

# **Informational and Normative Uncertainty in Communities Confronting Chronic Technological Disasters: the Case of Seveso**

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## **Abstract**

The paper deals with how to give account of the differences observed in communities response to Chronic Technological Disasters (CTDs). Overcoming the dualism of consensual and conflictual responses, we propose an interpretative frame based on the analytical tools of French pragmatic sociology. Through the analysis of the Seveso community response to dioxin contamination we point out the existence of a situation of both informational-cognitive uncertainty and moral-normative uncertainty. Historicity, realism and moral-normative controversies emerge as main issues in explaining communities response to contamination.

## **Key Words:**

Risk, Disaster, Contaminated Communities, Uncertainty, French Pragmatic Sociology

## **Introduction**

The issue the paper aims to address is that of how to give account of the way in which communities respond to the chemical contamination of their territory, that is, the way in which communities deal with living in toxic “extreme environments”. “Extreme environments” are “those states of nature that escape or elude common or expert knowledge and, therefore, are experienced by people (...) as essential puzzlements or profound uncertainties” (Kroll-Smith, Couch and Marshall, 1997, p.3).

Starting from the fact that “Chronic Technological Disasters” (CTDs) (Kroll-Smith and Couch, 1990) are radically different from any other kind of environmental damage (in particular, those caused by natural disasters) because of the high informational-cognitive uncertainty of the damages they engender, intra-community conflicts are considered in literature as a virtually inevitable outcome of these events. Confronted with radical uncertainties, “contaminated communities” (Edelstein, 1988) are supposed to follow the response pattern that leads to what has been called the “corrosive community” (Freudenburg and Jones, 1991) by opposition to the “therapeutic community” expected to emerge as response to “natural” disasters. Nevertheless, most recent research works about communities response to CTDs bring to us evidence of more “consensual patterns” (Gunter, Aronoff and Joel, 1999; Zavestoski, Mignano, Agnello and Abrams, 2002).

In our contribution we try to overcome the dualism of consensual versus conflictual responses, developing by means of the analytical tools of French pragmatic sociology applied

to the case of the Seveso disaster (Italy, July 1976) an interpretative frame of communities response to CTDs.

The paper is organised as follows: in the first paragraph we discuss the approaches through which communities response to disasters (natural and technological) have been investigated and we propose to frame the problem in terms of exploring the conditions necessary for a “trouble” to become an “issue”. We then introduce the analytical tools of French pragmatic sociology as tools propitious to the investigation of the ways in which a trouble, anchored in the experience of proximity to an environment, can access the public space in terms of issue. We then present (§3 and §4) the case of the Seveso community response to the dioxin contamination caused by the industrial accident at the Icmesa plant (owned by the Swiss multinational Roche). We analyse how and why in the local community has prevailed an interpretation of the contamination not in terms of health risk but in terms of cultural threat, thus contributing to the confinement of dioxin health damages (with their informational-cognitive uncertainty) to the space of personal troubles. In the conclusions we discuss the case, in order to isolate relevant dimensions for the analysis of communities response to CTDs. In particular we identify the following three aspects which need to be investigated in order to give account of the pattern observed: 1) the specific traits of the public space the contamination enters as disruptive event (*historicity*); 2) the specific nature of the disruption caused (*realism*); 3) how the contamination and its consequences are framed as “common” problems by public actors and by the affected community (*moral-normative controversies*).

### **Responding to disasters: therapeutic community versus corrosive community**

As pointed out by Tierney (2003) “disasters are occasions that can intensify both social solidarity and social conflict”, “cooperative and adversarial forms of collective behaviour. In the sociological literature concerning disasters, the radically different ecological characteristics of the environmental damage caused by natural disasters as opposed to Chronic Technological Disasters has been widely considered as the crucial factor in order to explain the consensual response pattern observed in natural disasters (solidarity) as opposed to the corrosive one observed in CTDs (conflict). While natural disasters produce extreme environment typically short-lived, “a horrendous moment in time bounded by two periods of stability-one historical, the other emergent” (Kroll-Smith and Couch, 1990, p.163), CTDs tend to trap at least some of the population in “extended periods of apprehension and dread” (*Ibid.*). A risk, usually uncertain in its extent and latent consequences, transforms the once familiar environment in a potential dangerous one. Trapped in a vicious circle of warning and

threat that fuels instability and hinders remedy and recovery, “groups engage not in consensual activities, but conflict; they emphasize not unity, but divisions; and the result is not the rebuilding of a sense of community, but its demise” (*Ibid.*, p.166). CTDs have thus been seen as distinct from natural disasters and warranting a different explanatory model (Reich, 1991).

