

# Chapter 11

## Risk, Space, and Distributive Justice

Claudia Basta

### 11.1 Introduction<sup>1</sup>

In this introduction, I will start my contribution by recalling a personal experience. Disconnecting my ideas from that experience would critically impoverish my capacity to convey my ideas' underlying motive and, I believe, their significance.

The episode dates back to 2009 and to a conversation I had with some members of the then a Dutch advisory committee on hazardous substances. I had invited them to provide feedback on a project I was about to submit to a scientific grant competition. The project intended to combine selected risk analysis methodologies, spatial planning theories, and ethical theories, so as to elaborate an integrated evaluative framework for the siting of impacting and hazardous technologies. My starting point during this discussion was the lack of an integrated perspective on the matter of siting such technologies – a perspective that could support decision makers, and planners with them, in addressing “technical” and “nontechnical” considerations consistently throughout the entire evaluative process. Typically, techno-economic appraisal that guides the selection of different candidate sites is frequently “insulated” from relevant ethical implications. That seemed the firmest point to show why resistant appraisal models were destined to failure, at least in some regards. I then argued that the applied research in the field should have advanced more value-sensitive appraisal models, stressing that the resulting “value-sensitive” appraisal model would have not entailed losing any evaluative rigor. In essence, what I proposed was solving the disjunction between the analytical *and* the normative components of siting evaluations by applying one and the same ethical theory throughout the entire evaluative process. From risk appraisal, sites inventory, site selection, and land use planning in

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C. Basta (✉)

Land Use Planning Group, Environmental Sciences Department,  
Wageningen University and Research Centre, Wageningen, The Netherlands  
e-mail: Claudia.basta@wur.nl

the area surrounding the chosen site, the theory I proposed was the theory of distributive justice of John Rawls (1971). This, I explained, was a main theoretical current within the Ethics of Technology group of Delft University of Technology where I had started to develop my postdoc project; therefore, I closed my presentation by emphasizing how my intent, as spatial planner, was connecting this prominent philosophical current with the domain of technological risks, and specifically with the matter of siting risky installations.

The experts listened attentively to my enthusiastic presentation and provided valuable input and, at times, helpful critical remarks. Then, I was finally encouraged to proceed with my application. But when I was about to leave the meeting, one of the experts dismissed me by saying “Indeed your research on justice is truly needed. We need to improve our risk communication and *letting people understand* that we do perform the most consistent risk analysis and site selection each time we need to take a sensitive decision.” Or something to that effect.

In that precise moment, I understood what had happened during my presentation. In the best scenario, I had been perceived as the one more idealistic scientist with intricate, yet kind of fashionable ideas; in the worst scenario, my proposal had been filtered by discarding all theoretical intricacies at the end of identifying its possible “practical,” if not instrumental, use. I think what happened was the latter. The term *consistent*, for example, was disconnected from my intended meaning and perceived as a smart attribute to associate to risk analysis; *sensitive*, by its side, was perceived as a very effective term to be conveyed to the public in relation to “decisions.” That the evaluative intent of my framework was to provide a form of *ethical* consistency that would affect *the course* of those decisions had been totally overlooked.

While realizing this, I surrendered to the impossibility of clarifying my ideas any further – these ideas were, evidently, premised on a worldview entirely different from my audience’s. Moreover, it was a worldview which had no chance of being comprehended in its unity without an instinctive distinction of grouping it under the rubrics of “this is of practical use” vs. “this is just academic speculation.” And indeed I left the meeting wondering, for a moment, whether I was only speculating along a fruitless direction.

This experience revealed a fundamental thought. Both my project and the authoritative audience of that meeting were animated by the same, sincere, intent: refining the evaluative instruments at disposal in the domain of hazardous facilities siting at the benefit of society. However, the words of the expert who accompanied me out of the meeting forced me to realize that the ethical trajectory signed by my project had no chances of penetrating tested governmental evaluative models beyond some superficial infiltrations. Differently put, this episode forced me to realize that the approach to the siting of hazardous installations of governmental experts, in such an enlightening way summarized by the remark “we need to let people understand,” in the framework of my research should have been part of the very problem.

This predominant governmental approach could be illustrated in many ways, and perhaps the most effective way is what Owens (2004b) calls the “techno-rational” model of appraisal. Here, the decision maker acts as promoter of the public interest by grounding her decisions on the solid terrain of technical assessments. Such assess-

ments are usually provided by supposedly “neutral” scientific advisors. The third party, that is, the individuals affected by the decisions, are involved in the decisional process only later on, at the end of being persuaded of its “rightness” through extensive explanations of its objective rationale. As the experts put it, “we need to let people understand”; that is, we need to persuade, to convince; we need to enlighten the darkness of subjectivity with the brightness of rationality. Subjectivity, in short, is a problem to solve – not the epistemological source through which giving form to the problem itself. So how could I have pushed my ideas through? Their essential was that without a shared ethical point of reference that could encompass different worldviews, the very decisional problem could not be formulated. The remarks of the expert, despite motivated by the same good end, summarized with insightful simplicity that one worldview had to prevail on the other instead.

