvement approach stated as “All we have to do is make them partners” (Fischhoff 1995, p. 138) Still, a clear divide between experts and citizens is maintained. Since the late 1990s, this analysis has been supplemented by Bourrier (2018), who suggested, as the latest stage, “All that has to be done is to make them part of “we”” (Bourrier 2018, p. 11). Beyond these statements lies the broader issue of the safety governance of high-risk technologies and facilities. Public debates, protests, diverging expert analyses or, more generally, controversies on technologies have been around for decades now (e.g. nuclear power). Public participation has become an area of research focusing on technical democracy, but first and foremost it is a more or less organized, more or less local, but always dynamic reality, where actors, alliances and dominant views vary (Callon 2013). A minority dissenting group at one stage, protesting against a given project, can become a majority as knowledge evolves and as the social debate goes on.

Even in representative democracies, relying on the many frameworks in place for citizens to be represented does not seem sufficient to satisfy the increasing will of the public to have a more direct say in decisions related to high-risk activities and, more specifically, to high-risk facilities inducing local risks. This calls for additional systems to directly involve citizens in decisions related to these activities, even though industrial risk is not, by far, the only concern of citizens. In Europe, for instance, this push for citizen participation has led to the introduction of a number of laws and regulatory requirements. For France, as an example, our group of experts from FonCSI (2024) has put together a non-exhaustive list of sixteen legal texts, issued between 1981 and 2016, framing citizen participation in industrial risk matters. Other European countries have introduced their own laws in this area (FonCSI 2024). The European Commission has even set up a “Competence Centre on Participatory and Deliberative Democracy” providing “services, guidance and tools to support the

development of socially robust policy through citizen engagement practices”¹. A similar evolution toward greater public participation has taken place in the US, as touched upon by Thomas Webler in a later chapter of this volume. Overall, there has been a widely acknowledged trend toward public participation in many regions around the world.

However, the implementation of this social and even legal push or more generally the practices related to citizen participation (whether or not it is mandatory) greatly vary from one context to another. This has been the case for decades. As early as 1969, Sherry Arnstein suggested the Ladder of Citizen Participation, modeling the different ways citizen participation was envisaged and implemented (Arnstein 1969). From a regulatory burden to a real opportunity to jointly develop a richer perspective on risks (and other stakes) and come up with better-informed collective decisions, public participation navigates between extreme interpretations. In addition, whatever the initial intentions may have been, implementation practices also affect both the process and the outcome of public participation. While other reasons contribute to the existing variability of citizen participation initiatives, a commonly shared observation today is that public participation rarely lives up to its promises [(Kamaté 2018); Joly & Bieder, this volume].

Among the stakeholders likely or obliged to engage in citizen participation are industrial companies. They are not ignorant of their social environment; they are accustomed to dealing with complex regulations, negotiating with public authorities, communicating with key stakeholders and managing their public image. Yet, they often seem reluctant to engage in participatory initiatives, fearing that the discussion and thereby the disclosure of some risks might increase public opposition, negatively impact their reputation and undermine public trust. And they are uncomfortable with the messy nature of these processes. Indeed, public participation is not easy. Despite the recent trend toward it, whether and when it can be desirable and from whose point of view is also worth exploring and discussing.

1.2 Public Participation in the Governance of Industrial Safety Risks: Not an Easy Journey

In this context, FonCSI decided to examine the topic of public participation in high-risk industries with industrial and institutional representatives as well as international academic subject-matter experts, in a bid to shed light on the many forms it can take, the multiple implicit assumptions each approach conveys, but also on its potential benefits and drawbacks. This book reflects the various contributions made and the discussions that took place during a two-day workshop involving these diverse profiles. The objective is to support stakeholders, and especially industrial or regulatory actors, in making a more informed decision about whether or not to engage in public participation and in choosing an appropriate approach.

¹ https://knowledge4policy.ec.europa.eu/participatory-democracy_en. Accessed on 9 Feb 2024.

Part I aims to describe public participation, both conceptually and empirically. Part II addresses the general purposes of participation and explores the options available for designing and implementing participatory arrangements. A concluding chapter written by **Jean Pariès** closes the book (**Stairway to heaven or highway to hell? The long and winding road to public participation**).

1.2.1 Part I. Models and Cases: Accounting for Context and Complexity

Public participation, everyone agrees, is simultaneously marked by high degrees of complexity and contingency. The first two chapters of this volume are attempts to conceptualize public participation beyond its embeddedness in specific contexts, while the next three provide examples of public participation processes in contrasting institutional, political and social environments.

In Chap. 2 (**Public participation and the democratic imaginaries: why public participation may not yield the benefits expected**), **Pierre-Benoît Joly** and **Corinne Bieder** address the unsaid and the unthought of public participation and advocate a broader approach. While there seems to be a consensus on the expected outcomes of participation (better knowledge, better decision implementation and better democracy), the authors reveal a wide range of different understandings of what participation is and what it is about. They identify three axes along which these understandings differ: (a) the gradation of participation (the role and degree of empowerment of the public in decisions), (b) the value of public participation (building consensus and increasing decision efficiency vs. fostering pluralism and empowering dissenting groups) and (c) the scope within which participation is envisaged (narrowly defined problems with clear stakeholders vs. broad issues of societal reach). Because these divergent views are rarely made explicit and discussed openly, public participation often brings disappointment. The authors suggest a broader look at participation that allows to reach beyond its current flaws. More attention should be given, firstly, to the generative processes that frame the problem, select the participants, define the timing of the debates relative to the project, etc.; and, secondly, to what happens after participation has occurred, how the decisions translate into actions, whether or not the participants are involved in the implementation phase, etc. In short, the authors call for a broader perspective, before and after the participatory episode, beyond the methods and instances of participation.

Whatever the purpose and design, public participation in choices involving industrial risks results in complex decision-making processes with uncertain outcomes. Public participation processes are messy by nature: they involve numerous participants with different agendas, complex issues developing within a whole range of problems, various oppositions and conflicting propositions, etc. To account for the decision-making processes that unfold over time in connection with an industrial project and to situate public participation within these processes, Chap. 3 (**Decision**

making in projects involving public participation: regulating the mess—Hervé Laroche) builds on the ‘garbage can model’ of decision-making, a famous and provocative conceptual framework that has generated a thread of research in organization studies and political science. Decision making is understood as resulting from the encounters of problems and solutions supported by a number of participants with varying degrees of involvement in the decision. The encounters are regulated by organizational arrangements that filter the flow of participants, problems and solutions. This framework provides a non-normative view of public participation and allows discussion about what constitutes a good (vs bad) regulation.

In Chap. 4 (**The governance of industrial and community risk**), **Jacob Kringen** explores how the challenges raised by the cohabitation between hazardous industries and surrounding communities are approached in Norway. After outlining the safety regime established for major-accident industries, selected case studies provide insights into the range and variety of challenges encountered in risk governance processes. These include procedural, epistemic and normative issues that require institutional frameworks constructed to balance different concerns. A key conclusion is that the acceptability of risk is but one dimension of the issues at stake. Risk governance cannot be understood as an independent process, and public participation always invites other issues on the agenda.

Chapter 5 (**Broadening the scope of industrial risk assessment and management**) fully supports this conclusion, despite the fact that the context presented is quite different. Building on an analysis of the town of Esmeraldas (Ecuador), **Julien Rebotier** contends that risk governance is embedded in the complexities of the local fabric, whether social, political, or economic. Industrial risk is at the nexus of many issues that escape the frame of industrial organizations. Whether in the highly regulated context of rich Norway or in the conflictual context of a country with a weaker State (Ecuador), public participation in high-risk projects brings a whole host of issues.

Chapter 6 (**The TotalEnergies approach to stakeholder engagement—Irene Roca Ortiz**) complements the previous cases by presenting an example of a more humble approach. TotalEnergies systematically implements ‘stakeholder engagement’ wherever it develops an industrial project. While much less ambitious than a fully participative process, this approach nevertheless ensures that the interests of local populations are taken into account in a fair manner. The article outlines and discusses the main processes carried out by company-operated entities.

1.2.2 Part II. Approaches for Developing and Managing Public Participation

From the previous contributions, it clearly follows that initiating, designing and implementing public participatory arrangements is not a straightforward affair. Still, it is possible to draw from a wide body of knowledge, propositions, examples

and experiments. The following chapters summarize and critically examine this abundance of material.

But first, what is needed is a general criterion that provides a direction for the designers and operators of participative arrangements. Chapter 7 (**Social acceptability of industrial risk: from the right to know to the duty to engage**) proposes the concept of social acceptability both as a tool to understand and manage the dynamics surrounding industrial risk management and as a frame for participatory processes in risk management. **Corinne Gendron, Alice Friser, Stéphanie Yates and Marie-Luc Arpin** define social acceptability as “the assent of the population to a project resulting from the collective judgment that this project is superior to known alternatives, including the status quo”. While traditional social acceptance strategies assume that the problem lies with the general public’s lack of scientific knowledge rather than with the project, the concept of social acceptability lends credibility to opposition and emphasizes the need to carefully consider the arguments presented against a project. To be acceptable, a project must be perceived as relevant, feasible and fair. Trust in promoters and in decision-making processes is also required. The authors propose that social acceptability should guide project promoters and become the purpose of participatory processes. An important implication is that managers of industrial organizations, rather than complaining about the lack of a risk culture among populations, should be encouraged to develop a ‘population culture’ and acquire skills in addressing social and political issues.

How social acceptability can be obtained or constructed is the next question. Obviously, there is no easy answer. In Chap. 8 (**Public participation in the management of risk from industrial facilities**), **Thomas Webler** explains why expertise is not enough and why a competent probabilistic risk assessment may not be sufficient to allay fears and concerns when confronting publics and stakeholders. Over the past thirty years, social scientists have studied and learned about how to effectively engage various audiences and stakeholders in risk decision making. Drawing on this wide body of knowledge, Webler then describes a set of best practices for public and stakeholder engagement. He also cautions against a variety of customary simplifications and misunderstandings that can worsen conflict.

Delving further into the examination of participatory experiences and practices, **Anna Scolobig** (Chap. 9—**Participatory processes for industrial risk management: enablers, barriers and limitations**) shows evidence that participatory processes can improve knowledge quality, lead to the identification of new problem-solving options, decrease opposition, contribute to legitimizing decisions and increase the likelihood that risk reduction will be more effective, efficient and sustainable. However, participatory processes also face several methodological, theoretical and practical challenges. For example, there is a lack of generally accepted quality standards and of binding policy instruments promoting participation, as well as limited institutional commitment and availability of human and economic resources. By presenting selected cases in the industrial risk sector, Scolobig discusses the enablers, barriers and limitations of these processes. She concludes with some reflections on the future agenda to improve existing practices and research.

Chapter 10 (Engaging citizens in dialogue on technoscience: an endogenous approach) focuses on focus groups. Focus groups are among the well-documented practices addressing the methodological and conceptual challenges of engaging citizens from the bottom-up. In this chapter, **Phil Macnaghten** capitalizes on the numerous projects he has conducted, in which he has used this public engagement methodology to anticipate the kinds of issues and problem framings that science, technology and industry bring into being. A feature of the methodology lies in the assembly of emergent collectives and identities that are constituted to negotiate endogenously public meanings, concerns and priorities. More specifically, drawing on two parallel deliberative methods and informed by two empirical social science research projects, design criteria are explicated on context, framing, moderation, sampling, analysis and interpretation. Phil Macnaghten advocates for the potential of focus groups to reconfigure dominant policy narratives and to move the conversation upstream before pathologies of closure and lock-in set in.

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Part I
**Models and Cases: Accounting for Context
and Complexity**

Chapter 2

Public Participation and the Democratic Imaginaries



Why Public Participation May Not Yield the Benefits Expected

Pierre-Benoit Joly and Corinne Bieder

Abstract Public participation has significantly developed since the 1980s. While public participation is commonly expected to bring better knowledge, better decision implementation and better democracy, the reality shows that it does not always lead to these benefits. This chapter provides explanations for this discrepancy between expected and observed benefits, by revealing the implicit assumptions and frameworks underpinning the diverse understandings of public participation. It identifies three axes along which these understandings differ. On the basis of this, it suggests a broader look at participation that allows to reach beyond its current flaws.

Keywords Public participation · Democracy · Expectations · Translation model

2.1 Introduction

The question of public participation is not new. In the area of technical democracy, it dates back to the 1980s, with a first wave of institutionalization in Northern Europe, where Denmark took the lead with the invention of consensus conferences. It then spread to many countries, with the development of technologies like GMOs calling for decisions in terms of public policies that affect the lives of citizens. Public participation was then considered to be a tool for achieving a better governance of new emerging technologies, and a response to rising controversies and contestations (Joly and Kaufmann 2008). As pointed out by Ulrich Beck in *Risk Society*, since the 1970s science and technology have been considered both a source of progress and a source

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of threats. Thus, new technologies are first and foremost political questions (Bourg et al. 2013).

Public participation has significantly developed since then, becoming almost a motto or an injunction in some arenas (Blondiaux and Sintomer 2002). Substantial experience has been accumulated on public participation and scientific literature abounds on the topic. The expected benefits are generally understood to be (i) cognitive, through improved knowledge, (ii) pragmatic, through improved implementation of decisions and (iii) democratic, through improved citizenship. Yet, today's reality is that the benefits expected from public participation are not always achieved. Worse, citizen participation sometimes ends up strengthening public opposition to the projects envisaged and reinforcing distrust in the public and private actors involved.

This chapter investigates the underlying reasons for this failure to deliver the anticipated benefits. It starts by revealing some of the implicit assumptions and frameworks underpinning public participation. These contribute to understanding the source of the mismatch between expected and actual benefits from public participation. Some ways forward are then suggested, to reach beyond current flaws or limitations.

2.2 Public Participation: A Common Flag for Different Views

Rowe and Frewer (2005) suggest that participation can consensually be defined as “the practice of involving members of the public in the agenda-setting, decision-making and policy-forming activities of organizations/institutions responsible for policy development” (p. 253). However, the authors highlight that a consensus only exists at such a broad level. A more detailed analysis reveals differences in the ways participation is interpreted. One can identify three main axes along which interpretations of participation vary: (a) the gradation of participation, (b) the value of public participation and (c) the scope within which participation is envisaged.

The gradation of participation refers to nuances in the role and empowerment of the public in decisions. Arnstein (1969) modeled eight rungs on her proposed ladder of participation, describing different ways to involve citizens. They ranged from “manipulation”, at the lower end, to “citizen control”, at the highest level. Rowe and Frewer (2000, 2005) identify a hundred mechanisms and three models, distinguishing between public communication, public consultation and public participation. As for Callon (1998) and Callon et al. (2009), they have come up with three models for “technical democracy”: the public enlightenment model, the public debate model and the coproduction model. Leaving aside the “non-participation” rungs on the lower end of Arnstein's ladder, the gradation of public participation reflects different intentions on the part of the organizers, starting with information, a passive kind of participation, and moving up to empowerment or coproduction, where citizens play an active role in decisions.

Table 2.1 Contrasted views of participation by Nelkin & Pollak and Fiorino¹

	Nelkin and Pollak	Fiorino
What is the “public”?	Dissenting groups, public in the making	Laypeople
Objectives of participation	Pluralism, empowerment	Conflict avoidance, increased efficiency
What is democracy?	Agonistic space/Conflicts as an engine of democracy	Irenic space/Democracy embedded in a rational-legal order

Beyond this “depth” of involvement, nuances in the interpretation also exist with regard to the value of participation, or what is sought through participation at a certain level of depth or gradation. In this area, two views can be distinguished. Fiorino (1990) identifies three expected benefits of citizen participation: substantial benefits, i.e. the improvement of the quality of decision-making; normative benefits, in the sense that public participation conforms to the values of an active democracy; and instrumental benefits, since public participation increases the legitimacy of decisions and improves their implementation. Consequently, it may restore trust in institutions that manage risks. An alternative view is that proposed by Nelkin and Pollak (1979), whereby participatory processes should redistribute resources and contribute to the empowerment of dissenting groups by breaking the monopoly of technological expertise. Both approaches converge on their underlying understanding of knowledge distribution and production. Indeed, they both recognize the plurality of knowledge (especially scientific, action or experiential), the challenge of a clear-cut separation between experts and laypeople, notably in terms of competences, and the productivity of controversies and public deliberations as ways for de facto technical and socio-technical explorations. However, they significantly differ in their views of what the “society” is and what “social” means. This divergence induces distinct sources of legitimacy. In Fiorino’s understanding of participation, legitimacy relies on generalization. The general interest requires the distancing from special or individual interests. Relevant participants are “ordinary” citizens. Conversely, in Nelkin and Pollak’s framework, legitimacy comes from the attention to singularity. Relevant participants are therefore the concerned groups. Eventually, the two views of participation differ in many respects, as summarized in Table 2.1.

The third axis, the scope of participation may differ a lot from one understanding and/or practical implementation of public participation to another and this has profound implications. What is at stake? Nuclear waste management or the policy of energy production? The use of pesticides or the productivist agricultural model? (...) Indeed, the scoping of the problem and the framing of the issue play a key role. Analyses of the French “*Convention citoyenne pour le climat*”,² one of the biggest initiatives ever, agree that the scope of the issue was too broad. Hence, contrary to

¹ This table draws on our analysis in Bonneuil and Joly (2013), Chap. IV, pp. 79–93.

² <https://www.conventioncitoyennepourleclimat.fr/>.

what had been promised by President Macron, it was not possible to implement all the recommendations, and this led to disappointment and criticism (Apouey et al. 2022). As the scope is broad and the citizens at the core of the *Convention* are supposed to represent the whole of society and express the general will, they are de facto in tension with the Parliament, whose members claim to have the monopoly of representation of the people. Hence, there is a conflict of legitimacy that may hinder the translation of recommendations into public decisions (see next section).

The three axes are not independent. Dissenting (or concerned) groups generally mobilize for problems that affect them, i.e. a specific disease for patient associations, pollution emitted by a factory in the case of neighborhood associations, and so on. In these cases, empowerment of the concerned groups is a key issue.

However, these fundamental divergences rarely emerge in the analysis of participation, although identifying the framework underpinning any participatory initiative could contribute to explaining why the actual results do not always match the expected benefits.

2.3 A Broader Look at Participation

Although the gradation of participation may be appreciated through the analysis of participatory processes, grasping the underpinning visions of society and democracy requires a broader lens.