These oppositions –natural versus technological disasters mirroring therapeutic versus corrosive community as response- seems in fact to be at least partially influenced by the way in which the sociological research on natural disasters has been developing, from emphasizing “continuity” and “solidarity”, on the basis of underlying systemic assumptions (Quarantelli and Dynes, 1977), to only recently highlighting conflictual stances, through the adoption of more constructivist and historical analysis (Stallings, 1995). At the same time, as pointed out by Zvestoski *et al.* (2002), researchers interested in CTDs have mostly chosen to investigate community responses to extreme environments in highly contentious cases that, by their own nature, tended to confirm the analysis of Kroll-Smith and Couch. As stressed by Gunter *et al.* (1999, p.625), “it seems likely that a tendency to gravitate toward highly contentious cases made it more probable that ‘quieter’ cases might be overlooked as potential targets for sociological study”. Evidences have then been collected by these authors of several consensual response patterns to CTDs, whose emergence is explained through the interplay of ecological and institutional factors.

To sum up, recent developments in disaster studies, dealing with both technological and natural accidents, emphasize the high response variability to disasters (from conflictual to consensual): in doing so they challenge the deterministic model according to which the nature of the hazard is *per se* the explanatory factor accounting for communities response. They consequently draw attention to the role played by historical, institutional and cultural factors. Actually, as stressed by Gunter *et al.* (1999), the ecological-symbolic definition of disaster prompted by Kroll-Smith and Couch (1991) is not deterministic, quite the contrary. Disasters are defined as “subjectively apprehended changes in the physical structure of the environment”, which means that they are not just disruptions in the human/environmental relations but they go along with the appraisals people make of those same disruptions. To put it in another way, confronted to the sudden upsetting of the environment surrounding them, people must *interpret* what is going on in order to make sense of it and, in doing so, the disruptive event is given a definition from which specific actions follow. According to the authors, in the case of CTDs a common interpretation of what is going wrong hardly ever

emerges, because of the specific nature of the environmental damage produced (uncertain and elusive), thus hampering collective action and fostering conflict.

Controversies linked to the uncertainty science is confronted to in defining clear cause-effect relations when dealing with residential toxic exposure are central in explaining the “corrosive” effect of CTDs. In fact, traditional models of scientific knowledge production (in particular in the field of epidemiology) frequently fail in detecting situation of environmental damage (Allen, 2003).

It seems to us that two important implications, only partially explored, derive from this ecological-symbolic approach to disasters: 1) community responses to disasters, either natural or technological, are strictly linked in their patterns to the interpretations and definitions of the damage suffered that *collectively* arise and become to be shared in the community affected; 2) in this construction of the disaster and its consequences as collective problems, the specific nature of the damage suffered plays an important role, still unclear in its mechanisms. In the next paragraph we are going to explore these two implications introducing a specific sociological approach in order to investigate them.

### **A pragmatic sociological approach to study communities response to disasters**

If we step out from the specialist frame of disaster studies and observe the issues at stake in communities response to disasters from the perspective of sociological theory, the more general problem we are confronted to is, borrowing the distinction made by C.W. Mills (1959), that of explaining how “troubles” concerning the relationship of human agents to the environment find or not a way to become publicly shared “issues” (1). The process of making the disruptive event and its effects recognizable as a problem the community shares (i.e., a problem it has “in common”), is then crucial in order to give account of the type of response observed.

The investigation of the paths a “trouble” has to go through so to become a shared “issue” is one of the main topic addressed by the so called “new French pragmatic sociology” (Silber, 2003) developed over the past decade by Luc Boltanski and Laurent Thévenot and influenced by the works of Michel Callon and Bruno Latour (Callon and Latour, 1981; Thévenot, 1990; Boltanski and Thévenot, 2006) (2). The interest of this approach lies in its exploration of the conditions to be satisfied in order to make an “issue” sharable in the public space, that is in the exploration of the operations needed to move towards publicity (or “generality”), together with their requirements and their failures (Thévenot, 2001; Thévenot, 2006). In particular, this approach emphasizes the normative dimension involved in this process. For a trouble to be recognized as an issue sharable in the public space an articulation has to be built between the

trouble itself and a legitimate “common good” to be guaranteed or preserved, assuming a normative pluralism of definitions of “common good” (or, following Boltanski and Thévenot, of “orders of worth”). One of the main traits characterising this approach, and directly linked to the influence of Latour’s works on science and technology studies, is that the connection of a trouble to a public issue is not just considered as an argumentative effort but it undergoes a “reality test”. Objects and other material/immaterial equipments surrounding human beings and “furnishing” their world, making it a world they have in common, are relevant in order to put arguments to a test.