I am aware of the comparative banality of remarks like these. Literature has long since identified the irresolvable epistemological opposition that underlies the dialogue between parties called to interact on controversial siting decisions (Huitema 2002; Boholm 2004; Boholm and Lofsted 2004; Owens 2004a, b; Hayden Lesbirel and Shaw 2005). Several authoritative arguments have been already advanced in the attempt to solve the polarization between, particularly, risk posers and risk runners by orienting the discourse on risk toward the identification of the moral rights and moral obligations of each (Hansson and Peterson 2001; Peterson 2003; Peterson and Hansson 2004). Others have extensively argued on the fallacious distinction between a “neutral” and a “biased” perception of risk, advancing the metaethical argument that the notion of “risk acceptability” cannot be deprived of its moral emotional component (Roeser 2006 and Roeser 2010 in particular). Planners, in this latter respect, provided valuable empirical inputs to the discussion by documenting matters of self- and place perception among citizens living nearby hazardous installations (Simmons and Walker 2004). As I will elaborate in the following sections, these latter inputs enriched the theoretical debate on “risky siting” by highlighting the need to always consider the site-specific implications of concrete installations, so as to prevent overarching generalizations incapable to reconnect the theory of siting to its practice.

Literature, in short, abounds with contributions of a growingly multidisciplinary scholarly community, to the point that adding to it seems less productive than taking a stance within its various currents. However, it is precisely in light of this abundance that discussing why the techno-rational model of appraisal keeps guiding the siting of impacting and hazardous technologies becomes a matter of importance. In this contribution, I will address some considerations precisely in this direction. To do so, I will refer to a recent case of rejection of a CO<sub>2</sub> underground disposal by the side of the citizens of Barendrecht (the Netherlands). This case was discussed, under a different light, in a previous contribution (Basta 2011). Here, I will concentrate on what I do regards as the aspect of the governmental decisional approach that led the course of events to conclude with fierce societal opposition. I propose that this aspect relates to the lack of distributive considerations of the impacts and risks of the installation during the phase of appraisal of the “suitable” site among the considered candidate sites. The next section clarifies the background of this position by recalling some prominent theories, namely, the sociological

discourse on risk of Ulrich Beck (1992) and the theory of distributive justice of John Rawls (1971), the latter transposed to planning theory by Stefano Moroni (1994, 1997).

## 11.2 Technological Risks and Distributive Justice: Some Theoretical Premises

Since their appearance in the English translation of 1996, the ideas of the sociologist Ulrich Beck on the advent of a risk society kept animating, at times critically and at times unreservedly, the debate on technological risks (Beck 1992). As is well known, Beck's seminal writing revolves around the observation that the Western economic development pattern, in late modernity, was primed by the massive introduction of hazardous technologies of yet unknown risky potential. Such technologies create forms of inequality in society not only regarding individuals' access to the produced benefits but also in relation to their exposure to the relevant risks (Beck 1992). Throughout his first academic best seller, Beck does not make distinctions between different types of risk, referring to a general notion of it while mentioning a number of (technological) examples. This is an important remark in the context of this contribution: as noted, "pollutants in foodstuff" and a nuclear factory are risk sources whose specifics and consequences are remarkably different, if not incomparable (Leiss 2001). However, if we could rewrite parts of Beck's first book by adding "large-scale and site-specific" before many of the "risks" he mentions, this room for critical remark would vanish. The only necessary distinction at that point would regard the technological risks "not tight to the place of origin" (Beck 1992, p. 22) because of their intergenerational relevance and the risks "tied to it" because of the intra-generational implications of their consequences. With a good deal of simplification, we could say that technologies like nuclear installations and CO<sub>2</sub> underground disposals belong to the first category, whereas chemical and energy installations belong to it depending on the specifics of the involved substances, operational standards, and the effects of the relevant risks on man and the environment.

Recalling Beck's work is therefore only meant to highlight the following: site-specific hazardous technologies create situations of unequal risk distribution in society. Approaching the matter of their siting requires, consequently, to address considerations of fairness and equity (Keller and Sarin 1995; Davy 1996; Linnerooth-Bayer and Löfstedt 1996; Hayden Lesbirel and Shaw 2005; among others).