Indeed, the decisions in which the public is involved in participatory processes fall within a limited scope, around which a myriad of more or less conscious and explicit “decisions” are made both before and after. Putting public participation back into its wider context might help understand the differences between its actual and its expected benefits. Such a broader perspective on public participation can be developed by borrowing from the sociological model of translation (Callon 1986). One can consider that three translations occur in any public participation initiative, as illustrated in Fig. 2.1. The first one is the translation from the macrocosm, i.e. a real-life situation, to a smaller space where participation is organized. In this first translation, a number of decisions are already made, more or less consciously, regarding the identification and delineation of the problem at stake as well as the organization of public participation. The organization of participation, as mentioned earlier, reflects certain assumptions and frameworks embodied in the interpretation of participation (e.g. the share of voice of dissenting groups). In some cases, a sociological inquiry may be necessary as a preparatory stage to explore the different possibilities of choice of actors that will be involved in the microcosm.

The second translation happens within the space of public participation through the discussions and debates regarding the identified problem. It refers to the many interactions that take place among the participants involved. These exchanges are organized according to a number of principles such as equity, publicity, openness and independent evaluation.

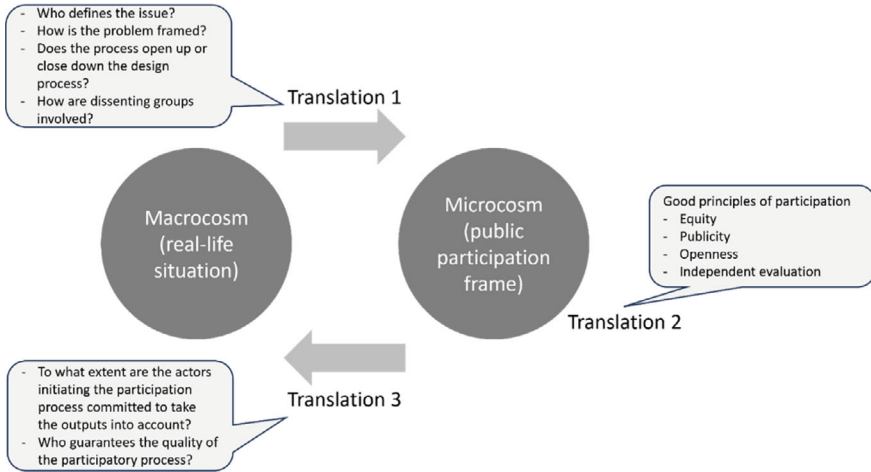


Fig. 2.1 Three translations underpinning any participatory experience

The last translation consists in transforming the outcome of the participatory process into real actions, back in the macrocosm. Making collective decisions translate into real-life situations relies on the commitment of participation organizers to take into account the outputs of the public participation process in their actual decisions. This is another area where variations are observed. Yet, the absence of actual impact from the results of a deliberation is always considered a failure. More generally, this last translation from the public participation space back to real-life situations raises the question of the quality of the participatory process and who guarantees it.

As mentioned earlier, with the generalization of public participation in the area of innovation, significant experience has been accumulated, leading also to a body of scientific knowledge. Yet, most analyses of public participation focus on translation 2. Some authors, such as Jasanoff (2003), have proposed extended reflections on the fundamentals of participation by calling attention to four points, namely framing, vulnerability, distribution and learning. The translation model provides a simple analytical lens to understand that too-narrow a focus on participation (i.e. limited to the participation space) leads to overlooking questions that are critical to the definition and achievement of successful public participation initiatives. It thereby provides an explanation for the inability of public participation to deliver the expected benefits and suggests ways to improve its design and implementation.

Furthermore, it suggests a way forward to improve public participation by addressing the upstream and downstream questions driving translations 1 and 3, i.e. Who defines the issue? How is the problem framed? Does the process open up or close down the design process? How are dissenting groups involved? How are the outputs of public participation taken into account by the actors in charge? Who guarantees the quality of the participatory process?

Raising such key questions does not mean that we believe there is a single value-laden scale that enables a ranking of the different models of public participation. On the contrary, our take-home message is that a better understanding, in context, of the three translation processes is necessary to fine-tune the design of the participatory initiative as a whole. Any model of public participation has potential benefits, but also possible shortcomings. And certainly, in situations where the conditions for satisfactory translations are not met, one might be wise enough not to engage in public participation!

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Chapter 3

Decision Making in Projects Involving Public Participation



Regulating the Mess

Hervé Laroche

Abstract Public participation in choices involving industrial risks may enrich the choice in many ways, but it also results in more complex, if not messy, decision making. The purpose of this chapter is to offer a general framework to account for the decision-making processes that unfold over time in connection with an industrial project and to situate public participation within these processes. I build on the “garbage can model” of decision-making, a famous and provocative conceptualization that has generated a thread of research in organization studies and political science. Decision making is understood as resulting from the encounters of problems and solutions supported by a number of participants with varying degrees of involvement in the decision. The encounters are regulated by organizational arrangements that filter the flow of participants, problems and solutions. What constitutes a good or bad regulation is discussed in the conclusion.

Keywords Decision-making · Garbage can model · Problems

Abbreviations

PP	Public participation
PPP	Public participation process
PPA	Public participation arrangement
GCM	Garbage can model of decision making

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3.1 Introduction

Industrial risk is a concern for populations in a variety of contexts. Let us categorize these contexts according to two criteria: Is the industrial risk something new for the population? Has it materialized and become a “hot” issue? (Table 3.1). Here I will focus on the typical case of a new industrial project. Post-accident contexts are crisis situations and would probably need a specific focus. In terms of public participation (PP) and decision making, routine contexts can be considered minor or at least less intense situations than the new projects.

The purpose of this chapter is to offer a general framework to represent the complex decision-making processes that unfold over time in industrial projects and to situate PP within these processes. My proposition is to build on the “garbage can model” (GCM) of decision-making, a famous proposition dating from 1972 that has generated a thread of research in organization studies and political science (Cohen et al. 1972; see endnote). My aim in presenting this provocative framework is an invitation to think differently about public participation processes (PPPs); it is not to advocate for a normative approach or to provide a decision-making tool. What is interesting is that the GCM framework departs from standard representations of decision-making including, more specifically, the rational view and the democratic view. The rational view insists on information processing, rigorous reasoning, calculus, comparative analysis and designing the best technical solution. It is considered to be the “right” model (or at least a desirable one) because its promise is the achievement of efficiency. The democratic view insists on pluralism, expressing preferences, equality and reaching consensus. It is considered to be the “right” model (or at least a desirable one) because its promise is the achievement of fairness. My point here is not to discuss or contest these views (rational, democratic), but only to show that these promises often blind people to the unrealistic requirements of these views. The GCM provides a different way of understanding decision making in complex situations, deprived of any promise or value. It is descriptive, not prescriptive. In my view, it provides a realistic (albeit simplified) framework for thinking about how more rationality and/or more democracy can be infused into the decision-making processes.

Table 3.1 Types of industrial risk contexts

	Routine	Novel
Cold	Extant facilities	Project
Hot	Incident	Post-accident

3.2 A Garbage Can View of Public Participation

PPPs are part of a wider array of decision-making processes involving a variety of actors in a decision-making situation connected with an industrial project. The focus of our analysis is the development of industrial projects that involve a significant degree of risk and where public participation has been institutionalized to some degree through a set of official bodies, procedures, etc. (defined below as public participation arrangements [PPAs]). Decision making in projects involving PP is marked by the multiplicity of actors (e.g. industrial firms, public agencies, local communities, associations, etc.) with different concerns. As a consequence, many issues come into play, whatever the official definition of the decision at stake. Risk issues, in particular, are only a fraction of the set of issues and often a relatively minor one (see Fringen, this volume). Issues are multidimensional, commingling industrial, economic, social, local, ethical, environmental and health-related problems, among others. The issues are often strongly interdependent, so decisions about one specific issue can have consequences for others. However, due to the size and complexity of the project, it is not possible to deal simultaneously with all the issues.

Actors interact over problems and solutions regarding these issues. Actors are bearers of issues or problems, with their own definitions. Actors are also bearers of solutions. However, not all actors have solutions to the problems they bear. The overall decision-making process can be seen as encounters between a population of problems, on the one hand, and a population of solutions, on the other hand. The ideal outcome would be a perfect match: each problem is associated with a solution and no problem is left unsolved. Of course, this is a dynamic process, since the actors, problems and solutions evolve over time.

Participation is fluid, in the sense that the actors' efforts to participate may vary. Some might be heavily involved, others mostly dormant and others still might be focused on certain specific issues while ignoring other aspects. The dimensions of participation are actual presence (vs. absence), voice (vs. silence), commitment (vs. detachment), etc. For instance, the local population may be more or less mobilized and willing to attend. Industrial actors may be more or less defensive and control their degree of openness regarding data sharing, negotiating, etc. External stakeholders (e.g. environmental activists) may be very vocal or simply provide support to local groups. The authorities also have their own participation strategies, although generally they are in charge of monitoring the arrangements and cannot withdraw completely. Of course, an actor's degree of participation may also vary over time. It is important to realize that participation is not equal to a spontaneous, democratic process. Too often it is taken for granted that people who do not participate are indifferent. This is a fallacy. For many actors, participation is costly. They will engage in PPPs only if they feel that they are able to and the effort is worth it. They may also think that organized actors (e.g. associations) will represent them and do a better job. On the other hand, some actors may take an excessively large part in the process because, for instance, they see the situation as an opportunity to push a wider

cause, gain attention and legitimacy, etc. Under-participation and over-participation are common in PPPs. This implies that participation has to be regulated.

3.3 Regulating the Mess: Public Participation Arrangements

A PPA is a set of organizational devices (committees, meetings, schedules, agendas, roadmaps, procedures, rules, charts, etc.) designed to handle the streams of actors, problems and solutions. PPAs can be best described as a participation structure (rules determining the right to participate) coupled with an access structure (rules determining which issue can be discussed, when and how). The participation structure specifies who is allowed to participate and how. Some actors might be officially accepted as participants while others might be excluded, or restricted to lesser roles (e.g. being informed). Different types of organizational bodies and decision-making opportunities (meetings, committees) are distinguished, each with its own participation structure. The access structure parallels the participation structure by determining the list of legitimate topics that can be discussed by the various decision-making bodies at any point in time. In other words, the access structure regulates the agenda. Like the participation structure, the access structure can be more or less open, allowing problems and solutions to be discussed at any time, or closed, with strict agendas. Implicit to the access structure is the key stake of a hierarchy of problems. A fully open access structure implies that no problem is more important than any other. A closed access structure establishes a strict order of priority. Certain chapters in this book about the “how” of public participation can be seen as contributions to the choices concerning the participation and access structures, and the associated processes.

PPPs happen in and around PPAs. PPAs are official, institutionalized systems organizing the meeting and interaction of the actors through space and time. However, PPPs are not restricted to what happens within the perimeter of the PPAs. For example, some actors may not be included in a PPA, yet impose their participation indirectly (through demonstrations, for example). Communication processes, especially through the media, also happen outside the PPAs for the most part. This echoes the often-discussed question of PPAs as “window dressing”. Judgments and controversies about the more or less democratic nature of PPAs are inevitable. With this democratic issue comes the usual suspicion of fake democracy: PPAs are often suspected of being cynically used as highly visible, seemingly democratic devices serving as a decoy for covert or secret processes where real decisions are made. It should be noted that there is no clear relationship between the openness of the participation and access structures and the reality or sincerity of the PPPs. For instance, an open (democratic) structure can be seen as a guarantee that all voices are heard and taken into consideration. Yet it is also possible that openness results in confusion, with no tangible outcomes (i.e. matched pair of problems and solutions). Similarly,

a restricted structure can be understood as a biased channeling of voices designed to make certain actors prevail. Other actors can be tempted to force their way into the processes, directly (e.g. by occupying a site) or indirectly (e.g. by pushing their agenda through media strategies). But restriction can also be seen as a legitimate distribution of power and influence, preventing certain distant actors (e.g. activists) from hacking the processes for the advancement of their cause.

3.4 What Is a Good PPA?

Are there better ways of regulating PPPs? Identifying an exhaustive list of features is not realistic, given that situations vary greatly from one project and context to the next. However, certain criteria stand out.

3.4.1 Scope

Ideally, a PPA should encompass all the PPPs. In other words, a good PPA is a system that regulates the greatest part of what happens around the project. If important issues are treated outside the PPA, it means that it has only a limited role. In principle, this implies that broad, open participation and access structures should be preferred to narrow, restricted ones. However, the former are much more difficult to monitor than the latter. Unpredictability is a resulting characteristic of open structures. A trade-off between scope and manageability has to be made.

3.4.2 Sincerity

PPAs can be seen as a means for revealing information about problems and solutions (or at the very least, revealing their existence). PPAs should be designed so that actors are encouraged to share information, minimize secrecy and deception and, more generally, to actively contribute.

3.4.3 Resolution

A good PPA is an effective one, in the sense that it produces reasonably good choices. Identifying the criteria for resolution and “reasonably good choices” is a difficult issue discussed elsewhere in this book (see Gendron). Ideally, reasonably good choices would be choices that are better than the ones which would have been obtained without the PPA. Of course, this leaves plenty of room for discussion. However, the

key point here is not so much to optimize choices, but rather to obtain choices. PPAs are often criticized for being decoys, designed to contain public contestation while the actual decisions are made behind the scenes. In other words, such PPAs bring no resolution. The decisions are made elsewhere, more or less openly, or projects are stalled with costly consequences. It is reasonable to say that PPAs that bring no resolution are not good PPAs, if only because they mean a loss of time, resources and credibility for key actors (authorities, firm). However, this is of course debatable if one focuses on the viewpoint of one specific actor.

3.5 Conclusion

The GCM-inspired view of decision making in projects involving public participation offers a general framework to account for the inherently messy processes that are likely to unfold. By thinking about decision making as the interactions between streams of actors, problems and solutions whose encounters are filtered by a participation structure and an access structure, the traditional models of decision making (namely, rational and democratic) can be seen as specific configurations. A whole range of other configurations can be imagined. At the very least, actors are warned that the natural logic of these situations brings messy, unpredictable processes, surprising choices and frequently no choices at all.

3.6 Endnote

The garbage can model of decision making has been proposed to account for complex decision-making processes in pluralist contexts, i.e. in contexts where many participants with conflicting agendas and diverging preferences and objectives are brought together in the same situation (Cohen et al. 1972). The garbage can model is generally thought of as a type of political model of decision making. The garbage can metaphor in the model originates from the idea that choice opportunities are garbage cans into which actors throw problems and solutions. The decisions depend on which actors were actually present, with which problems and which solutions. The GCM accounts for dynamism, temporality and ambiguity in decision making. The GCM has been applied using various research methods, including simulations, case studies and field studies, mostly concerning organizational decision-making and public-policymaking (Cohen et al., 2012; Kingdon, 1995; Robinson and Eller, 2010; Steen et al., 2017).

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Chapter 4

The Governance of Industrial and Community Risk



Jacob Kringen

Abstract The issue of cohabitation between hazardous industries and surrounding communities generates a range of multifaceted challenges for risk governance. It involves a number of actors and decision-making processes as well as foundational questions related to the understanding and acceptability of risk. This chapter explores how these challenges are approached in Norway, focusing in particular on the role of regulatory regimes. The safety regime established for major-accident industries is outlined and selected case studies are included to illustrate the range and variety of challenges encountered in risk governance processes. These include procedural and epistemic as well as normative issues which require institutional frameworks that are constructed to balance different concerns.

Keywords Risk governance · Public interest · Government regulation · Risk acceptance · High-risk industry

4.1 Introduction

The issue of cohabitation between hazardous industries and the surrounding communities involves an extensive range of challenges. While a number of idealized models are available for managing industry-community relations, such as those related to participatory and deliberative processes (Aven and Renn 2010), there is nevertheless a gap between achievable optimization and pragmatic adaptation to messy environments. This may come as no surprise, given the range of interests and actors involved. Interests may be industrial and commercial as well as public and communal, involving a broad spectrum of concerns related to health, safety, environmental and other issues. Actors include risk producers and those who are exposed to the risk as well as experts and public decision-makers.

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The focus of this chapter is the role of regulatory frameworks in risk governance processes. The concept of governance is regularly used to broaden the scope of actors involved in processes of decision-making beyond the state. Regulatory regimes are nevertheless constitutive for and instrumental in terms of how societies deal with risk. This applies to the setting and control of safety standards as well as to the distribution of responsibilities among the variety of public and private actors that may have an assigned role in the governance of societal safety. Regulators will have a dual role in both shaping and implementing such institutional frameworks, and while these may not be firmly cemented, the discretionary and orchestrating roles are correspondingly important. In the idealized image of the public service ethos, these responsibilities are carried out through unbiased and knowledge-based dedication to serve the *public interest*. While notable and influential research traditions tend to represent administrative bureaucracies (including regulators) as critically overcrowding this key rationale, such diagnoses may not properly take into account the complexities involved in promoting as well as in defining the public interest¹. The art of risk governance may arguably epitomize how these complexities materialize and the corresponding challenges facing regulators in their efforts to balance different concerns and elicit reasonable trade-offs between various interests.

Using Norwegian experiences as a point of departure, this chapter explores the range of instruments available to government agencies in their attempt to navigate within the epistemic and normative orbit of risk governance. Targets of intervention would include those related to the risk source (the hazardous industry), the perception, assessment and acceptability of risks, as well as the vulnerability of affected environments. In addition to the classic regulatory instruments (like standard-setting and enforcement), regulators also need to engage in processes of collaborative governance and overall orchestration of risk management efforts.

4.2 The National Context

While Norway is among the less densely populated countries in Europe, it still faces recognizable challenges related to industry-community relations, particularly since several major-accident industries are located in urban areas. Focusing here on industries subject to the EU Seveso regime, we find a total of around 300 industrial sites, approximately one-third of which are registered as upper-tier establishments. DSB, the Norwegian Directorate for Civil Protection, is the principal public authority responsible for governing the safety regime.

Historically, the issue of external risks has not been high on the agenda and regulatory focus has been directed at the industrial property itself (including occupational health and safety). As long as community concerns were not critically voiced, a certain fear of triggering “unnecessary” public fear or outrage may have caused a

¹ We see these tendencies both within the rational choice tradition and the institutionally oriented tradition, see Kringen (2019) for a review.

certain regulatory reluctance. Several factors instigated a change in perspective. One triggering factor was a serious fire at a chemical plant in the city of Sandefjord in 1976, which caused six fatalities, a number of injuries, and required large-scale evacuation of nearby households. Furthermore, the gradual development of the Norwegian oil and gas industry from the late 1960s onwards included the construction of a number of onshore facilities. While this prompted a need for external safety zones, this high-hazard industry also generated a professionalization of risk-based approaches. Lastly, the successive implementation of European Union Seveso directives has played a significant role in shaping the current regime². Key elements in this respect include safety and emergency management, land-use planning, information to the public, as well as public consultation and participation in decision-making.

In sum, there has been an expanding focus on the cohabitation between hazardous industries and the surrounding communities in Norway. However, these changes can hardly be attributed to growing public concerns alone. Historically, industrialization has been welcomed both nationally and locally since it brings with it the promise of employment opportunities and economic growth. Public concerns have certainly not been absent, but as the brief case studies included below show, the pattern of industry-community interactions may vary according to a number of factors beyond those related to safety.