“Qualification for worth needs to be *tested*. And this is the key connection between an evaluative orientation towards the good, and a realist encounter with the world. Evaluative judgments (...) are not only *topoi* in rhetorics. They are put to tests involving tangible things” (Thévenot, 2002, p.60).

This pragmatic approach strictly links objectivity, cognition and evaluation/judgment: this aspect seems to us particularly relevant when discussing issues of environmental damage, since the very same definition of damage implies a normative horizon, linked to a material reality experienced as negative.

To be more precise, the link between objectivity, cognition and normative judgement is articulated as follow: the cognitive modes of grasping the reality go with specific “criteria of evaluation” (normative criteria) of the environment and others. These criteria guide the grasping of reality, singling out aspects in the situation which are relevant in order to successfully “coordinate” with others and the environment (Thévenot, 1990). The successful coordination is what guarantee what agents define as a “good”. The extension of the normative principle orientating the engagement in and with the world (the “good” this engagement can guarantee) is what permits to distinguish between different “regimes of engagement” (Thévenot, 2006) which go with different specifications of the agency (what human beings are capable of) and of the objectivity (what objects are capable of).

When the coordination with others has to meet the requirements of the public space, the normative principle orientating the engagement has to be a legitimate “common good” (justifiable action) and, accordingly, the reality will be qualified in terms of general and conventional qualifications and the agency construed is that of “qualified” persons. In particular, as we have already pointed out, the presence in our societies of a plurality of legitimate definitions of the “common good” implies an *horizontal pluralism* of conflicting

justifications which is at the origin of a condition of normative uncertainty where *critique* finds its possibility of existence (Boltanski and Thévenot, 2006). But the “good” might be significantly more limited: this is the case of the achievement of a regular planned action or, at an even more personal and localized level, some kind of “ease” with well-known and nearby surroundings (familiar engagement). In these cases, the relevant objectivity will be characterized in terms of functions, in the first case, and personal attachments, in the second. Accordingly, the agency construed will be that of the “planner” (an individual who is capable, for example, of strategic action) and of the “personality” attached to her entourage.

What is of interest to us is that these “regimes of engagement” can be seen as analytical tools which can help us investigating different ways to define a “communality”, from the more personal and familiar to the more public and justifiable ones, as well as their compositions and the obstacles composition has to overcome in order to be achieved. In this sense, a “trouble” can be seen as a disturbing feeling in the relationship to a familiar environment shared at most in a communality of proximity: in order to become an “issue”, the trouble has to be articulated with a problem that can be shared in the broad communality of the public space. This work of articulating troubles with issues through demonstrating their relevance in terms of a legitimate common good can be difficult. On one hand, legitimate evidence of the articulation defined discursively may lack: for example, epidemiological studies don’t give support to the feeling of a group of inhabitants that something is wrong in their environment in terms of health conditions. On the other hand, in the proximity sphere agents define what we can call “local common good”: for example the attachment to a specific territory and community on the basis of emotions and affection. These local common goods have not the same level of legitimacy of what are considered as public goods, because they can not be shared with a “generalised third”. This articulation of the *vertical pluralism* of normative criteria (from the familiar to the public) is crucial. It is exactly this work of constructing an articulation between the normative sphere of proximity and the public space that is of interest to us when observing communities response to disasters, since the disaster heavily affects engagements of proximity.

In the next paragraphs, the analysis of the Seveso community response to the dioxin contamination caused by the industrial accident occurred on the 10<sup>th</sup> of July 1976 will help us clarifying this approach and the contribution it can give to the problem of understanding communities response to residential toxic exposure.

### **Seveso: the disaster and the public authorities response**

It is always difficult to give a synthetic description of a disaster and its consequences, when addressing the problem from a sociological point of view. The official “toll of the tragedy” is often an object for endless controversies and, besides, it doesn’t say anything of the impact on the long term the event had on the affected community. The shape a disaster is fixed in, thus becoming generative of social change, is the product of a variety of framing processes in which the event is involved. These processes have different temporalities and they take place in different, but intertwined, arenas: local and global political arenas, experts arenas, in particular legal and scientific (Jasanoff, 1994).