To elucidate these two notions, I will refer to John Rawls' authoritative *Theory of Justice* (1971). As is well known, the pillars of the Rawlsian theory are the conception of "primary good" and the two principles of justice. The former refers to the goods each individual would be entitled to, in accordance with a contract that would regulate individuals' coexistence within a fair society. These goods would be identified by individuals acting behind the "veil of ignorance," that is, without knowing what their social, ethnic, and religious statuses would be in a real setting.

Arguably, in this original position, individuals would identify as “primary” the system of liberties and essential means they would need in order to develop the own self freely. Such liberties and means are therefore those that can be equally assigned to anybody without violating others’ liberties. Freedom of speech of religious orientation and access to basic education are some examples. The two principles of justice relate to this conception of primary goods by, respectively, stating the obligation of their equal distribution in society (1st principle) and by legitimizing inequalities only when they do benefit the whole, up to its most disadvantaged members (2nd principle). The distinctive aspect of Rawls’ conception of justice therefore aims to prime distributive mechanisms of primary goods that would put all in the same initial condition, instead of aiming at a restrictive form of social equality. In more simple words, the fair society the philosopher had in mind is not a society in which everybody is equal in terms of status and belongings, but rather a society in which everybody has access to the essential rights and means needed to develop their own aspirations. Rather than a radical conception of equality as “leveling differences,” the liberal conception of justice put forward by Rawls is therefore of equality as “departing from the same set of essential means.” That is why Rawlsian theorists identify justice *in* fairness.

Beck’s risk society has interesting elements of affinity with this theory. If site-specific technological risks create a threatening form of inequality in society, it follows that it can be envisioned either a moral obligation of removing such risks or of justifying their uneven distribution only when it benefits the whole. This “moment of connection” between the two theories is surely interesting, as among other implications it gives form to the problem of *planning* a fair risk distribution in society.

The friction between the analytical and the regulatory dimensions of “risky politics” and the challenge of reasserting justice in a risk society has been touched by law, sociology, and political philosophy writings (Arcuri 2005; Huitema 2002; Hudson 2003). Individually, the two theories have substantially penetrated the planning literature. The Beckian discourse on risk infiltrated it through conceptions other than specifically technological risks, particularly the notion of “reflexive modernity” and the consequent horizons of a reflexive planning discourse (Howe and Langdon 2002). Other planners concentrated on the “ideology of certainty” that keeps permeating planning systems despite “risky realities” started to be acknowledged as the only possible realities (particularly, Gunder 2008). Rawlsian lines of inquiry, by their side, penetrated the planning literature in the works of Harper and Stein (1992), Moroni (1997), Stein and Harper (2005), and Fainstein (2010). In light of the scope of this contribution, I will elaborate on these Rawlsian lines of investigation in planning theory more at length.

The planning theorist Moroni (1997) argued in details on the implications of the Rawlsian conception of “primary good” for the spatial planning theory. Replicating the line of reasoning of the individuals acting behind the veil of ignorance, Moroni argued that decent housing and the access to green areas and to sufficient transport are the “primary” among the spatial goods. Such spatial goods constitute the basic “spatial” condition each individual should depart from in order to pursue the own objectives of self-realization and happiness. As such, they constitute the

basic “spatial rights” that should be guaranteed to each member of society up to the most disadvantaged.

But the main point of interest of Moroni’s elaborations is his addition to the original Rawlsian list of primary goods of a “safe living environment.” When formulating the negative right of *not* being unsafe, it indeed follows that all members of society are entitled to live in “spatially safe” conditions. Although Moroni does not discuss this point at length, I conclude that this condition includes living protected from major hazards and being exposed to tolerable levels of risk.

This is an interesting point as it relates to the matter of siting hazardous and risky technologies and planning the surrounding urban areas in accordance with both the Beckian vision of unequal risk distribution in society *and* the Rawlsian conception of justice as fairness. From a planning perspective, the resulting disciplinary implication is that aim of the planning practice should become distributing spatial safety in society equally up to its most “spatially disadvantaged” members. The main evaluative implication, consequently, consists of identifying the level of spatial safety individuals are universally entitled to. Arguably this level has a concrete geographical dimension (e.g., “distance from” or “emergency routes toward”), and its means of distribution are planning instruments. Because of their rights’ and permits’ allocation purpose, arguably land use plans are the privileged instruments for realizing such distribution.

These conclusions constitute the lenses through which I will discuss the case of the CO<sub>2</sub> underground disposal proposed for siting in Barendrecht. The essential viewpoint enabled by these lenses is the following. Asserting that spatial safety is a primary good, and that there is a level of it that should be equally guaranteed in society, equals stating that safety *and* fairness are, respectively, the *dimension* and the *criterion* that should guide planning decisions in relation to risks and hazards. When thinking at the limitations of the techno-rational model of appraisal described above (Owens 2004b), this position provides a promising evaluative perspective. Through it, siting decisions are approached as decisions that *ought to* embed, next to a sound assessment of the site-specific impacts and risks of hazardous installations, distributive justice considerations. This point will become particularly pertinent in the following section.