4.3 The Current Regulatory Framework

While earlier regulatory approaches relied more on fixed safety distances based on deterministic criteria, there has been a gradual turn toward risk-based approaches, partly in accordance with international trends. This has allowed for more flexibility, for instance by incorporating the estimated impact of risk-reducing measures. Moreover, it has allowed for more precise and targeted input to land-use planning processes. While based in statutory regulation, the current regime is predominantly laid down in guidelines and recommendations, notably related to risk acceptance criteria and models for risk assessment. These were motivated by a need for standardization and involved input from and dialogue with various expert communities, including consultants (the major producers of analyses) and representatives from the regulated industry.

The methodology for risk assessment is based on the concept of individual risk, understood as the estimated annual frequency of a fatality for a person located at a certain distance from the facility in the case of accidents. The analysis must incorporate a sufficient range of probable scenarios in order to arrive at a fairly representative picture of overall risk, presented in so-called iso-risk curves drawn around the facility.

Criteria for acceptable risk provide directions for developments and restrictions on land use within defined “consideration zones” based on the extent of the risk

² The last update came with the so-called Seveso III Directive in 2012, (European Parliament and Council of the European Union, 2012) succeeding the prior directives from 1996 and 1982.

contours. Three zones are defined which correspond to iso-risk curves of 10^{-5} , 10^{-6} and 10^{-7} : an inner zone which is the area of the site itself (10^{-5}), a middle zone which permits public roads, regular workplaces, etc. (10^{-6}) and an outer zone which permits residential areas and areas for ordinary public use (10^{-7}). Schools, kindergartens, nursing homes, hotels, sports arenas, etc., are only allowed outside the outer zone.

The acceptance criteria are based on the principle that affected populations should not be exposed to a significant increase in risk from the major-hazard facility as compared to the “normal” risk of living in society³. Risk analysis guidelines identify key steps in the process and provide suggestions as to calculation methods and alternative sources of input data. The goal in both cases has been to harmonize methodological and normative approaches through collaborative and largely consensual processes, which may be seen as instrumental in securing standardized quality with respect to processes as well as outcomes (Ingvarson 2020).

The framework provides workable templates for decision-making in land-use planning and is supplemented with guidelines for local governments (municipalities), taking into account of safety around existing, modified, as well as new major-hazard sites. While DSB has a key role in enforcing the regulations, e.g. through reviewing and endorsing safety reports and risk analyses from the industry, local follow-up is highly variable. In fact, recent reviews indicate that only a minority of major-accident sites are surrounded by consideration zones in municipal plans.

As for questions relating to information to the public and public consultation and participation in decision-making, the extensive requirements laid down in the Seveso III Directive form the basis of national follow-up. Requirements relating to information to the public (Article 14) have been subject to designated national inspections, resulting in identified non-conformities being followed up through enforcement actions. Requirements relating to consultation and participation (Article 15) are largely followed up through established decision-making procedures and public hearings, but less actively enforced. Largely due to capacity challenges, it has predominantly been considered sufficient to secure transparency and access to information through these formal processes and prioritize further efforts in cases where risk is considered high or public concern has required agency involvement. The three examples reviewed below were selected to illustrate a spectrum of variety in this respect.

³ The so-called MEM principle. The Minimum Endogenous Mortality (MEM) rule, which states that a new system should not lead to a significant increase in the risk exposure for the population with the lowest endogenous mortality. The rate of natural deaths is then a reference point for acceptability.

4.4 Three Cases

The selected cases include Norway's two largest industrial ports,⁴ one in Oslo and one near the city of Stavanger, and one major-accident site in the city of Sarpsborg. These are some of the largest industrial sites in Norway and they are all located near urban/residential areas. The industrial ports were subject to a dedicated initiative by DSB, resulting in comprehensive reviews of overall risk governance processes.⁵ The reviews were prompted by a need to examine the aggregate risks resulting from the cohabitation of several industrial enterprises and related infrastructures.⁶

4.4.1 *The South Port of Oslo*

The South Port of Oslo is located only 2–3 km south of the Oslo city center. As part of the so-called Fjord City Project, aimed at increasing public access to the harbor areas, a concentration of industrial activities in the South Port started in the late 1990s. The port currently comprises almost all the industrial activities in the Oslo harbor area and includes Norway's largest container port and the largest terminal for the storage and distribution of petroleum products.

The review published by DSB in 2014 found that the plan for concentrating industrial activities in the South Port had not been subject to appropriate risk assessments, and the impact on safety appeared to have been overshadowed by other goals related to the Fjord City Project. Furthermore, the Port of Oslo (which manages the estate ownership on behalf of the city council) defined themselves as “landlords” only, treating the various industrial actors as basically self-governed. Lack of continuous and comprehensive risk governance appeared as the overall diagnosis and conclusion in the review.

The review process included the development of several accident scenarios published in a separate report. The most serious of these was not included in the main report due to low or negligible probability. The scenario was based on a petrol tanker running aground in the inner harbor, leading to a fierce explosion, compounded by an unfortunate combination of circumstances with respect to the speed and direction of wind. As it happened, Norway's largest (Oslo-based) business newspaper did pick up the scenario from the underlying report and published a graphic model on their front page showing the dispersion of the gas cloud, with the following warning in bold type: “The horror scenario that will turn Oslo into a death trap”. While a substantial public outcry could have been expected, hardly any debate followed. On

⁴ Further details regarding these cases can be found in Lindøe and Kringen (2015).

⁵ The reviews were explicitly executed in a collaborative fashion, not to be followed by any enforcement action.

⁶ Aggregate risk may refer to the sum of separate risks as well as those arising from possible interactive and cascading effects and included several establishments subject to Seveso regulations on domino effects (Article 9).

the contrary, the development plan for the public and residential area just north of the port continued, apparently undisturbed by the possibility of lethal gas clouds ascending and spreading from a burning tanker and the sea surface. This apparent indifference reflected in many ways the general public's attitudes as these had been voiced—or not voiced. As documented in the report, noise from the handling of containers and aesthetic distaste (“industrial ugliness”) had over the years appeared as the most salient topics of public concern.

4.4.2 *The Port of Risavika*

The port of Risavika is located in the Sola municipality on the south-eastern coast of Norway. The nearby local community comprises some 400 residents. As the country's oil and gas industry gradually developed from the 1970s onward, the port emerged as Norway's largest offshore terminal. In addition to the offshore base operations, the port houses some industrial production facilities which, until the year 2000, included an oil refinery. After the decommissioning of the refinery, the area appeared as one of several candidates for the siting of a liquefied natural gas (LNG) plant. In 2005, the Lyse Group, a large publicly owned energy company, informed the Municipality of Sola (one of its owners) about their plans to establish an LNG plant in Risavika, to be followed by a formal land-use plan. The possible impacts on the surrounding areas had not been fully assessed at this stage and Lyse appeared to consider the risks to be more or less negligible, or at least not greater than those posed by the previous oil refinery. The plan was approved by the municipality in 2006 with a considerable majority, but protests and concerns were raised by local citizens during the public consultation process and included formal complaints addressed to the regulators. However, the necessary approvals were obtained, and the plant was built in 2010 with a production of 300,000 tons of LNG per year, with gas temporarily stored in a 30,000 m³ tank before being transported by road or sea.

A series of risk assessments were produced in the process, based on a variety of assumptions that reflected the different phases of the planning process, and with increasingly detailed and realistic analyses that reflected actual plant designs. As it happened, one early risk assessment included a scenario involving nearly 1000 fatalities—but estimated at an extremely low probability. This assessment, based on a conceptual outline of the plant only, triggered much attention. It fueled subsequent public debate in which the number of potential fatalities appeared to overshadow the low probability. As the details of the project materialized, more realistic assessments appeared, but these still contained assumptions that were intensely debated by risk experts and community representatives⁷. The former even included some of

⁷ The assumptions in the first assessment allowed an estimation of the probability of a catastrophic failure of the LNG storage tank. As the actual construction was based on a standard involving a double containment tank, this probability was later seen as negligible, and the scenario was not included in subsequent assessments.

Norway's leading academic experts. One professor at the University of Stavanger took a particularly critical role that was voiced in the media as well as in academic outputs and included fierce criticism of the consent given by DSB (Vinnem 2010). In parallel, Lyse had commissioned leading risk experts from the technical university in Trondheim to conduct a review of the process. While they were highly critical of risk communication and citizen involvement during the process, the risks as such were largely considered to be acceptable. The engagement of activist groups continued, however, leading to an exceptionally high amount of correspondence with local and central authorities. When DSB issued their public report in 2015, the representativity of these groups was implicitly questioned, however, and no broad public opposition was documentable. Ultimately, the overall diagnosis was quite similar to the South Port report in terms of the need for a more comprehensive coordination of risk management efforts within the port area as a whole.

4.4.3 Borregaard, Sarpsborg

The Borregaard cellulose factory was established in the late 19th century close to available raw materials and hydropower. A residential area with housing for workers developed around the industrial site and urbanization has continued to this day. As the cellulose factory utilizes large amounts of sulfur dioxide, there is a significant risk of toxic gas dispersion into these areas. In April 2016, the municipality of Sarpsborg issued a temporary building ban in the safety zone around the facility, based on DSB guidelines. This was followed by a risk reduction review initiated by DSB, showing that the implementation of two planned modification projects at the major-hazard site would significantly decrease the risk contours. The risk reduction measures were implemented, and new calculations allowed the local planning authority to apply a more limited extent of the temporary zone. The municipality then prepared an overall risk and vulnerability assessment for the areas covered by the land-use plan, resulting in a proposal for new safety zones published in April 2017. While there had been strong opposition to the initial building ban, the succeeding public consultation process included an open meeting arranged by the municipality in collaboration with the company and DSB. The main message from the municipality was that the facility was probably "safer than ever", but that stricter safety requirements necessitated the suggested consideration zones. The atmosphere in one meeting was described as aggressive, with residents, developers and entrepreneurs voicing concerns about how the suggested restrictions would affect private real estate prices and development potentials. A slightly amended plan was presented a few months later, before the formal hearing process was closed. However, the idea of safety restrictions appeared to have been gradually processed and absorbed. Attendance at the public hearing was considerably lower and discussions were described as "sober and factual" with respect to the assumed risks and the associated restrictions. Notably, what triggered publicly voiced concerns in this case was not the safety risks as such, but rather the restrictions arising from them.

4.5 Implications and Concluding Remarks

As may be evident, a broad range of challenges are encountered when dealing with complex and transboundary safety concerns with a potential impact on surrounding communities. While the Norwegian regulatory approach may arguably be seen as technocratic and top-down, it has still been instrumental in establishing a fairly comprehensive and harmonized regime. Without it, safety concerns would be handled in a more arbitrary and case-by-case manner. Whereas systematic participatory and deliberative processes may have been only weakly utilized, the current approach provides a reasonably standardized way of protecting citizen interests that would otherwise go unattended. Furthermore, the voices of the affected are far from unequivocal. The three examples represent an interesting spectrum of cases in this respect. They range from indifference to outrage, the latter in response to risks in one case and to restrictions resulting from risks in another. Moreover, they are not stable over time. Either way, the lack of correspondence between public concern and estimated risks was apparent, considering for instance the magnitude of exposure in the Oslo city center as compared to the local residential area in Risavika.

Risk governance involves foundational epistemic and normative issues which are difficult to fully appreciate in regulatory systems, assuming also that they must be manageable within given resource constraints. Within the scope of this chapter, three of these may be only briefly noted.

Firstly, risk management needs to be prioritized at critical stages of the decision-making process. Governance approaches must be holistic and explorative in order to effectively exceed isolated risk domains and associated organizational boundaries. Sufficient governance capacity to integrate all concerns and issues in such processes appears as a critical factor. The integration of citizen concerns and community interests must be balanced and manageable, taking into account of multiple and conflicting goals.

Secondly, while public concerns may not consistently reflect the magnitude of the risks involved, there is the more foundational question of how such magnitudes should actually be assessed. Even professional risk assessments may differ in their conclusions, which may come as no surprise given the intrinsic uncertainties involved when dealing with possible futures. Probabilities may be only one imperfect way of expressing these in the face of selected assumptions and unevenly available knowledge (Aven and Renn 2010). Expert-based and government-inspected assessments, however fallible, may still be considered unavoidable resources in determining overall societal acceptability and there is a need to define the parameters within which these levels of acceptability shall be determined.

Thirdly, there is the issue of public interest in relation to different models of democracy. Regulatory governance derives democratic legitimacy from statutory law produced by elected representatives and implemented in a manner subject to executive accountability structures. Representative democracy is, in our case, also rooted in the role of local governments. Deliberative models are based—inter alia—on the principle that the most affected should have a privileged role in shaping

outcomes beyond their voice through the electoral vote. Insofar as regulations integrate participation and stakeholder interests, as is often the case, a dual or hybrid form of enhancing both dimensions is in place. Beyond the issue of institutional capacity, there are still considerable questions to be solved regarding criteria for inclusion and selection in such processes. These relate to what and whom to include as well as what and how to select (Aven and Renn 2010). As evident from the cases reviewed, the regulators may accentuate or attenuate risk in accordance with transparent and standardized approaches which rely on the principle that industrial risk exposure shall not significantly increase everyday life risks. Such approaches may arguably appear as a reasonable and pragmatically manageable way of serving public interests.

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Chapter 5

Broadening the Scope of Industrial Risk Assessment and Management



Julien Rebotier

Abstract This short chapter describes risk governance in Esmeraldas, Ecuador. It highlights the social, political and economic complexity that underlies current governance practices, and why it is so difficult to break away from the established order. This case illustrates the importance of decompartmentalizing risk analysis and risk management. When it comes to risk, and in this case industrial risk, other factors always come into the equation. In Esmeraldas, everything outside the industrial facilities is somehow directly or indirectly involved in the risk situations that arise there. This case argues for greater openness and integration in industrial risk analysis and management, which are usually handled internally, within the very structure of the organizations in question. The hypothesis is that what is gained in terms of lasting and significant impact (by working on structural and fundamental mechanisms) can make up for what is lost in terms of simplicity (in taking an industry-focused approach).

Keywords Oil · Territory · Oil-offsets · Governance · Ecuador

5.1 The Esmeraldas Paradox: A City That Is Both Essential to the Country's Development and Marginalized

Esmeraldas is located on the north coast of Ecuador, some 100 km away from Colombia. The trajectory of this large Afro-Ecuadorian city is unique in the country. On the one hand, it is of vital importance to national sovereignty and security, and on the other, it is poorly understood and neglected.

It is home to Ecuador's largest refinery. Esmeraldas lies at the end of several pipelines coming directly from the Oriente oil fields. It is also the country's only point of export for crude oil, the sale of which accounts for about one-third of GDP. In other words, Esmeraldas is a cornerstone of Ecuador's oil-based development model.

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However, Esmeraldas is a poor city that never benefits directly from the industrial activities located within its boundaries, despite them being highly lucrative for the country. The population (around 200,000 inhabitants) has some of the lowest socio-economic indicators in the country. As an example, there is no bookshop or cinema there.

Finally, in the national landscape, Esmeraldas is subject to a process of marginalization that is evident on several levels and is part of the long history of both the city and the country (Rebotier et al. 2023).

5.2 The Difficult Task of Managing an At-Risk Area: Prevention, Mitigation, Crisis Management

The lack of knowledge regarding this area is surprising given its importance to the country. But it is even more surprising when one considers the multirisk situations that potentially threaten the city and the oil and energy installations located there. On the one hand, the city is highly exposed, and on the other, it is poorly prepared.

Esmeraldas is exposed to major natural threats. The greatest of these, the seismic threat paired with that of a tsunami, was the focus of much attention following the major earthquake that occurred further south in 2016 (Nocquet et al. 2017). In the Esmeraldas region, the active Pacific margin is one of the places in the world most likely to trigger a powerful earthquake. Day to day, however, it is the rainfall pattern, causing flooding and landslides, that multiplies accidents, emergency situations and even disasters. In late February 1998, for example, a major El Niño episode resulted in heavy rainfall that triggered a landslide near the city. The landslide swept away one of the main oil pipelines supplying the Esmeraldas refinery. A considerable amount of oil spilled into a tributary of the Teaone River (which runs close to the refinery), itself a tributary of the Esmeraldas River. Once it reached the ocean, the oil caught fire in the rivers, burning down dozens of homes and affecting some of the city's poorest neighborhoods, established along the river banks. To this day, the court sentence handed down to the industrial players, and designed to repair the damage caused, has not yet been fully implemented.

In the face of so many threats, the municipality's ability to manage risks and reduce vulnerabilities, which is its responsibility under the regulatory framework, is proving to be wholly inadequate. Generally speaking, the municipality of Esmeraldas suffers from an institutional deficit and a lack of transparency. The city has few human resources, skills and financial resources at its disposal.

The national effort to structure local risk management policies began at the turn of the 2010s, with the help of international cooperation. A succession of initiatives were launched, but no capitalization of efforts has been noted, nor any increase in management capacity. The impact on the ground has been very limited if not undetectable. The municipality is clearly unable to take charge of risk situations within its territory (to monitor them, prevent them or manage crisis situations). Nor

is it managing to reduce vulnerabilities. More than 60% of the built environment is informal, thus escaping regulations which, when they exist, are only unequally applied due to a lack of control and inspection capacity. The city has no land registry; something which could help with monitoring and regulating the urban dynamics of a highly exposed city with industrial facilities in its immediate vicinity.

5.3 A Socio-Territorial Approach to Risk Management, Based on Structuring Relationships Between Industry and the Local Area

To understand some of the root causes behind how industrial risks are identified and managed in Esmeraldas, it is helpful to gain a better grasp of the socio-territorial dynamics at work in this city. It is from within this world of constraints that the risk situations will start to make sense, that they will be properly identified, and that it will be possible to address them. It is in this context that the range of possibilities, the appropriateness of the strategies put in place, and the feasibility of the solutions will be determined. Thus, an approach to risk based on socio-territorial dynamics is not a complement to the technical and sectoral approach, based on plant operation and industrial safety logic. It is a unique way of looking at industrial risks in context, taking into account the specific characteristics of the places where the risks arise. These specific characteristics are all areas of intervention to consider when taking a more integrated approach to industrial risk management and reduction.

5.3.1 The Roots of the Asymmetries and Opposition Between Actors, Levels and Interests

The paradox of Esmeraldas, a city that is both marginal in the country and vital to the national economy, draws our attention to the presence of different actors, at multiple levels, who operate in the Esmeraldas territory, in the industrial and oil sectors, but without really interacting with the territory, the local public authorities or the populations. This enclave logic results in several forms of “partitioned” management: of spaces, of the problems envisaged, of the solutions provided, of the monitoring of risk situations, of the causes considered, and so on.