### 11.3 The Failure of the Techno-Rational Notion of “Suitable Site”: A Recent Case

The case of the CO<sub>2</sub> underground disposal proposed for siting in the Dutch town of Barendrecht was discussed, under a different light, in a previous contribution (Basta 2011). Here, I will discuss it in relation to the current theoretical premises, particularly the principle of fair distribution of technological risks through spatial planning instruments.

In the course of 2009, the municipality of Barendrecht, in the southern part of the Netherlands, engaged in an open conflict with the Dutch government in relation to the proposed siting of a CO<sub>2</sub> underground disposal. The government promoted the

project in concert with a known (inter)national oil corporation, which was requested to implement carbon capture and storage technology in the framework of the national policy on climate. This technology allows to capture carbon emissions at source and storing them underground into exploited gas fields, of which the Netherlands are particularly rich.

In order to assess the best possible location for the disposal, the Dutch government delegated a sites inventory study to the national Applied Research Institute (in the following, TNO). Twelve possible locations, of which seven were offshore and five inland, were considered (Breunese and Remmelts 2009). Among the 12 candidate sites, the municipality of Barendrecht was the more densely populated. Nevertheless, the geological characteristics of the gas field underneath its surface and some key techno-economic constraints (principally, the length of the pipelines connecting the points of emission of nearby refineries to the storage) led the research agency to conclude that Barendrecht was a suitable site for proceeding with the pilot project. The government defended this outcome of the inventory study by recalling the national interest, alleging that “capture and storage of CO<sub>2</sub> is a necessary transition technology to help cut carbon emissions” (Reuters, November 18, 2009).

The local population opposed the pilot project, which should have led to the installation of the disposal within the following few years, on the ground of its feared impacts on property values and, more generally, on the image of the town (Terwel et al. 2012). The slogan “we do not want to become the national CO<sub>2</sub> dumping place” spread through manifests, interviews, and public consultations. Following the growing opposition at a local scale, the debate on the technology option of CO<sub>2</sub> underground disposals became of national resonance. As a result, several Dutch municipalities declared to reject the possibility of being future candidate sites for similar disposals. Somehow, an initially local case of opposition to a specific installation became a sort of national movement against the very carbon capture and storage technology. However, the Dutch government kept defending the project, justifying its desirability in light of the national policy objectives of climate change response (Dutch Ministry of Environment VROM 2007).

I think it is evident that the story line of the Barendrecht case recalls the typical “techno-rational” model of appraisal discussed above. The “owner” of the decision-making process was the national government who, consistently with a specific policy objective, delegated the inventory of possible sites to a supposedly neutral advisory body. The latter assessed a number of candidate sites on the basis of several criteria, which included the geological characteristics of available gas fields, the costs of each alternative, and the relevant technological requirements (Breunese and Remmelts 2009). Among the candidate sites, the area of Barendrecht was the most densely inhabited; nevertheless, the main reason for its indication as suitable site seemed to be the criterion of cost-effectiveness, which is explicitly related to the distance between CO<sub>2</sub> sink and sources. The distance between the exploited gas field of Barendrecht and the source of CO<sub>2</sub> emissions was estimated about 20 km; all other sites were in the range of 75 up to 210 km. Here, the report reads “the fact that the Barendrecht field is located under a built area is not of a (geo)technical nature and therefore impossible to weigh against the other geotechnical factors considered”



(Breunese and Rimmelts 2009, p. 26). That is to say, the criteria considered by the research agency at the end of formulating a judgment of suitability were, allegedly, only geotechnical and cost-effectiveness criteria. More explicitly put, the characteristics of the Barendrecht' gas field and the 20 km of pipelines connecting the nearby area of Pernis to it were given the highest weight in the site inventory study. The immediate conversion of the relevant outcomes in the final siting decision makes even reasonable to consider whether the inventory had been merely instrumental to provide "a post-demonstration of a preconceived judgment" (Owens 2004a, p. 1946). Somehow, Barendrecht seemed predestined to host the disposal. This hypothesis, however, would leave the main point of our discussion unchanged, as this "post-demonstration" would have also been constructed only on the ground of a techno-rational epistemology.

Evidently, this epistemology excluded the consideration of the instances of a densely populated locality chosen among other non-inhabited candidate sites. Recent accounts confirmed that the main concerns of the population of Barendrecht regarded the feared impacts of the installation on the image of the locality, the consequent fall of property values, and the possible risks brought by the technological installation (Terwel et al. 2012). It is important to keep in mind that due to its vicinity to the major industrial area of Pernis (i.e., to the source of CO<sub>2</sub> emissions of the proposed storage), Barendrecht is already "featured" by the massive presence of industries and refineries. Under this light, the slogan of citizens "we do not want to become the national CO<sub>2</sub> dumping place" seems to reveal the underlying motive of rejection, that is, the opposition to a worsened condition of impacts and risk exposure but also to a further negative stigmatization. Public acceptance was therefore early recognized as the key challenge of the project also from the side of the international oil corporation (Kuijper 2011). The late involvement of citizens in the decisional process and a subtle mistrust in the underlying motive and reliability of authorities played also a significant role in shaping the conflict (Brunsting et al. 2011).

This could be obviously reduced to a "Not In My Back Yard" (NIMBY) story line: that is, *not here – not now*. However, under a different perspective, we could consider the already high concentration of industries in the area as a key factor of opposition. Barendrecht saw itself chosen among others, uninhabited candidate sites on the ground of purely techno-economic considerations. Should other types of considerations, for example, considerations of a fairer impacts and risks distribution at regional or national scale, having been considered instead?

I think that this case exemplifies the resistant techno-rational model of appraisal and its lack of permeability to such considerations in a paradigmatic way. The crown on this paradigm are the words of the proponents of the CO<sub>2</sub> installation, pointing out the need to design "a comprehensive public acceptance strategy" (Kuijper 2011). That is, "public acceptance" should have followed the outcome of the sites inventory as an object of strategic design; the underlying rationale, in essence, is that public acceptance is something to obtain ex-post through strategic maneuvers under the "we need to let people understand" motto.

Questions of moral relevance, and of competitive ethical perspectives, do therefore inevitably arise. I will discuss them in the following section.



## 11.4 Discussion: The Suitable and the Fair Site – Irreconcilable Realities?

The main question that stem from the case described above is, first of all, whether it is morally justifiable to create conditions of risk inequality in society despite the theoretical availability of alternatives. Furthermore, the case leads to question whether the risk inequality created by site-specific technologies whose benefits are of global relevance is always justifiable in light of the second Rawlsian principle of justice; as explained, this principle states that societal inequalities in primary goods distribution can be justified only when such inequalities benefits the whole up to the most disadvantaged.

Without digging into the technicalities of each alternative and into the specifics of the case under discussion, I will provide tentative answers while indicating some main open questions. First of all, commonsense suggests that if among the criteria used to review the 12 sites of this case the criterion of “not worsening preexistent conditions of impacts and risk exposure” would have been considered, the site of Barendrecht could have been discarded during the site inventory or even not being considered at all. On a marginal note, this does also allow to suggest that the following national debate on carbon capture and storage as a technology option for climate change response could have developed toward a different direction, possibly without polarizing Dutch citizens and the Dutch government into two irreconcilable positions.

But it is the “not considered at all” point that is of paramount importance here. That is what exemplifies how addressing distributive considerations at the early stage of the planning of technological risks could affect the entire course of siting decisions – and providing, at the same time, a morally solid framework to all possible successive confrontations with public resistance. Evidently, this moral solidity rests on a shared notion of justice among the involved individuals.

To discuss the case above using the lenses of my theoretical premises, it is fundamental to capture that what generates such confrontations are, indeed, different notions of justice. What “fairness” entails is often object of disagreement among individuals, to the point that “competing views about fairness are at the core of the siting impasse” (Linnerooth-Bayer and Fitzgerald 1996). This is brilliantly argued by Davy (1996) in his account of the “justices” that compete during siting processes. Davy unveils the essentials of the main three justices among them, namely, the utilitarian justice that informs the techno-rational model of appraisal (providing for the least dissatisfaction or the least risk), the libertarian notion of justice (minimizing state intervention and enhancing competitive interactions), and, finally, the Rawlsian or egalitarian notion of justice (that, as discussed, allows inequality only if it is beneficial to the whole, including the most disadvantaged). All three conceptions of justice are justified by either some underlying epistemological position (like the techno-rational epistemology of utilitarianism) or by some underlying position relating to normativity (like the sphere of intervention of the state vs. the sphere of liberties of individuals in libertarianism). As these three conceptions of justice coexist

during siting processes, “any siting outcome will be unjust or unfair to somebody” (Linnerooth-Bayer and Löfstedt 1996). Davy elaborates on this crucial point by stating that “the problem of the coexistence of different concepts of justice cannot be solved by identifying and pursuing the ‘right’ concept of justice” (Davy 1996). Taking the “suitable site” to correspond to the “just decision” does rather require an effort of anticipation of all possible forms of perceived and concrete unfairness. In this view, the decisional process should be bent toward minimizing such unavoidable unfairness to the extent possible. In Davy’s vision, in essence, competing notions of justice do not call the respective individuals to opt for the one that best suits the specific circumstances; they rather call to a resilient response, by the side of the decisional process, to the inevitable feelings and conditions of unfairness that will accompany it. This is what Davy (1996) calls “justice as compassion”.