The relationships that the powerful national oil industry players and the government maintain with the populations and local public authorities in Esmeraldas are marked by the city’s unique status in the national narrative (historical and development narrative). This status is based in part on stubborn prejudices against the Afro-descendant majority of the urban population. Black people are believed to be lazy, uneducated, untrustworthy and deceitful. This makes it difficult to work with the “locals”; there is a shortage of interlocutors. In fact, besides certain individuals

working in unskilled positions in the industrial facilities (only some of which are filled by Esmeraldas residents), the workers in the industrial sector do not live in Esmeraldas. They live in nearby coastal towns or commute from Quito.

There is also a certain mistrust of rebellious black populations who, over the course of history, have demonstrated against their apparent abandonment by the country's government. Over time, Esmeraldas became known for a form of irredentism (its motto is: "free because rebellious, and because rebellious, great"). The Spanish Crown had no authority over the region until the late seventeenth century, then third parties (mining companies, Jesuit missions) took some control of the territory and its resources. At the end of the nineteenth century, in what was by then a republican Ecuador, Esmeraldas was the epicenter of the liberal revolution led by Eloy Alfaro, a great man of the nation. Over the course of the twentieth century, the urban political scene often stood out as an exception in the national landscape, supported by a very vocal trade union movement and the promotion of cultural and identity-related causes. In light of the political history, and from the perspective of the key players in power, there is good reason to be wary of an eruptive city that is difficult to control.

More broadly, there is a relationship of domination based on a kind of asymmetry, a tension between the center and the periphery, the national and the local, the white and the black, the industrious and the idle, the modern and the rudimentary, etc. These binary partitions of the social world both shape and enable the actions of the powerful oil industry players and the government. On the development chessboard, Esmeraldas serves but one purpose: to provide a space for the siting and operation of energy infrastructures, the proceeds of which support the entire country. While at the local level, for the populations, risk is embodied by the industrial facilities, at the national level, for the oil sector and the executive, risk takes the form of an interruption in oil-related operations, whether this interruption results from an El Niño event, as in 1998, or from obstacles to business continuity posed by local territories, populations or stakeholders. In Esmeraldas, the industrial situation is built on opposition between players, levels (local vs. national) and interests. It capitalizes on the status of the city and its population in the national landscape and draws on the significant legacy of marginalization—that is still occurring today. In this respect, the partition even appears on the official cartography of the Hydrocarbons Secretariat, which shows the oil and energy facilities in Esmeraldas at some distance from the urban fabric. However, it takes just a simple drive through the southern part of the city or a glance at Google Earth satellite images to see that the city does indeed have pipelines running through it and that the urban fabric largely surrounds most of the facilities.

5.3.2 The Compensation Approach to Meet the Needs of Local Populations: Virtuous Aims, Negative Effects

At the turn of the 2010s, the Ecuadorian government wanted to give a voice to the marginalized, the disenfranchised and the forgotten parts of the nation. Political rhetoric focused on these places and sectors of the population in order to repay a historical debt they were owed. An ambitious compensation policy aimed to reduce disparities in development, indemnify for the damage caused by the exploitation of primary resources, but also compensate for quantifiable losses. However, the key players (of the oil industry and the State) were so influenced by a partitioned view of the territory (following the binary logics presented previously) that they never really strayed from their own agendas (which were not always compatible, and sometimes even conflicted, with local interests). While their actions were supposed to break with a form of subordination, they actually intensified it (e.g. they invested a lot of money into highly exposed sectors...without transforming the conditions of exposure). In the end, the industrial risks were recomposed: after the compensation policy there were more exposed issues than before it was implemented.

Looking at the details, the city of Esmeraldas and its surrounding area benefited greatly from the compensation policy. Between 2009 and 2019, when the average municipal budget fluctuated between 25 and 65 million dollars per year, the city received over 1000 million dollars in public investment, channeled through the sectoral actions of ministries, direct intervention by the national executive, or the actions of oil companies in charge of a policy of social and environmental responsibility promoted by the president of the Republic. These additional resources were made possible by the state of the oil market, and by exceptional contributions to the national budget (a direct share allocated to the compensation policy), or the obligation placed on companies in the energy sector to implement an ambitious CSR policy. In reality, the allocation of these resources, which far exceeded local investment and intervention capacities, always remained under the authority of the key players (oil industry or government). The compensatory investments therefore also (predominantly?) served the interests of the powerful dominant players. Due to the way the spending was managed (choice, location, prioritization), the fundamental asymmetries that are specific to this region were never corrected.

For example, tens of millions of dollars were invested in infrastructure and public buildings or channeled into promoting tourism on the waterfront, or in the lower estuary of the Esmeraldas River, and both of these areas are particularly vulnerable to the threat of tsunamis. To the south of the city, in the neighborhoods situated in close proximity to the industrial facilities, the oil operator had a school built, as part of the compensation package, in a meander of the Teaone, a tributary of the Esmeraldas River, and within the “area immediately dangerous to life and health in the event of sulfide emissions from the refinery” (Rebotier 2023). Of course, it is important to improve the living conditions and amenities in the poorest neighborhoods, or in the areas most affected by the harmful effects of oil exploitation. But there are even

more exposed issues, and therefore greater risks, after the compensation measures than there were before.

5.4 Avenues Toward a More Integrated Approach to Risk Management?

It would appear that the contextual elements specific to the social and regional dynamics need to be taken into account in order to provide adequate solutions to the challenges posed. Overlooking the importance of circumstances and context could lead to reproducing the existing, fragmented approach to risk and risk management that encourages partition and subordination. These are just some of the problems standing in the way of the solutions that need to be invented in order to reduce risks in Esmeraldas sustainably and fairly. As researchers, we supported two industrial risk management initiatives that seemed to us to break with the world of constraints at work in Esmeraldas.

In 2015, for several months, the Cotopaxi volcano near Quito threatened to erupt. The prospect of possible disruptions to the capital and to the oil infrastructures and network located close to the volcano had an impact on decision-makers in the oil industry. Even when major problems occur and are managed outside the boundaries of the industrial facilities, they nonetheless affect the industry. Nothing that is external to the oil business is absolutely irrelevant to its management, or to the ways risk situations are managed. It was from this more inclusive perspective that a window of political opportunity opened up, enabling the secretariat in charge of safety and the environment (a sub-directorate of the PetroEcuador oil company) to work with the Ministry of Resources and Hydrocarbons to propose the creation of a National Risk Management Committee (NRMC). The NRMC space was intended to bring together the public and private players involved in the country's oil activities, to share information and respective interests and to coordinate effective, preventive action across all systems and across the industry. The threat of a Cotopaxi eruption highlighted the interdependence between players and the permeability between the oil system and its various components on the one hand, and contextual effects, contingent and circumstantial events on the other. The possibility of creating such a space depends on achieving a delicate balance between different kinds of conditions: a one-off, unanticipated event (here, the threat of a Cotopaxi eruption) opens up a space of possibilities; a major political figure (the minister) sees the benefit of the initiative and seizes on the opportunity to make it a reality in the institutional landscape; a PetroEcuador executive (in this case, the head of the secretariat in charge of safety and the environment) supports and promotes this approach, which breaks with the usual practices in industrial safety management, at least in the oil sector. It is within this new space that some discussions about Esmeraldas began, concerning relations between the refinery and the surrounding working-class neighborhoods, between PetroEcuador and the municipal authority, and between the various national oil and

energy players operating on the Esmeraldas site. But in 2017, the window of political opportunity closed once again, and the conditions that had made it possible to set up the NRMC disappeared. The people behind the initiative had left their positions, the Cotopaxi eruption had ceased being a threat and, more importantly, world crude oil prices had stalled. PetroEcuador distanced itself from the integrated management of risk situations to concentrate on exploration, exploitation and export. After 2017, the main focus was on volume. Alternative approaches to industrial risk, both at the facilities and at the industry level, took a back seat.

At the Esmeraldas level, during the course of our research, we spent some time with the various national oil and energy players present on site. They were all involved in part of the general compensation policy sought by the executive, through the social and environmental responsibility for which they were responsible. They all considered that, through various channels, a lot of money was redistributed on the Esmeraldas site as part of the compensation plan. All recognized that the money was distributed from the top down, and that control over the resource, its allocation and the execution of operations remained in the hands of national players outside the city. At the level of the energy and oil players, resources were allocated to projects without the intermediation of the municipal authority (even if the investments were going to urban development or infrastructure operations, which come under the purview of the municipality). Dealings with neighborhood associations or local representatives varied depending on the interests at stake or on the pressure exerted by local residents. Those who control the resource have no confidence in the ability of local players to manage such a windfall with integrity. Involving local stakeholders in deliberations and decisions about the future of the resource is doomed to failure. However, from our point of view as researchers, it is not possible to promote interventions in the area and for the local populations without involving them in the process. In order to end the pattern of domination and subordination, while at the same time trying to get the most out of the colossal resources invested in Esmeraldas, we proposed setting up a kind of trust fund by bringing together the various sources of funding under the authority of a third party (UNDP-Ecuador), with the help of a consortium of players involved at different levels. The aim was still to put an end to the asymmetries, mistrust and sidelining, in order to involve everyone, in their own way but transparently, in the collective effort toward a common interest, however minimal. Unfortunately, this ambition never materialized. The resistance to breaking with the current system was too strong and the sources of compensation, which were highly dependent on the oil market and the will of the national executive, dried up.

In both cases, the aim was to approach the problem of industrial risks differently, to open up to other actors, to question management methods and to focus some attention—also and simultaneously—outside of the industrial world alone (in this case, on the territories and contexts). On each occasion, the minimum conditions needed to allow alternatives to become reality were met only for a short time. Breaking with the existing order will never be easy. It requires effort, proper timing and, no doubt, political audacity. It also requires methods, techniques and procedures that other contributions to this book explore in greater detail.

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Chapter 6

The TotalEnergies Approach to Stakeholder Engagement



Irene Roca Ortiz

Abstract Stakeholder engagement is a requirement of TotalEnergies' social performance approach, as set out in its governance documents applicable worldwide. This article discusses the four main processes implemented by company-operated entities.

Keywords Stakeholders · TotalEnergies · Dialogue

6.1 Introduction

For TotalEnergies, stakeholder engagement is an integral requirement of the social performance approach, set out in the company's internal governance rules as outlined in documents such as the Code of Conduct and the HSEQ Charter. It is part of the operational responsibility requirements of the TotalEnergies HSEQ management framework, with a dedicated company rule for stakeholder and local impact management. This rule clearly expresses that all company-operated entities are required to establish and maintain a dialogue process with stakeholders. This dialogue process should include: providing information about the negative impacts and benefits generated by current or planned activities and about the actions taken to avoid, reduce or mitigate these impacts; a consultation process to listen to stakeholders; and give feedback on the outcomes of the consultation. This article delves into TotalEnergies' stakeholder engagement approach, highlighting its key elements with a practical focus.

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6.2 A Structured and Ongoing Process

Stakeholder engagement is understood as a continuous, two-way process between the company and its external stakeholders. As an ongoing process, it is carried out along all operations lifecycles. The goal is to build a relationship of trust with key stakeholders, to ensure a social license to operate and to manage non-technical risks.

TotalEnergies recognizes the importance of meaningful, proactive and effective stakeholder engagement and has designed a structured process based on knowledge of the social context and adapted to the local culture, their risks and opportunities. To this end, entities operated by TotalEnergies implement four main processes: (1) stakeholder mapping; (2) a Stakeholder Engagement Plan (SEP); (3) a grievance mechanism; (4) a Stakeholder Relationship Management methodology (SRM+).

6.2.1 Stakeholder Mapping

Stakeholder mapping is the foundation for understanding the expectations of stakeholders, how they are potentially affected and how they could influence the company's operations. It should be performed and updated on a regular basis and consists in identifying, analyzing/classifying and mapping the stakeholders in order to prioritize them and establish the Stakeholder Engagement Plan (SEP).

A first, critical step is to correctly identify the stakeholders, to determine who might be directly affected and who might have an interest in the project or operation. One common pitfall is not identifying them correctly, which then leads to potential conflicts and misunderstandings with the stakeholders inadvertently omitted. In new areas, we start by creating the list based on existing studies, such as the Social Baseline Study, and conduct desktop research and fieldwork with interviews and site visits. Comparing desktop information with that gathered in the field is key, as secondary information is not always accurate or up to date—depending on the region. A comprehensive list and directory should be created and updated.

Then, to analyze and map the stakeholders, we determine each stakeholder's level of influence/interest and level of expectations. During this process, we may also identify their attitude toward the company. The whole exercise is laid out in a 4×4 matrix, enabling a visual prioritization of stakeholders.

6.2.2 Stakeholder Engagement Plan (SEP)

The overall purpose of the SEP is to provide a framework to guide the establishment of a broader, continuous engagement process with the different stakeholders located within the area of influence of the project/operations. The SEP is a “living” document that should be updated periodically, following any changes at

the project/operations level or in the interests and understanding of stakeholders. Frequently, the SEP includes or refers to a “grievance mechanism”, for community, non-commercial or labor complaints. The SEP also includes a timeline of stakeholder engagement activities. This is an operational document that is updated regularly as the context changes. It provides detailed information about the specific activities, their purpose, the targeted stakeholders, the type of interaction (consultation, negotiation, information, etc.), the resources, and the name(s) of the responsible team member(s).

Once the SEP is established, engagement interactions take place in a culturally appropriate and context-specific manner. Engagement interactions must be recorded properly to meet internal and external requirements, with the consent of the stakeholders involved.

Based on the records of engagements, each entity must produce regular reports on the progress of stakeholder engagement efforts and address these to internal and external stakeholders. TotalEnergies conducts a yearly worldwide reporting campaign where more than 200 entities report on their stakeholder dialogue and engagement activities. In 2023, 265 reporting entities logged about 52,659 meetings conducted for external stakeholder engagement activities.

As part of the continuous process, both the stakeholder mapping and the SEP are updated regularly by the entities, to take into account social and/or operational context changes and feedback received. This might involve refining the key messages, addressing any issues that may have arisen or adjusting the frequency and methods of communication.

6.3 Grievance Mechanism

Community grievance management is a key component of stakeholder engagement and is essential for achieving acceptability. The mechanism should be accessible, culturally adapted, and should make it possible to report, address and solve issues in a transparent, timely and effective manner.

TotalEnergies has gone to great lengths to ensure that all company-operated entities under the HSEQ framework have a grievance procedure in place for local, non-commercial grievances. Besides having a grievance mechanism in place in all entities, one challenge lies in assessing the effectiveness of access to remedy and in consolidating its performance globally.

6.4 SRM+ Stakeholder Relationship Management Methodology

More than ten years ago, in an effort to professionalize social performance practices, TotalEnergies developed the SRM+ methodology. The main goal is to analyze the gaps between the visions of internal and external stakeholders, to nurture the relationships and update the social performance action plan accordingly. The methodology involves several tools, deployed at the relevant entity level, to help identify and map the main stakeholders in the first instance and then plan meetings with them to understand their perceptions, concerns and challenges, usually in the company of a third-party consultant or someone from corporate headquarters tasked with assisting the entity.

In brief, stakeholder engagement is an integral formal requirement and key component of social performance management. As part of its continuous improvement approach, TotalEnergies keep working to enhance stakeholder engagement practice throughout the company, which ultimately enhances social performance outcomes.

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Part II
Approaches for Developing and Managing
Public Participation

Chapter 7

Social Acceptability of Industrial Risk



From the Right to Know to the Duty to Engage

Corinne Gendron, Alice Friser, Stéphanie Yates, and Marie-Luc Arpin

Abstract The concept of social acceptability aims to grasp the social dynamics surrounding public projects and decisions. Social acceptability is commonly used to analyze the social context of new projects and decisions, but it has seldom been used to understand the dynamics surrounding industrial risk management. This chapter proposes to explore the potential of social acceptability as a frame for participatory issues in risk management.

Keywords Public participation · Social acceptability · Risk assessment · Risk management · Participatory bodies

7.1 Introduction

Since the turn of the century, infrastructure projects and decisions have been seen as more controversial among the public. This evolution has often been explained by the NIMBY effect (*Not in My Back Yard*), where citizens oppose projects in a bid to avoid inconveniences brought about by facilities in which they have no individual interest, even if these facilities are deemed to create value for the majority. But this public reaction toward important projects can be interpreted otherwise. Nowadays, citizens are more educated and informed. Furthermore, they often possess situated knowledge derived from concrete experiences in their territory—knowledge that can be relevant for assessing a project’s impact on local populations (Bérard 2018). As a result, they feel they have a relevant perspective to evaluate decisions and projects.

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Another concept has been proposed as a tool to understand and manage public opposition to industrial projects: the “social license to operate” (SLO). Built on the “social contract” metaphor, this concept highlights the conditions to be met by a company to legitimately operate in a community. However, the SLO concept does not provide an understanding of where conditions of acceptance come from and why they are important to the communities involved. Moreover, it conveys a static and narrow perspective of social dynamics surrounding development projects, by collapsing them into a mere negotiation between two parties about specific items at a given time.

The concept of “social acceptability” sheds a new light on citizens’ oppositions: it is cognizant of the fact that citizens mostly oppose projects and decisions based on their values and their vision of an ideal society, rather than solely on mere individual interests. Over the last decades, there has been a significant increase in demand for participatory democracy. People wish to contribute to a society that resembles them and echoes their vision of progress. This implies that public authorities and private companies can no longer make unilateral decisions when these significantly impact populations. As the literature on social acceptability highlights (Gendron et al. 2016a), leaders are now expected to consider the views of citizens, recognize the latter’s ability to assess the pros and cons of a project or a decision and, in some cases, acknowledge their willingness to be part of the decision-making process. Even scientific authority in technical decision-making is being challenged: indeed, no single scientific discipline can explain today’s complex issues and practically no theory within a scientific discipline is free of debate (Collins and Evans 2002, p. 235). Therefore, haphazardly using “scientific consensus” as an authority argument to foster collective approval on a contested project or technical decision is more likely to stimulate the formulation of an alternative scientific discourse, leading to a politicization of science (Gendron 2016; Douglas 2023).

7.2 Degrees of Social Acceptability

From a scientific viewpoint, social acceptability refers to “the assent of the population to a project resulting from the collective judgment that this project is superior to known alternatives, including the status quo” (Gendron 2014). It is the result of a collective and dynamic judgment based on shared values interwoven with more private interests. Public reaction to a project can evolve from rejection to tolerance, acceptance or appropriation. Rejection occurs when a project is perceived as potentially harmful and in contradiction with the values shared among the population.