This is the point of Davy’s insightful analysis from which I wish to take a cautious distance. The equal justifiability of different perspectives on fairness does not entail, per se, the obligation to not disabling any of them in the course of sensitive decisional processes, like the siting of hazardous installations. If any notion of justice, regardless of the underlying epistemological or normative position, is equally admitted in the arena of discussion, then all following “injustices” becomes insurmountable obstacles. This remark, observe, does not intend to question the *legitimacy* of different notions of justice; it only intends to question whether *all* of these notions can be equally and simultaneously considered at the end of opting for the just decision.

To clarify this point, I propose to make a distinction between the *fundamental* injustice that derives from the clash of different notions of it from the *residual* injustice that derives from the negotiated option for one of them. The former form of injustice derives from epistemological or normative inconsistencies among the perspectives of individuals; the latter form of injustice instead derives from the sacrifice suffered by some *because of* and *despite* the adoption of a common line of principle.

This can be clarified by going back to the example of the CO<sub>2</sub> underground disposal. Let us assume (for the sake of argument) the proven tolerability of the impacts and risks associated to the disposal and the proven global relevance of its benefits in terms of climate change response. The underlying assumption, to be clearer, is that there exist a rough metric that allows to counterbalance the local impacts of the technology with the global benefits provided by the reduced emissions of CO<sub>2</sub>. The global relevance of such benefits would obviously include the citizens of Barendrecht. Let us now suppose that all available siting alternatives are equally inhabited areas, and that the respective urban districts are from equally to more densely industrialized. Following distributive considerations aimed at identifying the most even distribution of impacts and risks among the candidate sites, it could be considered *fair* to site the disposal underneath the town of Barendrecht. Here, the most spatially disadvantaged citizens would equally be among the direct beneficiaries of the installations; therefore, should the location of Barendrecht the one guaranteeing an even distribution of risks among the candidate sites, an egalitarian planning process could opt for siting the CO<sub>2</sub> disposal there. Thereby, land use plans would be regulated accordingly.

This “fair” decision, however, would not prevent neither an increased condition of exposure for the citizens of Barendrecht nor feelings of injustice and resentments among them because of their spatially disadvantaged condition. A condition of *residual* injustice would likely be experienced. However, the principle of fairness that guided the siting decision would provide a different and, observe, *moral* point of reference through which giving significance to such condition. What citizens “would have to understand” would be being equal beneficiaries of the global benefits of the installation *despite* their spatially disadvantaged condition, which would be created because it would not disadvantage further the citizens of other candidate sites. “Understanding” this moral justification of the siting decision would be sharply different than “understanding” the arguments of the techno-rational justice, which would have privileged the choice of the site on the ground of the costs/benefits rationale. The same would apply to the “understanding” of the rationale of libertarian justice, which would have privileged spontaneous sites candidatures and direct negotiation of compensative benefits between risk posers and risk runners with the likely result of siting the CO<sub>2</sub> disposal in the most economically disadvantaged site, thereby worsening a preexistent condition of inequality.

To conclude, while prominent authors agree in identifying the siting impasse in the coexistence of different notions of fairness, there is room for disagreement in Davy’s indication of not pursuing the “right” notion of it prior to guide siting processes to a possible just conclusion. Without an early agreement on what fair is, and what this fairness entails for the involved parties in terms of (possible) fundamental injustices and (inevitable) residual injustices, there is no room for a morally solid decisional process. The lack of such agreement would equal not setting down the rules of the game in advance and then let the actors play freely, thus without a common line of principle through which judging each other’s positions, actions, and ultimately residual condition and feelings of unfairness.

This contribution suggests that the fairness pursued by the distributive justice paradigm is the line of principle that can accommodate such residual forms of unfairness more, and more consistently, than any other. From a moral perspective, being the subject of residual injustice in the framework of a decisional processes whose explicit and common principle of fairness is the equal distribution of impacts and risks of technological installations is totally different than being subjected to injustice because of the exclusion, a priori, of explicit and early agreed upon principles of references. In support of this argument, I suggest that the egalitarian position is the real device of the sentiment of “fairness as compassion” that Davy refers to in his work (Davy 1996). With it, Davy intends the compassionate consideration of all possible notions of justice, and implicitly of the sense of injustice suffered by some, as worth of equal consideration: “[fairness as compassion] advises to consider each of the different notions of justice that are involved in LULU and NIMBY disputes and to eliminate and avoid injustice to the extent possible” (Davy 1996, p. 107). This is a valid indication. However, a possible different connotation of “compassion” in the domain of hazardous facilities siting could be that of “accepting residual injustices” as part of what individuals owe to each other within the human community. In increasingly urbanized realities, characterized by growing

complexity and increasingly intrusive infrastructures, to the one who will have to cope with the proximity of a CO<sub>2</sub> storage, the one who will have to cope with the vicinity of high-speed rail connections, renewable energy installations, or major power lines corresponds. Fairness as compassion, rather than an inclusive attitude of proponents of installations and decision makers toward different perspectives on fairness, is primarily the sentiment that should animate the individuals subjected to uncomfortable siting decisions. Such sentiment can only flourish from a shared guiding principle of fairness and from the reasoned acceptance of the individual share of sacrifice this guiding principle will residually, and inevitably, entail.

Arguably, rooting this sentiment in reality is the real challenge of any hazardous facilities siting processes. However, it is less likely to see this sentiment flourishing when such processes depart from a fundamental disagreement on what makes a siting decision a fair decision. Probably, the counterpart of this sentiment, that is hostility, is destined to become the protagonist all the times that through early, inclusive, and active societal participation such agreement is not even attempted.

## **11.5 Conclusions: Some Critical Notes for Future “Fair Risk” Planners**

In this chapter, I tried to outline some undergoing reflections on the matter of siting impacting and risky technologies by taking different theoretical perspectives together. These reflections were triggered by a personal experience that, while confirming commonly held opinions of prominent interdisciplinary scholars in the field, cemented my determination to continue exploring the horizons for an ethical discourse within spatial planning in at-risk areas. In this contribution, the accent was posed on the ethical perspective offered by the theory of distributive justice of Rawls (1971). Together with Beck’s vision of the risk society (Beck 1992), I tried to elucidate the relevance of this theory to the siting of hazardous and risky facilities. In support of my arguments, I referred to the story line of a controversial siting case in a Dutch town. Here, the pilot project of a CO<sub>2</sub> underground disposal was opposed by the local community, already living nearby a heavily industrialized area, following concerns regarding its impacts on the locality and fears of further stigmatization. The aspect of this case on which I draw more attention is precisely this preexistent condition of exposure of citizens to major risks and hazards the siting of the CO<sub>2</sub> installation would have inevitably worsened. I argued that this preexistent condition should have been an explicit criterion of the sites inventory carried out by the Dutch government. I therefore suggested that distributive considerations regarding the impacts and risks of site-specific technologies should inform “fair” siting processes and, particularly, the selection of the “suitable” site among different candidate sites.

Not many of the ideas I proposed here were original ideas. Their most original aspect is my attempt to develop them within the planning discourse as much as into

the ethical discourse. The implications of my discussion for the planning theory and practice will therefore be the focus of my concluding remarks.

One of the premises of this contribution was that in the domain of hazardous facilities siting land use plans are distributive instruments meant, on the one side, to prevent the violation of the spatial right to safety and, on the other side, to distribute the “spatial burdens” of impacting and risky technologies by striving for conditions of equality. The second Rawlsian principle of justice allows for inequality in primary goods distribution when such inequality benefits the whole up to the most disadvantaged; a point to be clarified is therefore how this principle should apply to the additional *spatial* primary goods that, following Moroni (1997), I proposed should lengthen the original Rawlsian list.

Notably, it was Rawls to leave the list of primary goods open to additions and, furthermore, to suggest that additional primary goods could be object of post-constitutional agreements<sup>2</sup>. Spatial primary goods would intuitively follow in this category of “additional agreements,” as arguably their features would vary according to specific geographical and cultural settings.

Next to basic “material” goods such as decent housing and access to green areas, the spatial good of safety is “immaterial” and as such, somehow, more fundamental. The “right to safety”, here intended as a precondition of exertion of other fundamental liberties, encompasses all material elements of the built environment. Not being exposed to intolerable hazards, having access to emergency routes and recovery in case of natural or man-made disasters but also accessing buildings and transport routes constructed according to precise and inviolable accessibility and safety standards are examples of the multifaceted implications of the notion of “spatial safety” in the context of our discourse. There is, obviously, no standard of safety that could be equally “distributed” through spatial planning instruments without relating this notion to specific elements of the built environment; there is, rather, an equal “bottom line” of safety that ought to be guaranteed to individuals in relation to each specific and potentially “unsafe” spatial condition. For example, houses are to be constructed according to given and not violable safety standards, transport routes are to be designed according to given criteria of accessibility and emergency response, and so on. In the case of hazardous facilities, this “bottom line” of spatial safety should consist of not exposing individuals to intolerable risks because of an unsafe proximity of hazardous and risky installations. Note that this is long since prescribed by the European common regulation through the Council Directive on Hazardous Substances (96/82/EC and following amendments), and that there is an extensive literature on the relevant experiences of implementation of member states (see Basta 2009 for an extensive account).