Tolerance for a project is the minimum level of acceptability for a project to go ahead. It implies that there is no fundamental incompatibility between the aims of the project and the values and interests of the population. Assent for a project goes further: the objectives underlying the project coincide with the values of the population. But assent is not necessarily explicit acceptance; often a project raises little opposition and acceptability is tacit. This is why social acceptability does not necessarily result

from a formal participatory process. However, such a process is helpful when citizens' concerns and points of view are unknown or when the project is expected to generate opposition. Lastly, appropriation of a project would correspond to a situation where citizens have been involved in the decision to such an extent that the project has become "theirs". As an example, co-construction was chosen by the Quebec government to foster the social acceptability of the wind energy sector.¹

The concept of social acceptability lends credibility to opposition and emphasizes the need to carefully consider the arguments presented against a project. Interestingly, several analyses have shown that, in many cases, public opposition tends to center on concerns related to governance, fair distribution of benefits, pollution burdens, as well as environmental disturbances and landscape deterioration resulting from a project (Gendron 2016). Solely focusing on the technical aspects of a project overlooks the political and value dimensions highlighted by opposition, instead of responding to them through measures such as redesigning the governance and distributional dimensions of the project. Technical discourse is then heard by the local population as a rejection of more political requests that could have been negotiated in good faith.

Simply put, traditional social acceptance strategies do not try to understand why specific populations are recalcitrant, but instead assume that the problem lies with the people rather than the project.² Reframing social and political claims as technological ignorance is at the core of what is called the deficit model (Miller 1983). This model depicts a general population lacking the scientific knowledge to understand technos-structure decisions and therefore highlights a need to disseminate a scientific culture among the population to dispel fears and override emotional reactions to a project (Ahteensuu 2012; Cortassa 2016). As such, this model discredits the population's knowledge and judgment and prevents their demands from being taken seriously. It impedes the attitude of goodwill that is necessary to welcome and understand the population's point of view. While the deficit model is widely referenced by advocates striving for social acceptance, its persuasiveness has diminished over the years due to the increasing education levels of a population that also includes recognized scientists.

¹ As in past calls for energy production, a recent government decree specifies that local community participation at a rate of approximately 50% is a condition for submitting new wind farm proposals. *Government of Quebec, Décret 214–2023, 8 mars 2023 Concernant les préoccupations économiques, sociales et environnementales indiquées à la Régie de l'énergie à l'égard d'un bloc de 1 500 mégawatts d'énergie éolienne.*

² The expression "social acceptance" aims to differentiate promotional strategies from the social acceptability concept fostered by academics since the early 2000s (Batellier 2015). In comparison with those social acceptance strategies, the social acceptability approach goes beyond an instrumental perspective and acknowledge the legitimacy and relevance of the population's point of view about a project.

7.3 The Pillars of Social Acceptability in the Context of Risk Governance and Management

Social acceptability is built upon four main factors: relevance, feasibility, fairness and trust (Yates et al. 2023). How these factors translate in a risk management context and help renew the approach on public participation and industrial risks is developed below.

First, a project must be seen as relevant to social needs, which entails a shared diagnosis of a given problem. Social actors must be persuaded that the project or decision represents a realistic solution to their problem and that its costs and risks are justified. To this end, promoters must understand the general needs and preoccupations of the population and the impacts of the project or the decision. Then, they must construct and, if necessary, co-construct the project or the decision so that it meets the needs of the population concerned, responds to their preoccupations, and is consistent with their values and vision of progress. Since risk management is done in the context of existing facilities, the assessment of relevance is influenced by the public interest served by the ongoing production.³

A socially acceptable project or decision must also be perceived as feasible. This means that promoters must ensure that their project is technically and financially viable and also compliant with the existing institutional framework, i.e. standards, laws and regulations. In the context of risk management, feasibility typically refers to the technical aspects of safety, compliance with risk management rules, and legal requirements related to transparency or participation. Social acceptability will then depend on the adequacy of the safety measures and the quality of the technology, as well as the attitude of the firm toward the regulatory framework and local populations. Laxity, challenging legal obligations or relying on outdated technology often hinders the social acceptability of both the facility and the inherent risks associated with it.

To be socially acceptable, a project or decision must also be fair. For this purpose, promoters must first recognize its potential nuisance and include appropriate compensation if the sources of nuisance cannot be eliminated. Then, they must ensure that the benefits of the project or the decision are distributed equitably. If a participatory process is engaged, it should involve all the people concerned and everyone must be given the same information and a chance to express themselves. Once the project is accepted, the promoters must ensure that proper monitoring is conducted to guarantee the management of disturbances and the fair distribution of compensation. Fairness is fundamental for social acceptability in the context of industrial risks. Indeed, because industrial risks are imposed on neighboring populations, fairness suggests that those populations should be compensated for bearing such a burden. They must also be assured that they can rely on the highest level of operator vigilance regarding the safety of the facilities. If an accident occurs, scrutiny should not focus primarily on

³ While the necessity of production such as public utilities (i.e. energy or waste management) does not guarantee social acceptability, the production of non-essential or frivolous products can contribute to social unacceptability. A poor evaluation of the production's relevance will then impact the acceptance of potential risks related to the facility.

the uninformed behavior of the neighboring population, as is often observed. Rather, it should focus on the quality of the information and the way it has been provided, and afterwards on how promptly the firm's management, in collaboration with public authorities, assisted the local populations with emergency procedures and facilitated compensation and reconstruction after the event.

Finally, acceptable projects require trust in promoters and decision-making processes. To this end, promoters should build a long-term cooperative relationship with residents and advocacy groups. Because a trusting relationship is built over time, promoters must nurture their relationships independently of the project or the decision. Promoters will benefit from having discussions with community members before designing the project, to understand their needs. It is in their best interest to be transparent through each stage of the project and with all the actors concerned. Compliance with required procedures, laws, rules and regulations is also a strong element in trust building, as is an openness to participation and co-governance when appropriate. If participatory and co-governance processes are engaged, it is imperative to conduct them with rigor and transparency to establish and maintain trust. The organization's reputation will also matter. Moreover, it is worth remembering that trust in the organization will also be influenced by the public figures who embody it (e.g. spokespersons) and, in the case of a private company, by its relationship with the government, because it is ultimately the government that has the final say on whether a project is approved or rejected. If the public perceives that both the company and the government are pursuing interests that run counter to those of the public, trust in both entities is likely to diminish. Therefore, perceived conflict of interest, lack of transparency, lack of recognition of citizen legitimacy and past controversies can all undermine trust building.

7.4 Risk Culture: The Convenient Suspect

Public participation is now widely considered essential to risk assessment and communication by the academic literature (Balog-Way et al. 2020; Anex and Focht 2002), but the link between risk management and social acceptability remains unexplored. Yet, when examining past catastrophes, it becomes obvious that the factors underlying social acceptability are seldom present in the context of hazardous facilities, where social acceptance strategies and the deficit model still predominate in the way information and participation of the public is organized. As an example, in France, several reports issued after the accident at the Lubrizol factory in Rouen in 2019 recognized that, in this case as well as in others, the institutional consultation bodies were not fully operational and did not really include citizen participation (FonCSI 2024, p. 55–56). It is interesting to look deeper into the dynamics of such consultation bodies in risk management. As recalled by FonCSI (2024, p. 57):

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, 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 et al. 2016) (FonCSI 2024, p. 57).

At a more general level, FonCSI (2024) has highlighted that the response suggested by several actors after the Lubrizol accident consists in enhancing a risk culture among the population and in fostering its resilience toward industrial risk. One can note that the first recommendation is always formulated as a lack of knowledge of the population, but rarely as a deficient information approach on the part of the company or public authorities. The recommendation for resilience has also been criticized, as it can be interpreted as a communication tool aimed at coercing the population into accepting disasters or living with catastrophes, without addressing the needs and causes underlying these industrial risks. Indeed, the risk culture and resilience recommendations seem to focus on the shortcomings of the population instead of emphasizing the responsibility of public authorities to ensure proper monitoring and the responsibility of companies to reduce and manage their risks and adequately inform the population about the risks their activities pose and the procedures to follow in case of an accident.

7.5 From Risk Culture to Population Culture

Adopting a social acceptability perspective sheds a new light on public participation which leads to improvements in the functioning of participation bodies and in the prevention of major risks on concerned territories. It promotes what can be called a "population culture" among industrialists, instead of the usual risk culture required from the population. As stated by FonCSI (2024, p. 67), what is needed is:

(...) A shift in focus (...) 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"

(FonCSI 2024, p. 67).

This implies that the burden of effective information about the facility and proper education about the behavior to adopt in the event of an accident falls on the company, not on citizens. It also entails those citizens participating in the evaluation and management of risks in their territory once they have been properly informed about the firm's operations. Such a participation culture is based on three items.⁴ First of all, it is legitimate for impacted people to know that they live in a risky territory,

⁴ We deliberately chose to propose "population culture" instead of "participatory culture" (Martinais 2022; Martinais 2021) to stress the fact that participation is one means among others available to promoters to ensure population's safety.

and to be part of the decisions about risk management, given that they would be directly impacted by a catastrophe. It is also helpful to recognize that the situated knowledge citizens have developed through concrete experience of their territory can be useful to assess the risks facing this territory and to design specific safety and risk management measures. Lastly, as already recognized by today's mechanisms, emergency responses can be more effective when designed and carried out in partnership with local actors. This is why public participation in risk management should be welcome as a contributive work, not as a duty. From this perspective, it would be up to companies not only to provide the populations concerned with risk management information, but also to foster their participation in managing the risks associated with their activities. It would also be their responsibility to compensate the latter for their contributions.

It is true that promoting a population culture is a challenge, insofar as industrialists do not necessarily have all the skills required for a multifaceted public dialogue; their tendency to focus on technical issues is often dictated by difficulties in addressing more social and political issues. As recalled by FonCSI (2024, p. 64), public servants (but also industrial engineers) are not familiar with interacting with the public. A population culture should be promoted within the government and industry, which means that both must also acquire the know-how needed to promote and fuel such dialogue with local populations.

Achieving a better understanding of the challenge of public participation within risk management can be a game changer as well as a cultural revolution among industrialists. When it comes to industrial risk, tolerance seems to be the target managers intend to reach by releasing little or no information about their operations. Besides denying the right to know of local communities, this strategy hinders the efficiency of crisis management and safety responses when industrial accidents do occur. Yet, the occurrence of industrial accidents leads to distrust that undermines the social acceptability of the entire industrial sector, especially when they are associated with a lack of enforcement of regulations and ineffective participatory mechanisms.

As discussed earlier, social acceptability is built on trust, which can only exist with transparency regarding the hazardous products and processes of a given facility. The less information citizens can get about a hazardous facility, the more they will be suspicious of its safety and of the capacity of the concerned company to manage its risks. This is easily explained: citizens feel that if important information is hidden from them, it is for good reasons, i.e. that an unacceptable risk is imposed on them. Transparency and true dialogue are thus essential to building trust, which is necessary to conduct effective risk management strategies.

Citizens can be engaged in emergency procedures as long as they are taken seriously in their capacity to monitor risk and to participate in the ongoing improvement of risk management of the facility.⁵ This requires a determination to manage risk and to make the necessary investments to enhance safety. On the other hand, the

⁵ The example of the Anacolor paint factory in the Cap-Rouge district of Quebec City is emblematic here. In 2012, when the company decided to increase its production, the fumes from its stacks intensified and citizens began to experience health problems. Over time, they could tell when the

inability of a company to inform and encourage a fruitful dialogue with citizens is increasingly considered a good indicator of more hazardous facilities and potential accidents.

7.6 Conclusion

New approaches are necessary to foster the continuous improvement of public participation in risk management. Too often, new mechanisms or regulations adopted in response to specific accidents fail over time due to insidious decreases in investment and involvement from all actors. Instead of pointing to the lack of a risk culture among the population (Suldovsky 2016), the time has come to focus on the promotion of a “population culture” among industrialists. This culture would be based on promoting citizen involvement in risk management and could be articulated around three axes: the legitimacy of impacted people to know and make decisions about risk management in their territory, the usefulness of the situated knowledge they have developed through concrete experience of their territory, and the efficiency of emergency responses designed and carried out in partnership with local actors. Such a population culture should be promoted and enacted not only by the government and civil society but first and foremost by industry itself. Without such a paradigm shift in risk management, social acceptability of hazardous facilities will continue to decline, and conflicts will multiply.

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Chapter 8

Public Participation in the Management of Risk from Industrial Facilities



Thomas Webler

Abstract Industrial facilities have at times made many costly mistakes when interfacing with local communities. Risk characterizations comprising risk experts' probabilistic risk assessments may be technically competent, but not wholly objective, nor do they capture all dimensions of risk that matter to members of the public. When confronting publics and stakeholders who are concerned about a risk, a competent probabilistic risk assessment may not be sufficient to allay fears and concerns. This chapter explains why and describes best practices for public and stakeholder engagement. It argues these should guide practice when industrial facilities managers interact with the public. It also highlights customary simplifications and misunderstandings that can worsen conflict. Over the past thirty years social scientists have studied and learned about how to effectively engage publics and stakeholders in risk decision making. Management would be wise to invest in the capacity to interpret this literature and employ its recommended solutions.

Keywords Public participation · Stakeholder engagement · Risk perception · Public opposition · Collaborative risk characterization

8.1 Prelude

Imagine being in top management at Brookhaven National Lab, where exemplary work on nuclear technology takes place. The Lab is in a heavily populated region of Long Island. Routine tests reveal a new plume of tritium in groundwater slowly moving toward the fence line and the residential areas beyond. But the levels are already far below regulatory limits and tritium will degrade further in the years it will take to reach private drinking water wells. You are assured that the risks are very low and acceptable because public safety will not be jeopardized.

Upon learning about the plume in the newspaper, nearby residents are outraged. The Lab hires a public relations expert. She brings Lab physicists along to speak

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to community groups. The physicists befuddle the audience with jargon, but one message comes through clearly to the public: “The Lab thinks that we are stupid and irrational and should not complain about feeding radioactive water to our children”. The blowback is severe. Only five months later the Lab management would be fired. This event happened in 1997 and has been aptly documented (USGAO, 1997; Crease & Bond 2022).

The Lab did many things correctly. They identified the hazard before any impacts to human health occurred. They characterized the risk by monitoring and modeling the plume. They communicated with other regulatory bodies and shared information openly. They informed local communities about the threat. They complied with laws and regulations. Despite this and despite the absence of obvious harm to the local community, the event was a dismal failure. The reader might pause here and ask him or herself, “What should have been done differently?”.

8.2 Managing Risk in a Democratic Society

Regulatory bodies and standards organizations promote the adoption of probabilistic risk assessment (PRA) practices and to good effect. As a systematic approach that combines modeling and analysis, PRA helps to assess and quantify risks in complex systems. Thus, it is a key tool to help identify potential failure scenarios, evaluate their probabilities, estimate the consequences of those failures and identify mitigation or response actions.

As probabilities are estimated mathematically and deaths or injuries can be counted, PRA is a quantitative exercise. This helps it appear objective. However, the decision to focus on deaths and some kinds of injuries is not objective, nor are decisions about p -values, sample size, how to graph data, or which hypotheses to test. Subjectivity seeps into many corners of the risk analysis enterprise. This point was made by the first US National Research Council committee report on risk titled: *Risk Assessment in the Federal Government* (1982). The report identified dozens of “methodological value judgments” that go into a risk assessment.

Consider that PRA focuses on death and counting some kinds of injury, such as falls from a height. While these are of obvious importance, they are not the only outcomes of importance to people. Other consequences include impacts to mental health, noise, aesthetics, social relationships, recreational opportunities, trust, future generations, moral belief systems and so on (a fuller description is given in USNRC 1996:42–49). A detailed and scientifically competent risk assessment may fail to satisfy the public if it does not address risks and consequences of concern to the community. In other words, it is not enough to get the risk assessment correct, one also needs to get the correct risk assessment. The US EPA learned early on that there were limits to risk-based decision-making (see Box 8.1).

Box 8.1 Argument for public influence in risk decisions.

In 1983, the USEPA was setting standards for inorganic arsenic emissions. Emissions from the Asarco copper smelter in Tacoma were so high that the EPA realized that managing the risk would bankrupt the facility. But closing would mean a loss of jobs with subsequent risks and downsides. The Clean Air Act was not clear about how to make such a choice. Then EPA Administrator William Ruckelshaus insisted that the agency not choose between jobs and health. He argued that the correct moral choice was to let the community decide. The smelter closed before the process was completed, but EPA had made a strong moral argument for influential public participation in risk decision-making.

Brookhaven National Lab produced a technically competent PRA that did not satisfy the public. Yes, local residents were concerned about radioactive water entering their drinking water wells, but they were also wondering if they could trust the Lab and what other hazards might the Lab be hiding? The event also fueled local opposition to research the Lab did on nuclear weapons. What the Lab thought was a water quality risk under the level of regulatory concern grew into an ontological threat to the Lab and its missions.

There are many reasons publics may object to probabilistic risk assessments done by industry. First, compared to PRA, laypeople often develop different estimations of the magnitude of specific risks. After decades of research into the psychological, sociological, and cultural dimensions of risk, its multidimensional nature is now well understood (Slovic 2016). Compared to PRA by risk professionals, laypeople overestimate some risks and underestimate others. Psychological phenomena explain this. The *availability heuristic* explains that people's perceptions of a risk are related to recent events. For example, people's perception of the risk of flying increases after a prominent crash. *Prospect theory* explains that people are more averse to losing than they are receptive to gaining the same amount. There are also several characteristics that influence people's perception of risk. For example, driving a car is often viewed as less risky than PRA suggests because driving is such a familiar activity. Likewise, unfamiliar or invisible risks are often overestimated by publics. Second, people conflate opinions about the fairness of the risk decision-making process with the risk itself. Thus, a public involvement process that is seen as unfair may lead people to complain that the risks are higher than estimated and intolerable. Third, people's values and worldviews shape their opinions about risks often irrespective of scientific information, leading some to claim we are entering into a post-truth society.

Democratic society places many demands on risk decision makers. Complying with laws and regulations is essential but not sufficient. It is broadly evident that firms depend, to varying degrees, on community approval or consent.¹ People live with an expectation that they will have some say in decisions that affect them. Firms

¹ See chapter by Corinne Gendron et al. in this volume.

subjecting people to additional risk ought to recognize that, while consequences about illness and death are important, community members also care about other consequences and their risk perceptions are shaped by psychological phenomena inherent to humans. Moreover, PRA is not objective and there are many good reasons why publics' values and interests should help shape methodological value judgments. How to characterize and address the variety of public and stakeholder concerns in risk decision making is a challenge. One thing is certain: We cannot do so without directly engaging people. The following section summarizes state-of-the-art thinking about how to best engage stakeholders and publics in risk decision-making.

8.3 Principles for Public Engagement in Industrial Risk Management

While there is no single “best way” to engage publics and stakeholders in risk decision-making, there are principles that have proven relevant and effective (Webler 2014a,b). These are:

- Demonstrate trustworthiness and sincerity.
- Respect and address public and stakeholder concerns.
- Seek out local knowledge and public input in risk characterization.
- Design with democratic values in mind.
- Enable intense deliberation.
- Focus on dialogue and learning about facts and values.
- Promote constructive participation.