From an evaluative but also practical perspective, this objective constitutes a problem of often irreducible complexity. This complexity is due to the fundamental societal disagreement on the desirability and justifiability of certain technological risks, on the one side, and to the situations of proximity between industrial sites and residential districts inherited from our rather “risk deregulated” past on the other side.

Regarding the first point, that is, the evaluative problem of deciding whether a risk is tolerable or not and whether the respective technology is irreplaceable and

thus necessary to achieve greater benefits for the human community, the room for disagreement is virtually infinite. It is as infinite as the nuances coloring the notion of justice hold by different individuals. In any concrete setting, however, this is the most important preliminary question to pose. Regarding the specific case discussed here, that is, the technology of carbon capture and storage into underground disposals, it is important to point out that the technology is globally acknowledged to support the transition toward a nonfossil fuel era to the point that the Dutch government considers its implementation as the third pillar of the own Climate Policy (VROM 2007). I do not wish to take a position in regard of neither the “irreplaceability” nor the “necessity” of this specific technology, as this would require to investigate into a different direction and to deviate from the scope of this contribution. However, I suggest to leave the possibility of its transitory large-scale implementation open to rigorous ethical investigation, as I suggest the same openness in regard of renewable energy and water technologies meant to respond to the increasing scarcity of finite resources and to a growing global environmental degradation.

The second reason of complexity regards situations of proximity between impacting and risky industrial sites and residential districts European cities have inherited from the past, and that could further derive from specific technological constraints or scarcity of available sites. Here, I conclude by advocating that a distributive perspective on the relevant evaluations could offer a valid approach to prevent further societal inequalities while providing “a solid moral basis for contemporary planning theory” (Stein and Harper 2005, p. 147). This conclusion is partially in contrast with other theorists who defend the equal relevance of diverse perspectives on justice and the need to consider them with equal compassion during siting processes (Davy 1996 in particular). However, this conclusion seems to be more consistent with other established planning paradigms, particularly the collaborative planning paradigm (Healey 1997 and Healey 2003 in particular). Here, different worldviews are the communicative core of collaborative processes wherein actors aim at sharing the objectives, and the instruments through which achieving those objectives, of a spatial planning practice all bent toward societal justice.

I do not wish, however, to resolve this theoretical impasse by calling into play the collaborative planning paradigm, and the underlying constructivist epistemological position, *tout court*. I only wish to suggest that the paradigm offers a valuable reference framework for positioning the ethical discourse on hazardous facilities siting within the planning discourse. My understanding of “collaboration” relates to moral and normative rather than to restrictive epistemological positions, and implies an active role of citizens in achieving general planning objectives by departing from agreed reference values. As discussed in a previous contribution, such “active collaboration” among the actors involved in siting processes departs from an explicit definition of the respective moral rights and obligations (Basta et al. 2012), from the will to negotiate a shared notion of fairness that could accommodate the instances of the most disadvantaged while acknowledging the equal “spatial rights” of the whole, and from a compassionate acceptance of what such fairness entails in terms of residual sacrifices. The most important purpose of proposing such vision as

a valid approach to the practical case of inventorying candidate sites for hazardous and risky facilities and planning the surrounding urban areas is the one of counterbalancing the techno-rational criteria of costs/benefits or risks/benefits with a *moral* criterion. While thinking at the strategic horizon of the planning practice, that is of one generation, and at the intergenerational horizon of the consequences of some of the risk-bearing technologies object of that practice, this approach should inform current and future siting processes with the highest possible disciplinary rigor.

In practical terms, this could imply opting not for the most economically advantageous or technologically smart solution but rather for the solution that represents the most even distribution of a spatially disadvantaged condition at the end of serving the objectives of the larger human community. In moral terms, I believe, this is something that people could be more prone to understand. As these last remarks address the future generation of “fair risk” planners, I wish to conclude with the simple yet most felt words of one of them: “the acceptability of risks does also depend on the distribution of those risks” (Bennebroek 2010).

## Notes

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2. See, for instance, Rawls (1988, p. 257): “Provided due precautions are taken ... we can in principle expand the list to include other goods....” “... If necessary the list of primary goods can in principle be expanded” (p. 257).

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