8.3.1 Demonstrate Trustworthiness and Sincerity

A firm's trustworthiness and sincerity is demonstrated by behaving with respect, sharing information transparently, running a fair process and allocating sufficient time and resources to the effort. People are busy and will want to know what the process is about before committing to attend. However, if the purpose is stated too narrowly or if it excludes topics the community wants to discuss, it could fail to attract sufficient involvement or anger people. There is no single formula for how to achieve this balance, which is why this framing should be done with help from public participation professionals who are familiar with the community.

A team comprising independent facilitation experts along with key staff and leadership from the firm will demonstrate to the public that the company is serious about hearing from them. Running a process when the decision has already been made will convey the message that the process is nothing but whitewash. Participants want to have a genuine opportunity to influence decisions. The firm also needs to demonstrate

transparency. Guaranteeing people access to the facility, its data, and its leadership are all ways this can be done.

8.3.2 Respect and Address Public and Stakeholder Concerns

“Involve people early and often” is common advice. It is also important to offer an authentic opportunity to engage in meaningful dialogue. Some managers fear that reaching out to large numbers of people leads to unnecessary time delays. This fear is overblown. Experience shows that many people will be interested in the early stages—as the issue is defined and the agenda is set. From that point on, the number of people showing up falls off. Relatively few are able or willing to commit to intense deliberation over several meetings. Opening up the process to anyone who feels potentially impacted helps win community support by demonstrating you are open to hearing about everyone’s concern.

8.3.3 Seek Out Local Knowledge and Public Input in Risk Characterization

Local knowledge and input in hazard identification and risk assessment activities can be rewarding in three ways. First, the local knowledge that publics and stakeholders bring can help fill data gaps and result in more accurate risk characterizations. Second, when making methodological value judgments in the risk characterization process, there is an opportunity to bring in the values and interests of interested and affected parties. Doing so makes the risk characterizations more consistent with the values of publics and stakeholders. Third, engaging interested and affected parties in all aspects of the decision-making helps improve the likelihood that people will see the process as fair and competent. It is proven that the perception of fairness is associated with greater acceptance of decision outcomes.

8.3.4 Design with Democratic Values in Mind

In a democracy everyone has a legitimate and equal interest in society. Laws institutionalize practices such as guaranteeing everyone the opportunity to review and comment on decisions the government intends to make. But beyond the opportunity to comment, democracy also promises people opportunities to be heard and to have what one says be appropriately considered by the decision makers.

To fulfill these expectations, the process needs to be sufficiently inclusive. Recognize that *engagement* is the objective, not merely creating opportunities for engagement. The process should be designed around the availability of the interested and affected parties. This means holding meetings at different times of day and in different places, paying attention to how people can get to the meeting, supplying babysitting services, providing digital access, or reimbursing people for their costs. It may also mean providing expert consultants or translating information into other languages.

8.3.5 *Enable Intense Deliberation*

Experience has shown that more satisfactory outcomes are achieved when public engagement takes the form of informed and deep conversations among all concerned (Newig et al. 2023). “Intense deliberation” refers to a conversation in which participants speak *with* each other and not just *to* each other. Expert credentials are not required. Anyone can speak, raise a concern, or ask another for supporting justification and argument. And there is a mutual expectation that justifications must meet a shared standard to be acceptable.

Intense deliberation requires skilled facilitation, access to information, and time. Its reward is that people reach shared understandings and these lead to agreement on action. Such understandings and agreements are incredibly valuable to private firms and government regulators. They are the foundation on which firms can build community consent.

Providing access to relevant information requires more than doing a data dump on the public. It may entail providing independent expert advisory services for the public and providing executive summaries that are accessible to a wide audience.

Intense deliberation places demands on the participants. People need to be respectful of others, they need to listen to others and consider what they say, and they need to entertain the perspectives of other people and groups. It helps if all engaged are transparent about their intentions and if they are trustworthy when it comes to fulfilling promises made, however this will not always be the case and there are ways that moderators can accommodate the fact that people do lie and misrepresent themselves for strategic reasons.

8.3.6 *Focus on Dialogue and Learning about Facts and Values*

The conversations that happen within public participation processes need to address both facts and values. The public will want to know factual information about the industrial systems and processes that create hazards and risks and they will seek this information from facility staff and regulatory officials. When people suspect that

industry is not trustworthy, they may seek out independent advice. Publics are capable of understanding complicated technical information if it is explained properly.

Dialogue about facts cuts two ways. Industrial facility managers would be wise to recognize that stakeholders and publics also have valuable factual information. Community members will know quite a lot about the beliefs and behaviors of community members relevant to risk protection (see Box 8.2). They will know who in the industry is trusted, how information is shared in the community, what resources are available to the community, which stakeholder groups can be mobilized, and so forth. It may also be helpful to collect scientific data about the community's values and preferences.

Box 8.2 Native American Exposure to Iodine-131 from Nuclear Weapons Testing in Nevada.

Early assessments of risk from ^{131}I radiation to Western Shoshone Indians from eating rabbits were flawed due to uninformed assumptions about their behavior. A revised study included interviews with Tribal Elders about the consumption and migration habits of people in the 1950s. These revealed three important facts that were in error in the early report. First, they showed the Indians consumed the thyroid gland of rabbits, which increased their exposure. Second, they showed Indians consumed more rabbits than originally estimated. Third, they showed that, due to movement patterns, many of the rabbits eaten were not contaminated with fallout. These three pieces of “local knowledge” contributed to a revised and more accurate risk assessment.

For most complex systems involved in industrial hazards, there will be uncertainties. These can be grounded in incomplete understanding, in stochasticity, or in systems complexity. There are very effective ways to characterize uncertainty in manners that are understandable to lay people.

Decisions have direct, indirect, intended, and unintended consequences on things people value. The moral dimensions of these impacts need to be considered in the public dialogues. Historically, some hazards and risks have been systematically shifted onto some people such that the risk burden is now inequitable. Past inequities can impact current decision making.

8.3.7 Promote Constructive Participation

The process has a much better chance of reaching shared understandings and agreements that are widely acceptable if people participate with the intention of using balanced argumentation to resolve differences. This does not mean leaving strategic intentions at the door, but refraining from exercising power, intimidating others, or distorting people's comments while working toward a constructive outcome. Ground

rules for dialogue can promote good behaviors. Professional facilitators can make the case for pro-social behaviors and finger inappropriate actions.

8.4 Complications, Challenges, and Pitfalls

A structured approach to public participation in risk decision is a formidable strategy to address democratic demands while managing the risks of industrial facilities. It acknowledges the value of people's knowledge and experience, and it creates an efficient means to achieve shared understandings. When people feel they were given an appropriate opportunity to voice their concerns, have them heard and responded to, they are much less likely to object to the decisions made.

However, no process for public and stakeholder engagement can guarantee success. A process needs not only a sound strategy it also needs professional staff, sufficient resources, appropriate time and timing, and it needs the right attitude of all involved—particularly the facility employees and leadership. “Right attitude” refers to the prejudices and presuppositions people bring to the table. To this point, there are several challenges and pitfalls to be aware of.

8.4.1 Challenges

A process for public participation can be overcome by difficult conditions. Each community is unique. Power imbalances can prohibit honest dialogue and shut down voices. This starves the process of knowledge, perspective, and input that matter.

Box 8.3 Sunset Park Brooklyn and offshore wind development.

The community of Sunset Park in Brooklyn was already host to a large natural gas powerplant and many abandoned shorefront industrial sites when offshore wind farm developer Equinor approached the community for a cable connect to the power grid. The community resisted. Not because Equinor would pollute the community further, but because here was another firm with deep pockets proposing to take without giving back. After many conversations, Equinor agreed to transform abandoned shorefront into a 73 acre manufacturing facility that would provide green jobs and recreation to local residents. The agreement benefits both Equinor and the community.

Past injustices can accumulate and create a toxic environment for a firm that is asking the community to accept or tolerate more risk. While private firms may argue it is not their responsibility to correct past wrongs, the simple fact is that the

organization making the ask may need to step up and start to make the community right again (see Box 8.3).

8.4.2 Pitfalls

There are several common mistakes firms make when they interact with the public. These are:

- Expert exceptionalism and Knowledge Deficit Theory.
- Interpreting NIMBY behavior as immoral egoism.
- Being angered by strategic maneuvering.
- A singular focus on a narrow notion of trust.
- Coming across as uncaring and unreliable.
- Making inappropriate risk comparisons.

Expert exceptionalism and Knowledge Deficit Theory are beliefs that the scientific experts have superior knowledge that the public lacks and needs. It follows that since experts' understanding of technological systems and risks is better, their recommendations should be privileged over those of stakeholders or lay publics. But experts' knowledge is not necessarily complete. Local people have relevant knowledge that experts lack (see Box 8.2). Furthermore, the presumption that stakeholders and publics have incomplete or incorrect understandings and need to be educated can cause industry to come across as pejorative, disrespectful, and dismissive of local knowledge.

Interpreting NIMBY as immoral egoism is an oft-repeated mistake. When encountering local opposition, NIMBY is often invoked as a simple causal story to assign guilt to the local opponents. However, communities usually have very sound reasons for opposing a proposed action.

Anger at strategic maneuvering is a natural emotion risk professionals experience when they find stakeholders or publics are less interested in reaching shared understandings than they are in winning. Some groups will violate social norms to strengthen their hand as they engage in what they see as a political battle. Rather than complaining, risk professionals should recognize strategic action and work to build a shared commitment to serving the collective good.

A singular focus on a narrow notion of trust is another common mistake. By focusing on winning trust, risk professionals may be ignoring the bigger question of what trust is for and what it is not for. Trust is not a green light for industry to act in whatever manner they believe is best for the community.

Making inappropriate risk comparisons can anger lay audiences and aggravate conflict. This happens when the lay public believes that the risk comparison that the firm is making is illogical (see Box 8.4). People can come to feel that they are being sold a bill of goods using a comparison that no reasonable person would accept.

Box 8.4 Inappropriate risk comparisons.

According to PRA, the actuarial risk of cancer from eating one banana is twice that of living near a nuclear power station for one year. But this comparison does not satisfy the public because they see these two risks as being very different. Public perceptions of risks are laden with additional meaning. For instance, bananas are familiar and their consumption is voluntary. A nuclear power plant is a complex, unpredictable technology and people are powerless to influence its operation or change its location. Moreover, risks from nuclear power plants are catastrophic and are laden with symbolic meaning. These qualities of the risk are absent in a PRA.

8.5 Conclusions

Industrial facilities have made many costly mistakes when interfacing with local communities. Consent of elected officials is no guarantee that local residents and stakeholders will be satisfied with decisions that are made. Over the past forty years social scientists have studied and learned about how to effectively engage publics and stakeholders in risk decision-making. Dozens of reports offer advice. Management would be wise to invest in the capacity to interpret this literature and employ its recommended solutions.

Risk characterization is certainly informed by PRA, but it is made more complete by bringing in local knowledge and experience. Doing so has important benefits to the firm. When people feel that they were listened to, that their knowledge and perspective were respected and considered, and their input shaped the final decision, then they are much more likely to accept or at least not actively oppose the final decisions that are made. Thus, well-run public and stakeholder engagement helps firms achieve their mission in an efficient and effective manner.

8.6 Epilogue

The tritium controversy at Brookhaven National Laboratory consumed the Lab for months. Residents and local politicians called for the Lab to be shut down. Lab management lost the publics' trust when they downplayed the risks and sent world-renown physicists to explain why the publics' fears were irrational. The Lab management lost its contract. People were fired. John Marburger—the Lab's new manager—took a radically different approach. He opened the Lab to the public. He opened his office to the public. Every Monday was an open lunch with John in his office where anyone could ask any question. He showed up at every public meeting. He listened

to everyone who wanted to speak and he answered questions respectfully. He even let the public reshape the Lab's mission, setting up a local steering committee to help shape the direction of the Lab's research. By giving local people direct access to the Lab and its leadership, he opened lines of communication that promoted sincerity, honesty, and authenticity. Over several months public perceptions of the Lab improved. Today, Brookhaven is an important center for research into renewable energy and the Lab maintains a policy of openness to the nearby communities.

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Chapter 9

Participatory Processes for Industrial Risk Management



Enablers, Barriers and Limitations

Anna Scolobig

Abstract The engagement and empowerment of citizens as key actors of change and transformation are often advocated to co-develop effective solutions for disaster risk management, including for industrial risk. Evidence shows that participatory processes can improve knowledge quality, lead to the identification of new problem-solving options, decrease opposition, contribute to legitimizing decisions and increase the likelihood that risk reduction will be more effective, efficient and sustainable. Notwithstanding several successful examples, participatory processes face several methodological, theoretical and practical challenges. For example, there is a lack of generally accepted quality standards and of binding policy instruments promoting participation, as well as limited institutional commitment and availability of human/economic resources. By presenting selected cases in the industrial risk sector, this chapter discusses the enablers, barriers and limitations of these processes. It ends with some reflections on the future agenda to improve existing practices and research.

Keywords Participatory processes · Industrial risk · Enablers · Barriers · Limitations

9.1 Advancing Participatory Processes

New policies are advancing the institutionalization of participatory and deliberative processes all over the world. For example, the European Union (EU) has firmly positioned itself as a promoter of citizen and stakeholder engagement. The sixth priority of the 2019 policy agenda set by European Commission President Ursula von der

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Leyen is “a new push for European democracy”.¹ As a “tangible contribution to this priority”, the European Commission launched a Competence Centre on Participatory and Deliberative Democracy in early 2021,² to develop capacities to support participatory and deliberative projects and policies. Other cross-cutting policy initiatives such as the European Democracy Action Plan,³ the Conference on the Future of Europe,⁴ several Horizon Europe research calls, the European Green Deal and several EU Missions prominently feature citizen engagement in the co-creation of transformative pathways for desirable futures, including in decisions regarding risk management.

Yet, what does this really mean? Participatory processes can be defined as analytical-deliberative procedures for experts and citizens to make better use of each other’s assets, resources and contributions to achieve better public decision outcomes (Loeffler and Bovaird 2021). It is important to highlight that at least three different dimensions must be considered: the procedures (or official, explicit arrangements), the practices (how the procedures are implemented) and the resulting processes (what really happens on the ground). A recent systematic review of participatory processes, including 32 cases from six continents, shows that the main purposes of participation include not only researching solutions but also brokering power, navigating differences, empowering voices, and reframing power or agency (Chambers et al. 2021). These cases and other applications have shown that participatory processes can contribute to anticipating social conflicts, overcoming decision deadlocks, improving the effectiveness, credibility and legitimacy of risk management decisions and promoting the implementation of disaster risk reduction measures (De Marchi 2003; Fiorino 1990; Reed 2008; Renn 2008; Renn et al. 1995; Rosenberg 2007; Ryfe 2005; Smith 2009; Stirling 2006).

In the industrial risk sector, for example, research conducted near industrial facilities in the Serchio Valley, in Central Italy, shows that adopting a participatory post-normal science approach⁵ (S. Funtowicz and Ravetz 1993) made it possible to collect data on the health concerns of local residents and engage the latter in all phases of the project, including the elaboration of scenarios and policy interventions to improve risk management practices (B. De Marchi et al. 2022). This approach contributed to: (i) the collection of data concerning chronic kidney diseases in the area; (ii) the monitoring of the presence of heavy metals in the environment; (iii) the elaboration of scenarios and suggestions of policy interventions for improving health, environmental protection and risk management (Malavasi, et al. 2023). In this process, the

¹ See: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/new-push-european-democracy_en.

² See: https://joint-research-centre.ec.europa.eu/events/launch-competence-centre-participatory-and-deliberative-democracy_en.

³ See: http://ec.europa.eu/info/strategy/priorities-2019-2024/new-push-european-democracy/european-democracy-action-plan_en.

⁴ See: <https://futureu.europa.eu/?locale=en>.

⁵ Post-normal science approaches can be applied for the management of complex science-related issues when “facts are uncertain, values in dispute, stakes high and decisions urgent”(Funtowicz & Ravetz, 1993).

residents have been involved not only in the framing of the risk management problem, but also in the collection and analysis of data, dissemination of results and drafting of policy recommendations (De Marchi et al. 2022).

However, the implementation of these processes is not always straightforward. For example, despite existing regulations (such as the “duty to inform” that applies to industrial facilities falling under the European 1982 Seveso Directive), issues of industrial confidentiality clash with the requirement for transparency and the open involvement of different stakeholders in decisions concerning industrial risk facilities (Kamate 2018; Suraud et al. 2009). Moreover, stakeholders often have multiple perspectives on “what the problem is” and “how it can be solved”, and these differences manifest themselves as opposing views, opinions, concerns, needs and interests. With contentious and complex risk management issues in particular, such as the siting of industrial facilities, the health impacts of industrial pollutants, or information about industrial emergency and risk management plans, this can lead to disagreement, on the usability of expert evidence and analyses for example. This chapter discusses not only what enables or blocks these processes, but also their limitations. Moreover, it presents some of the latest advances in participatory research and discusses a number of cases from the industrial risk sector.

9.2 Enablers of Participation

One of the key assumptions of participatory processes is that involving stakeholders and including their perspectives in risk decisions empowers them, encourages ownership, responsibility and ultimately results in better, more effective, accepted and implemented decisions. Participation is particularly valued when problems are characterized by complexity and uncertainty at multiple levels (Funtowicz and Ravetz 2013). As an example, the siting of a petrochemical plant in Manfredonia, southern Italy, in 1971 triggered a series of events that amplified public discontent, concern and unrest. In 2015, a participatory process in environmental epidemiology was launched to improve the dynamics of public engagement. As a result, the initial disappointment and mistrust of concerned citizens were considerably reduced (De Marchi et al. 2017). But what makes a participatory process successful?

Several institutional, socio-cultural, technical, educational and financial enablers were identified in a review that also included expert interviews (Bussu et al. 2022). Institutional commitment features among them. For example, the data collected for an analysis of Local Agenda 21 initiatives⁶ showed that institutional commitment correlates strongly with degree of citizen empowerment as well as impact on policies (Geissel and Heiss 2018). The role and responsibilities of the public sector in

⁶ Local Agenda 21 initiatives are voluntary participatory processes of local community consultation with the aim of creating local policies and programs that work towards achieving sustainable development.

increasing capacities and providing opportunities for engagement are especially key. These roles and responsibilities can also be defined through regulatory frameworks.

However, so far, several countries have adopted only voluntary instruments to promote participation in their industrial risk management strategies, with varying levels of support. Besides the guarantee and respect of the right of citizens to be informed about industrial risk (e.g. European Seveso Directive), binding and enforceable legal obligations to complement existing policy frameworks proved to be key enablers. As an example, the French 2003 Bachelot-Narquin law promulgated in the aftermath of the accident at the AZF factory in Toulouse in 2001 (Kamate 2018) promoted the implementation of Technological Risk Prevention Plans (PPRT) and led to the creation of mandatory consultation bodies known as Site Monitoring Committees (CSS) at high-threshold Seveso sites (*ibidem*).

Evidence also shows that success in participation is often enabled by the presence of “boundary objects” that are “tangible products or outcome(s)... which require the inclusion of knowledge from diverse stakeholder groups and provide a concrete focus for the group’s work” (Schuttenberg and Guth 2015: 14). Examples include co-developed industrial risk maps, scenario models, risk or emergency communication plans and other tools that integrate both scientific knowledge and social values in shaping decisions and potential action. In addition to boundary objects, boundary organizations also “facilitate the production of shared goals through capacity across different cultural knowledge systems and across the science/policy divide”. These can range from scientists acting as policy advisors for industrial risk management to brokering organizations, such as some of the public interest organizations that were set up mid-century to safeguard the interests of scientists while promoting political goals (Moore 1996). Another example is expert commissions, providing advice for legislation and policymaking. Boundary organizations bring stability to the relationship between science and policymakers by providing mechanisms and situations for exchange (Guston 2001; Demeritt 2001; Hulme and Mahoney 2010; Scolobig and Pelling 2016).

Other enablers include the availability of human and financial resources in the public and private sectors and, flowing on from this, of professional training and capacity building. For example, industrial risk managers do not often receive formal education/training in social sciences, communication and facilitation skills, which all play a critical role in the successful implementation of participatory processes.

Last but not least, experiences of participatory processes show that the capacity of a community/citizens to influence the final outcome of the process (e.g. an industrial risk or emergency management plan) is also a key determinant of successful participatory governance (Heinelt 2018; Loeffler and Bovaird 2021). Evidence shows that the more the citizens/communities are involved in the co-design of the final process outcome and can influence it, the greater the legitimacy of the final decision/solution will be (*ibidem*).

The co-creation of options based on local views, the availability of human and financial resources, a neutral and qualified process facilitator/moderator, the presence of local champions and coalitions of advocacy groups are other critical enablers (Linnerooth-Bayer et al. 2016; Preuner et al. 2017). Finally, in case of

contested terrains/conflicts, it is critical to identify a compromise solution built through dialogue and the integration of different types of knowledge (Loeffler and Bovaird 2021; Scolobig et al. 2016).

9.3 Barriers and Limitations

Despite some successful examples of participatory processes for industrial risk management, several open challenges remain, from a methodological and theoretical perspective (Biesbroek et al. 2013; Bréthaut et al. 2019; De Marchi et al. 2000; Krütli et al. 2010; Moser and Ekstrom 2010; Newig and Fritsch 2009; Rowe and Frewer 2000; Scolobig et al. 2015; Webler and Tuler 2000). Individual, financial, administrative and institutional barriers will be the focus of the reflections presented below.

One formidable barrier is the lack of citizen confidence in the ability of industrial actors to facilitate participatory processes and, more generally, to prevent industrial risks (Kamate 2018; Siegrist and Bearth 2021). The lack of understanding of administrative procedures among citizens or the limits of a council's power can also exacerbate the distrust felt by citizens as well as their disengagement (Heinelt 2018). A public risk perception study carried out at seven industrial sites in Spain, the United Kingdom and Italy reveals that industrial risk information incongruity is also particularly problematic (De Marchi 2000). For example, citizens lamented contradictions in the measures intended to prevent different hazards or in the suggested protection measures, some of which are impossible to apply (*ibidem*).

In parallel to this, another barrier lies in the information targeting paradox, which reflects a lack of trust on the part of those in charge of communication activities (Otway and Wynne 1989). More precisely, this paradox is the result of the public/private authorities' assumption that citizens cannot understand the complexity of the risk issues at stake and that the dissemination of emergency information must be restricted to avoid overreactions and panic (*ibidem*). The problem is therefore framed in terms of public control rather than public safety (Scolobig et al. 2014). This attitude needs to change, particularly as extensive research shows that citizens are indeed capable of understanding and processing complex risk information (Fischhoff 1995; Slovic 2000).

The information culture is another paradox of risk communication which arises from the awareness that each organization reflects its own information culture needs (Otway and Wynne 1989). Not only can there be a misalignment between the different organizations involved, but the culture of information of an organization can have negative and unexpected side effects affecting a participatory process. On the edge of the northern Adriatic Sea, at the border between Slovenia and Italy, after a two-year-long public relations campaign pushing for the construction of a liquid methane regasification terminal adjacent to the town of Monfalcone, local citizens voted against the siting in a public referendum, in spite of the multiple efforts and economic commitments made by the company in charge of the construction. Clearly, this case

shows that the information culture of the company in charge of constructing the regasification terminal failed to address the needs and expectations of the town's residents and the decision making process about industrial risk management.

Financial, administrative and institutional barriers are often overlooked. One such barrier is the availability of human and financial resources in the public and private sectors for the implementation of these processes (Heinelt 2018; Loeffler and Bovaird 2021). Indeed participatory processes are often time-consuming, and inequalities in the remuneration of participants can truly represent an enormous roadblock to effective engagement. Experts and researchers are often paid for their time, but the same is not true for all other stakeholders. Including participants' time in the budget will require substantial reforms in the funding mechanisms underlying these processes. Furthermore, as opposed to traditional projects, pre-project phases are critical to reach a shared understanding about the objectives and expected outcomes of a participatory process (Irshaid et al., submitted). Yet, this phase is usually not funded at all. As a result, the objectives and expected outcomes are not agreed upon by participants before the project begins and this can generate conflicts in later phases. Thus, increasing the budget and financial resources dedicated to the pre-project phases is another critical reform to implement.

Further, there is a vast literature on barriers to public participation, including limited political legitimacy; hierarchical approaches to public administrations; problems of ownership, especially when projects are not viewed as a joint endeavor by relevant actors; limited legitimacy; limited representativity of the population living close to industrial facilities; unsuccessful integration of different knowledge types; prejudices or power asymmetries among participants; conflict escalation and difficulties in reaching a shared agreement, on recommended policy interventions for example (De Marchi et al. 2022; Bussu et al. 2022; Kamate 2018; Anna Scolobig and Lilliestam 2016).

Finally, several authors (Loeffler and Bovaird 2021) point out the lack of generally accepted quality standards and of a comprehensive evidence base on the effectiveness of participatory processes, particularly in comparison with standard/traditional decision making. One key aspect is the identification of suitable criteria and indicators for evaluating the processes, impacts and the integration of different types of knowledge and disciplines that are often necessary to implement such processes. Numerous criteria have already been identified in the literature (e.g. Rowe and Frewer 2000; Webler and Tuler 2000), including clear and agreed objectives; legitimacy and ownership; early stakeholder engagement; representativeness; the power of participants to influence outcomes; transparency; fairness and equity, etc. Some of these are difficult if not impossible to assess quantitatively. Consequently, there is a need to rely on the qualitative, often subjective evaluations of the organizers, facilitators and participants. To add to the challenge, evaluating the short-, medium- and long-term social impacts of these processes is far from straightforward. Impacts that are positive for one group of stakeholders may be negative for another. Last but not least, evaluation is not a common practice during and after these processes. Thus a shifting from conducting to analysing and evaluating participatory practices is needed.

9.4 Conclusion and Ways Forward

Despite a new rhetoric of public participation being largely used in the risk management sector, several challenges and barriers still need to be addressed in order to improve existing practices and promote better uptake. To overcome these barriers, three strategies can be identified.

First, there is a lack of systematic evidence and databases on the implementation of participatory processes for industrial risk management. Generally, evidence is patchy, anecdotal in nature, limited to short-term studies and/or lacking the requisite experimental controls to definitively attribute effect/value. It is essential to develop a robust evidence base for multiple purposes. The benefits of database development include the possibility of conducting meta-analyses, cross-country/case comparisons, comparisons across different types of risk and longitudinal studies, but also of evaluating participatory processes more systematically.

Second, better guidance must be provided on how best to employ and upscale participatory approaches in different cultural, social, political and environmental contexts. This can result in the systematic adoption of standards, guidelines and strategic planning documents, e.g. on risk and emergency communication and public participation, at the national, regional and especially local levels. Adding to this point, it is essential to dedicate greater attention to risk managers and to improve their skills and capacities by developing training or specialization courses. It is especially essential to transfer the experience and expertise accumulated in projects. This strategy also encourages better collaboration between the public and private sectors and other potential players involved in industrial risk management via local, regional or national programs or service/training centers.

Third, a detailed assessment of barriers to mainstreaming industrial risk participatory processes into national, regional and local policies is necessary. This should encompass the different phases of the industrial risk management cycle, from preparedness/awareness raising to emergency management and recovery. Tying in with this is a need for binding policy instruments (e.g. new legislation) and for resources to enable the public and private sectors to implement these processes successfully.

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Chapter 10

Engaging Citizens in Dialogue on Technoscience



An Endogenous Approach

Phil Macnaghten

Abstract Against the background of skepticism in the legitimacy of citizen engagement processes on technological and industrial risk issues, this article engages with the methodological and conceptual challenges of engaging citizens from the bottom-up. A public engagement methodology is presented aimed at anticipating the kinds of issues and problem framings that science, technology and industry bring into being. Drawing on two parallel deliberative methods and informed by two empirical social science research projects, design criteria are explicated on context, framing, moderation, sampling, analysis and interpretation. A feature of the methodology lies in the assembly of emergent collectives and identities that are constituted to negotiate endogenously public meanings, concerns and priorities. The potential of such processes is to reconfigure dominant policy narratives and to move the conversation upstream before pathologies of closure and lock-in set in.

Keywords Citizen engagement · Technoscience · Anticipatory methodology · Deliberation · Contextual understanding · Focus groups · Endogenous approach

10.1 Introduction

The case for greater participation and citizen engagement in technological and industrial risk and safety matters is well made. Inter alia, it stems from dynamics that include: the need to restore trust in science, enhance industrial safety cultures, avoid future accidents and controversy, lead to socially robust decisions, and align innovation and safety policy with societal values. Analytically, motivations for citizen participation include the instrumental—that it will help assure societal acceptability—the instrumental—that it will lead to better decisions—and the normative—that it is

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the right thing to do for reasons of democracy and social justice (among many, see Fiorino 1989; Stirling 2008).

While the case for citizen engagement is commonplace in policy and practice, it is equally clear that state and industry-led initiatives aimed at encouraging citizen participation have not (as yet) led to radical transformations in the social contract between industry (and industrial safety), technological innovation and society. In this volume, we explore explanations for this impasse that includes questions of scope (who gets to define participation), of trust (between lay and scientific expertise), of institutional reflexivity (and of the challenges of the take-up of participation) and of the unresolved tension between representational and deliberative forms of democracy (who has the authority to decide what to do). Beyond this, the chapters report on dynamics of geography (including those between the Global South and North) and temporality (including the specific considerations attributed to dynamics of participation when related to the “glacial” timescales of nuclear waste). Importantly, and rightly so, these considerations extend well beyond the narrow confines of technological risk assessment as traditionally defined.

In this chapter I focus on one specific dilemma, namely how to design citizen participation processes on technological risk issues on which people are unfamiliar, and, more specifically, in an endogenous “bottom-up” fashion. The context for this intervention lies in the realization that many cases of citizen participation have been used as tools of legitimation either because participation processes have produced little impact on decision-making or because they fail to articulate the quality, range and nuance of citizen concerns. As set out by Stilgoe (2023) two prevalent and worrying tendencies are those of scientism—the framing of public issues in scientific terms—and solutionism—the definition of public problems in ways that conform to imagined technological solutions. Both tendencies constrain the value of citizen participation by closing off engagement with broader public meaning and the underlying values that are important to citizens.

10.2 Methods of Citizen Engagement

What kinds of methods are appropriate for citizen participation? In deliberative practice, methods range from area forums, citizens’ assemblies, citizens’ juries, citizens’ panels, citizens’ summits, consensus voting, conversation cafés, deliberative mapping, deliberative polling, focus groups, forum theater, futures workshops, local issues forums, online discussion groups, participatory appraisal, participatory budgeting, planning for real, public dialogues, world cafés, among others. A common feature is the ambition for citizens to be empowered to develop their own definitions and understandings of the issue at hand, endogenously, from the bottom-up (Wynne 2016). Callon et al. (2009) set out criteria for deliberative citizen engagement processes. Along the first axis is the criterion of intensity, measured by how early non-specialists are involved, coupled with the degree of concern in the importance of the issues being discussed. Along the second axis is the criterion of openness,

measured by the level of diversity in the groups invited to deliberate, and in the openness of the process to facilitate new understandings and identities. Finally, and cross-cutting both axes, lies the criterion of quality, responding to the capacity of the participants to express their arguments and claims with seriousness of voice, and to the level of continuity of the deliberative process across time and space. For Callon et al. (2009: 161), processes are deliberative to the extent to which they are intense, open and of quality.

Two methods of citizen participation developed with the aim of thickening out the parameters above are the Expert and Citizen Assessment of Science and Technology (ECAST) method (Kaplan et al. 2021) and the Anticipatory Public Engagement using Focus Groups (APEFG) method (Macnaghten 2021). We now explicate both methods.

10.2.1 Recruitment of Citizens

The recruitment practices for the ECAST and APEFG methods share common characteristics. Both involve “mini-publics” (Goodin and Dryzek 2006), a cross-section of citizens carefully selected to represent a broad variety of interests, perspectives and attitudes at stake, that come together for a limited period to deliberate on a particular issue. For the APEFG method, each project typically involves between six and eight groups, each group meeting for between 2 and 3 h, sometimes reconvened. The groups are made up of between seven and nine participants, according to standard focus group norms, and professionally recruited to cover a diverse variety of backgrounds, localities and demographics (age, gender and socio-economic class) but with topic-specific or theoretically informed variants. The ECAST method similarly brings together 80–100 citizens into small group discussions. Neither makes claims of representation, striving alternatively for diversity and inclusion. For each method, the participation of citizens who are already actively involved in the topic is restricted, as such participants are more likely to dominate the conversation due to higher levels of technical knowledge and personal conviction (Kerr et al. 2007). For both methods, the composition of groups is designed to produce an open-ended sociality, where people develop views through interactive conversation in an empowering space. For each method, participants are recompensed for their time (approximately €60–€90 for a 2-to-3-h discussion).

10.2.2 Context and Problem Definition

One criticism commonly leveled at public engagement processes is that they tend to be framed by the interests of expert commissioning bodies and with the effect of “closing down” broader policy discussions (Stirling 2008). Termed as “scientism”, the phenomenon where scientific and policy elites impose definitions on the meaning

of public issues, such practices foreclose engagement with broader public meanings (Wynne 2006). In response, the ECAST method initiates the participative process with a set of open-framing focus groups that aim to construct a “balanced issue framing” where citizens speak through their experiences about the topic in hand. This is followed by a stakeholder design workshop determining different ways to frame the issue, what basic knowledge is necessary for public input, what questions could benefit from public deliberation as well as reflection on citizen responses from the open-framing focus groups. In parallel, the APEFG method aims to develop an explicitly endogenous approach through two design features: through deliberation among the research team on the contextual factors deemed as likely to be significant in the shaping of societal responses to the issue (informed by relevant social theory and research), and through starting each of the anticipatory public engagement focus groups with an in-depth discussion of these contextual dimensions prior to the participants deliberating upon, or even having knowledge of, the technoscientific topic under consideration (the participants are recruited topic blind). These early contextual discussions can last between 40 and 60 min.

10.2.3 Framing Information

How to “frame” information is a matter for both methods, cognizant that the representation of a technology is never neutral but always framed in particular ways and for particular purposes. For the ECAST method, the aim is to produce informed citizens, capable and authorized to develop views and identities for thinking about the issues associated with an emerging technology. Two weeks prior to the deliberation, participants receive an information pack, with information on the technical aspects, questions, areas of uncertainty and salient issues. These include stakeholder cards with descriptions of stakeholder perspectives and arguments. For the APEFG method, through carefully designed concept boards (typically A0 in size), participants are offered an inclusive range of rhetorical resources and frames reflecting how different stakeholders (corporate, governmental, civil society) are framing and representing the issue in the public sphere. Materials on what the technology is, how it works and what it means, are communicated by the moderator using stimulus materials, but where the practical meaning of the technology for the participants is derived through group discussion and deliberation. The intent is not to close down or narrow the issue in the first place, nor presume that publicly resonant issue framings align with dominant institutional frames and norms. Crucially, this involves attending to both current and future imagined uses of the technology and its societal impacts.

10.2.4 Moderation

A deliberative discussion is more than a group interview or the aggregation of individual opinions. It is a space where a group identity and discourse can emerge, empowered to articulate the issue at hand in its own terms. To facilitate this process, the moderator encourages the movement between argument and counterargument in a spirit of mutual understanding, formulating shared understandings of issues that hitherto had been unfamiliar. For the APEFG method, a senior and experienced member of the research team conducts the focus groups given that this role is integral to subsequent analysis and interpretation. The role of the moderator is to keep the group on topic (using a well-formulated topic guide), to listen empathetically and accurately to each participant's stories, to enable participants to express their views with minimal interference, to ensure a diversity of voice, to probe differences and convergences between group members, to articulate shared issue definitions (when present) aimed at increasing awareness and mutual understanding of participants' viewpoints, and to move from one topic to the next only when the full range of arguments appears exhausted.

10.2.5 Interpretation and Analysis

For the APEFG method, the role of the analyst is to become acquainted with the raw data, to organize citizen views into themes or discourses through the use of codes, to articulate the interplay between thematic concerns and wider societal narratives and to interpret this meaning within a framework of theoretical and policy concerns. Often, the aim is to look for convergences, between and across groups, and to see how these differ, or not, from extant policy or scientific understandings. Similarly, the ECAST method engages in formal qualitative analysis using open and thematic coding methods, but supplements these with quantitative pre- and post-survey data on motivations for participation, overall procedural satisfaction, self-perceived attitude change and knowledge acquisition. This is followed by a second workshop with issue experts and stakeholders to present preliminary deliberation results and to solicit input on recommendations and directions for further inquiry.

10.3 Cases of Citizen Engagement

So far, we have talked about citizen engagement methods in the abstract. In this section we examine how these criteria were used in practice using two examples from the anticipatory public engagement using focus groups (APEFG) method.

10.3.1 The Uncertain World Study

Our first case is an early UK study in 1996/1997 on genetically modified organisms (GMOs), food and public attitudes in Britain (Grove-White et al. 1997). The study was designed to explore the role of citizen engagement to clarify what people think about genetically modified (GM) crops and foods, the factors that shape public attitudes, and any disconnect between what citizens see as the issues that need to be addressed and their formulation in regulatory and scientific debates. To contextualize the discussions, the focus groups began with a discussion of everyday food practices. How people will respond to genetically modified (GM) foods, the thinking went, depends on what they think about food in general and the appropriate role of technology in food production. In these discussions, participants spoke of their ambivalence toward the use of technology in food: while technology enabled people to lead busy and convenient lives, it also generated concerns about food processing, the use of artificial preservatives and the apparent increase in food health scares. Participants expressed unease about the integrity and adequacy of government regulations, official “scientific” assurances of safety, the benign intentions of food producers and processors and the increasing perceived “unnaturalness” of food.

Such early discussions provided clues to the ways in which public responses to GM foods would later be configured, highlighting the salience of concepts of trust, naturalness, justification and perceived agency in moderating public responses. Subsequently, participants were exposed to a variety of ways in which the issue of genetic modification was framed by diverse actors across different domains of use. Using concept boards, clear distinctions were made between current and proposed uses of genetic modification techniques, highlighting the potential for the transgenesis of different genes (both plant and animal) in different contexts of application (from food production to animal rearing to medical uses). Concerning sampling, citizens were drawn from the North-West of England and London from a broad spectrum of social demographics (age, gender and socio-economic class) but with topic-specific variants (faith, lifestage, involvement in community activities). In the analysis and interpretation the researchers situated citizen responses in the context of the dominant scientific and policy narrative that assumed that GM foods were no different in kind from non-GM foods, that current forms of regulation and oversight can be managed on a case-by-case basis, that independent scientific risk assessments were sufficient to assure safety and, thus, by implication, public acceptability, and that public resistance would best be countered through official reassurance and the provision of quality information. Against such assumptions, the focus groups formed a collective and convergent group discourse to the contrary: that GM technologies presented distinctive patterns of ambivalence and concern compared to non-GM food production, and where participants expressed mixed feelings about the integrity and adequacy of present patterns of government regulation and, in particular, about official “scientific” assurances of safety. Thus, notwithstanding subtle differences in participants’ talk, it was the convergences and their contrast with official discourses

and understandings that drove the analysis of the data and their interpretation for intervening into public policy discussions.

10.3.2 The Living the Global Social Experiment Study

Our second example is a 2011/2012 anticipatory public engagement study on climate geoengineering, set out to initiate a citizen conversation on the conditions (if any) under which the technique of solar radiation management (SRM) would be acceptable to citizens (Macnaghten and Szerszynski 2013). To begin the conversation, the challenge was to envision the context from which people develop responses to an intentional technologically adjusted planetary climate system. Here, the focus groups began with an open-ended discussion on participants' experience of the weather and the climate, selected as a relevant context for future deliberations on geoengineering as a climate change modification technology. These early conversations elicited complex and nuanced responses. Citizens struggled over the difficulty of determining what is natural/cyclical about the climate and what is human-induced, the difficulty of linking human interventions into planetary and glacial timescales, being given mixed messages by scientists and policymakers and being unclear of their underlying motives, and whether the underlying cause of climate change was one of human greed and selfishness and in which they were implicated. These themes proved to be highly significant in understanding subsequent responses to possible geoengineering options.

The subsequent design challenge was similarly complex. Although the topic of geoengineering remained relatively new as a matter of mainstream public policy and scientific discourse—given respectability in institutional fora following the (Royal Society 2009) report *Geoengineering the climate*—public engagement scholars were beginning to voice the fear that geoengineering was being stabilized too swiftly as a self-contained public policy object, as a “techno-fix” contrasted (implicitly or otherwise) with an alternative, conventional and politically challenging mitigation strategy (Bellamy and Lezaun 2017). Put bluntly, what alternative framings were being neglected. Following desk research, three distinct ways of framing geoengineering frames were identified and then introduced to the participants using concept boards: one using quotes from policy institutions, reporting on the slow progress of climate mitigation, designed to provide a frame that was relatively open to geoengineering as a policy option; a second frame designed to explore civil society and oppositional perspectives on geoengineering as a techno-fix and as an admission of failure to get to grips with climate change; and a third frame setting out the geopolitical history of weather and climate modification, designed to explore the salience of alternative frames surrounding how solar radiation management techniques could be used for purposes unrelated to climate change policy.

Concerning sampling, seven citizen focus groups were carried out in three UK cities (Durham, Newcastle and London) from a broad spectrum of social demographics (age, gender and socio-economic class) but with topic-specific variants

around participants' lifeworld orientation (interest in public affairs, technology and the environment). The interpretative challenge was to examine how participants developed their views and attitudes as an outcome of the deliberative process. Notwithstanding the complexity of the topic, participants were able to learn about the issues, to become engaged, hear different perspectives, change their minds and develop points of view. The early stages of deliberation were characterized by a complexity of positions. For some, geoengineering should be opposed completely; for others, it was an option to be explored. However, as the discussions progressed and as participants were exposed to multiple frames, people developed a clearer sense of their views and attitudes. There was general concern about the uncertainties involved, about unintended effects and the "unnaturalness" particularly of SRM techniques, and about whether the technology constituted a short-term fix rather than a genuine solution to climate change. In addition, our research demonstrated that public acceptability was at best conditional. Key conditions included: the belief that climate science is a reliable guide to policy and action, that research on SRM is capable of anticipating the side effects in advance of deployment, and demonstrating efficacy, that current societies are capable of organizing effective governance and that political systems can accommodate geopolitical dynamics. When we asked participants whether these conditions were plausible, they were for the most part found wanting. Our intervention in the policy debate was to advance the question if solar geoengineering is a governable object, and, if so, on the complex and multilevel geopolitical conditions necessary to enter into a "global social experiment".

10.4 Discussion

In this chapter we have set out an approach for developing and managing citizen participation designed for cases where people are unfamiliar with the issues and where there is an imperative to ensure that citizens arrive at their views from a bottom-up endogenous perspective. We explored two parallel and converging methods, the ECAST and APEFG methods, and how one of these was put to use in citizen deliberations on GMOs and climate geoengineering, and how in both cases the effect of the deliberation was to reconfigure a dominant policy framing of the issue. More widely, the ECAST and APEFG methods have been used to examine citizen responses to issues that include biodiversity, carbon dioxide removal, climate intervention research, climate resilience, fracking, genetically edited livestock, human genome editing, nanotechnology, planetary defense, sustainability, among others. For particular topics, there may be advantages and disadvantages of using either. The APERG method has been designed more explicitly to explore innovations at an early stage and reconfigure policy discussions whereas the ECAST method has been designed more unambiguously to produce policy impact. The APERG method recruits participants topic blind and then explores the context out of which public responses emerge whereas the ECAST method relies on initial open-framing deliberations. Notwithstanding these differences, the overall goal of both methods is broadly shared, namely

to produce informed citizens, capable and authorized to develop views and identities for thinking about the issues associated with an emerging technology and to use these understandings to advance socially reflexive policy deliberation. The message for those responsible for industrial risk management, including the cohabitation of hazardous industry and residents, is to reflect on the need to move the conversation upstream, to aim toward a more endogenous process where issues and problem framings are constructed from the bottom-up, before pathologies of path dependency, technological lock-in, “entrenchment” and closure set in.

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Chapter 11

Stairway to Heaven or Highway to Hell?



The Long and Winding Road to Public Participation

Jean Paries

Abstract This book reports on an academic, multidisciplinary and multinational seminar held to explore citizen participation in decisions concerning the public management of risks, particularly industrial risks. It illustrates the complexity of the subject and shows the great diversity of social, technical and political contexts, as well as the diversity of aims and implementation methods, the challenges encountered during practical implementation and the difficulties in achieving the expected benefits. To conclude this book, this final chapter repositions this complexity at the intersection of two components: “citizen participation” in democratic life on the one hand, and “public risk management” on the other. First, it separately examines the issues associated with these two concepts, as well as their own complexity, then it brings them together to identify some principles and avenues to explore to arrive at an “honest” and contextualized understanding of public participation in the governance of industrial risks.

Keywords Public participation · Industrial risks · Complexity · Public decision · Decision-making · Safety risk governance

11.1 The Complex World of Public Decision-Making

The complexity of collective decision-making is not specific to risk management; rather, it is common to all organized public decision-making processes and, more generally, political governance processes. We are all familiar with the variety of forms this governance can take, ranging from elective or even participatory democracy to dictatorship and various forms of autocracy or oligarchy. While democracy in its various forms is overwhelmingly seen in the Western world as being the most

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respectful of its citizens, it embraces a great diversity of ways in which the decision-making “elites” are selected and elected and, more generally, of ways in which power is delegated and articulated. The very existence of this diversity illustrates the historical and empirical trial-and-error that underlies the quest for the “best” regime. This shows the difficulty of the underlying ambition: to find a collective decision-making process that is both efficient and consensual, and that strikes a virtuous balance between individual freedom and collective interest, at different geographical scales and organizational levels.

Given their environment and field of study, most of the contributors to this book have a perspective on this subject that is explicitly or implicitly centered on “democratic” regimes or approaches. And of course, no current “democratic” regime can claim to have managed to square the circle. There are always areas where consensus breaks down, and opportunities for subsets of the population to express their strong disagreement with “official” decisions in more or less active, or even violent, extra-electoral ways. Fundamentally, this is not a sign of democracy’s weakness, and constitutional recognition of the right to manifest collective disagreement outside of and in addition to the functioning of political institutions is, on the contrary, a component of democratic principles. Democracy is about more than just holding elections and silently obeying the decisions of elected representatives.

However, for several years now, in most Western democracies, a loss of legitimacy of elected representatives, the “ruling class”, the “elites” and, more generally, the “system” has been noted. This loss of legitimacy is accompanied by a loss of confidence and a feeling of not being represented, of not being heard and respected, of being under-informed or even manipulated or betrayed. Paradoxically, this perceived lack of democracy results in votes for far-right parties with an authoritarian, anti-democratic ideology. In response to this trend, a number of national initiatives and regional experiments are being developed, particularly in Europe, to supplement traditional elective democracy with complementary or alternative arrangements, such as the appointment of institutional representatives by lot, the use of referendums, or the set-up of citizens’ committees. By enabling and organizing the direct expression of citizens, these arrangements make it easier to deal with matters where strong local or sectional interests are at odds with the general interest, or, on the contrary, with generic matters (ethics, public health, the environment, energy strategy, etc.) that transcend the well-established boundaries of partisan political thought. However, citizens’ committees, which can also include elected representatives and experts, are generally advisory bodies rather than decision-making bodies, and the frequent if not systematic failure to take their recommendations into account not only generates frustration, it also tends to confirm the public’s initial feeling of disregard for the “opinions of citizens”. Having the possibility of expressing one’s views is not enough; the core issue remains decision-making power.

Thus, we see two possible responses to the growing frustration with the mechanisms of democratic governance: an increase in centralized “authority”, or, on the contrary, a redistribution of decision-making power, either through decentralization and an increase in the decision-making authority of “representative” and organized samples of the local population or categories thereof, or through the introduction of recurrent “votes” on controversial subjects.

11.2 Public Management of Industrial Activities and Risks

Public management of industrial risks is a particularly difficult case of public decision-making, as it combines the complexity just mentioned with that which is intrinsic to risk management. First of all, industrial risk is just one aspect of industrial projects, and public decision-making and management concern projects in their entirety. They therefore rather naturally incorporate the associated benefit/risk trade-offs. But for many reasons, this seemingly straightforward exercise of weighing usefulness to society against potential damage quickly proves to be a tricky orchestration of inevitable disagreements over complex issues.

A first difficulty, semantic in nature, lies in the fact that the two terms of comparison, i.e. usefulness and damage, often do not share a common metric. How does one measure financial gain against the possibility of a fatality? The classic response, assigning a monetary value to both, quickly reveals its ethical limits and often borders on “rational indecency”. Furthermore, even if we “forget” the difficulties and uncertainties associated with assessing damage and its probability, the very definition of risk as the product of the two is one choice among other possible choices. While it represents the mathematical expectation of the loss, it does not represent the psychological perception of risk by human beings. It suggests a rationality of decisions that are distorted compared to natural choices and decisions, whether at the individual level (Tversky and Kahneman 1981) or the collective level (Rheinberger and Treich 2016; Slovic 1993; Sjöberg 1998). It formalizes the illusion of the “distant elephant”, which appears to be the same size as the close mouse, and postulates that frequent minor injuries and a remote fatality are equivalent.

This convention is obviously very useful for “rationalizing” decisions concerning risk management or insurance, but its “scalability” is low: it does not withstand the transition from the collective to the individual scale, and this leads to a classic NIMBY-type (Not In My Back Yard) rejection. To put this another way, shifting from a statistic or an “objective” macroscopic probability to an emotional feeling that can be integrated into an individual decision is always difficult. It is said that during World War II, a famous statistician from Moscow refused to go down into the shelters during air raids, on the grounds that there were eight million inhabitants in Moscow and he had estimated that he was more likely to die by falling down dark stairs than as a result of the bombings. But one day, as he was seen entering the shelter, someone asked him ironically if he had redone his calculations. “No, but there was only one elephant in Moscow and they got it”, he replied.

This difficulty in individualizing or “localizing” collective reasoning in terms of risk is very often exacerbated, in the realm of industrial safety, by the dissociation between the respective “recipients” of gains and losses. Often, the gains of a risk-generating company benefit its shareholders, customers and employees, or even society as a whole, while the risks are concentrated on its neighbors. But this presentation is obviously an over-simplification: as the chapters in this book clearly illustrate, in reality there is a multiplicity of players, stakes and issues involved, and the same person or family can be a neighbor, a plant employee, *and* a beneficiary of

the revenue generated by the industrial activity for the municipality, its schools and its gymnasiums.

Rather naturally, along with this multiplicity of situations comes a multiplicity of points of view and positions, with dissonance between mental models of the “reality” of the benefits and risks; a marked asymmetry of information between “professionals”, “experts” and the “public”; on occasion, real gaps in knowledge and understanding; preconceived ideas about each other; and a serious lack of trust. It is also worth adding that all this is highly dependent on the national or local culture, as well as the context (e.g. the nature of the activity and the risks involved, or how recent or old the facilities are).

Overall, as the chapters progressed, the world of public management of industrial risks emerged as a complex one in the strongest sense: a contrasting landscape composed of multiple issues—economic, environmental, health-related, ethical—interacting with one another, interdependent upon one another, and overlapping one another. It is a place where collective and individual interests diverge, a territory where conflicts of scale (society vs. local) and temporality occur. The game played there is not often a zero-sum game with clearly identified winners and losers, and in certain situations, particularly where environmental issues are concerned, it can become somewhat of a “tragedy of the commons” with its lose-lose logics that render the issues even more complex.

In this world, then, we find many of the properties that characterize complex systems: forms of self-organization, emergent properties, a disproportion between “causes” and effects, feedback and feedforward loops, unforeseen events, uncertainty, and instability. The growing instability of the world with climate change, and the increasingly divergent and conflicting visions of a “desirable world” among the population when it comes to environmental issues and the place of industry, will no doubt intensify opposition and conflict regarding the importance of industry, and therefore of industrial risks. Beyond the issue of industrial risks, there is a real question mark over the capacity of democracy as we know it today to manage—impose—the transformations which climate change demands.

11.3 Participatory Processes: the Good, the Bad and the Ugly

Reading through the contributions in this book brings together two complexities: that of public decision-making—particularly in a democratic environment—and that of (industrial) risk management. And at the end of this journey, one thing becomes clear: we cannot simply say that “in an elective democracy, the elected representatives decide, the citizens obey their elected representatives, so industrial risks are well managed, period”.

The book describes the institutionalized and legal processes—such as public inquiries and consultations, the local information committees (CLI) in France’s

nuclear sector—that have long existed to involve citizens more directly in public decision-making. It also shows that these institutionalized and legal processes are not enough: they are informative, consultative, sometimes used as simulacra of participation, but they are not participatory.

Complementary and more participatory approaches already exist also and are mentioned: turning to counter-powers such as the courts, or direct negotiation between parties (e.g. negotiations between the State/Prefect/local councilors and high-risk industry in an industrial area in France). Everyone agrees that participatory approaches can help provide tools for public debate, and that they undoubtedly need to be recognized and instituted.

But the debate is about the breadth and depth that are desirable or even acceptable for these approaches, or in other words the amount of power they should be granted. Some have warned against seeing democracy as too irenic a space. Citizen participation may be inappropriate in certain crisis situations (COVID, war, etc.). It may be incompatible with certain strict confidentiality requirements. It can present a blurred boundary with certain unacceptable forms of activism, or even violent action, or it can open up spaces for “bottom-up” manipulation and “social engineering”, facilitated by the attraction, amplification and distortion effects of social media and their filtering algorithms. Where is the line between participation and manipulation?

11.4 So, What is the Best Way to Go About It?

The nature of the preceding questions makes it clear that the answers cannot be limited to tactical arrangements. A strategic vision is needed. What is the purpose of the participation? To minimize the risk of rebellion against “my” project? To maximize “our” power to block or delay? If we try to look beyond this caricatured opposition, what would be the “function” to optimize through participation? Is it “public benefit”? Is it “public confidence” or “public support”? Is it the “overall effectiveness” of decisions? And each time, how should the notion be defined and measured?

Three levels of potential benefits can help to better identify what is expected of participatory processes:

- Cognitive level: better knowledge, better decisions, more wisdom;
- Pragmatic level: greater justice, greater acceptance, less frustration, less violence;
- Democratic level: civic education, improved confidence in governance and institutions.

But because the problem is multidimensional, there is no single formula for tackling it. In a complex and thus uncertain world, there is no such thing as the “best decision”, only “acceptable” results. Participatory processes must be designed as adaptive, situated processes suited to the existing needs, limitations, concerns, culture and decision-making context. In this regard, the book lists a number of conditions for success. The approach must be honest: no naivety or manipulation. It must give

citizens the ability to truly influence the final outcome: they must be seen as co-developers of risk management compromises, through dialogue and the integration of different types of knowledge, both expert and non-expert. It must have access to human and economic resources that match the ambition. It must enable the emergence of local champions, coalitions of advocacy groups, and a clear sharing of responsibilities. It must use polycentric governance mechanisms and mobilize a legitimate, neutral and qualified facilitator/moderator of the process. Finally, it must lead to a sincere and effective implementation of the commitments and decisions made.

As you can see, all this is above all a list of avenues to explore further in the future. Many questions remain unanswered and their importance will grow in the coming years, even beyond industrial safety, with the rise in tensions and social polarization that will result from them. This book is an important milestone, because of the epistemological framework it provides. A new, more pragmatic round of reflection is already on the agenda for FonCSI's fourth five-year program. The aim will be to formulate "stakeholder management" recommendations for industrial companies and their various associated departments (communication, legal, production), according to where their activities are positioned in the social risk landscape.

The road to participation is by no means a highway, but it is open.

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