For what is of the Seveso disaster, its main feature is that of having being the first major accident in the chemical industry at the European level, having thus contributed to the definition of a European directive on major-accident hazards of certain industrial activities (Directive 82/501/EEC, so-called “Seveso Directive”). “There were no fatalities following the accident”, said Stavros Dimas, responsible for the environment in the EU Commission, commemorating in 2006 the 30 years after the accident. In fact, at the European level, the Seveso disaster has been framed as a “disaster of information” (van Eijndhoven, 1994) which helped in highlighting the lack of information about industrial hazardous productions as a major cause of vulnerability in our highly industrialised societies: citing again Dimas, “the reason for this particular accident becoming such a symbol is because it exposed the serious flaws in the response to industrial accidents”. The absence of “fatalities” joint with the successful recovery observed at the community level explains as well why the Seveso disaster is often cited in eco-sceptic oriented books as an example of “unjustified alarmism” (Kohler, 2002). This emphasis on the event of the disaster has completely concealed the reality, never seriously investigated in its human and environmental costs, of a community exposed since 1945 to the chemical pollution caused by the plant whose harmfulness, even if known in the local community, became of public concern only with the accident of the July 1976 and merely in terms of the specific consequences of that specific event.

One then could easily assume that since the dioxin release in Seveso has been a sort of “false alarm” (as the supposed absence of fatalities would show) then a full recovery has been possible. Our position is quite different. Not only there are concealed pre-accident human and environmental costs, never considered, but as usual with CTDs, the dioxin release on the territory of Seveso has created a situation of community long-term exposure to a risk (the dioxin risk) highly uncertain and controversial in its consequences, not equally distributed on the territory. The health consequences of the disaster are not well assessed, not even today,

and if in Seveso there has not been the health catastrophe someone expected, nevertheless dioxin has affected people health with various degrees of gravity (Consonni *et al.*, 2008).

What is of interest to us is that the community affected has resisted the supposed social corrosive potential associated with the condition of living in a contaminated environment. Our hypothesis is that this resistance is linked to the way in which the Seveso community overturned the interpretation of dioxin contamination, from “risk” to “cultural threat”. The resulting conflict opposing the affected community to public authorities and to social movements mobilized in Seveso to support “victims”, is strictly linked to the difficulties the affected people were confronted to in order to have their own definition of the risk and the damage caused by dioxin acknowledged as relevant in guiding the response to the disaster. In these conflicting definitions of risk and damage, normative controversies concerning local and public definitions of the common good have been crucial. At the same time, the specific kind of contamination (dioxin) and the way the contamination has been managed by authorities have all been crucial in strengthening an interpretative frame propitious to this shift from a situation of controversy concerning a risk to one of cultural conflict. This overturning has defused the social corrosive potential of dioxin, so that a sort of “therapeutic community” has emerged, at the same time confining the problem of long term dioxin health damages in the spaces of expert knowledge and personal troubles.

In order to develop our analysis, we need first of all to introduce some elements of contextualisation. Seveso is a town of 20.000 inhabitants, located near Milan, the regional capital of the Lombardy, in the geographical area known as “Brianza Milanese”. The Brianza is a “district area” (Bagnasco, 1977), of strong catholic cultural tradition, specialized in furniture creation and design, with a productive structure of small, family-owned firms. Nevertheless, since after World War II, chemical industries began to install their plants in this same area, given the rich water resources and the good transportation infrastructures. The accident at the origin of the Seveso disaster occurred in the chemical plant of the Icmesa company (located in the city of Meda, near Seveso), owned by the Swiss multinational Roche through the controlled Swiss company Givaudan. Saturday the 10<sup>th</sup> of July 1976, around half past twelve a.m., a toxic cloud of dioxin and other pollutants was released by the Icmesa reactor where trichlorophenol was produced, because of a sudden exothermic reaction that caused the breaking down of the safety valve. The poisons were dispersed by the winds and settled on the land of the towns of Meda, Cesano Maderno, Desio and Seveso.

In 1976 the extremely harmful effects of dioxin on human health were mostly supposed, on the basis of toxicological evidence. Epidemiological studies were still few and limited to the

follow up of cohorts of industrial workers, that is adult males, exposed accidentally to high concentration of dioxin. A dioxin environmental contamination affecting an entire population was without precedent: scientists were not able to anticipate the damages to be expected (on the environment, animals, human beings of different sexes and ages) nor to supply methods for the decontamination. Besides, there were no technical instruments for measuring the level of dioxin in human blood (Mocarelli, 2001). Therefore a “radical uncertainty” (Callon, Lascoumes and Barthe, 2001) surrounded the contamination consequences to be expected on human health and the environment, their extent in space as well as in time, with just one certainty: the extreme toxicity of dioxin proven in laboratory tests and which authorized catastrophic scenarios.

These catastrophic scenarios didn't take shape immediately after the accident. The toxic cloud had largely passed unnoticed, considered by Seveso and Meda people as a “usual” nuisance (one in a long series). A “week of silence” (Fratter, 2006) passed. In the meantime, alarming phenomena took place in the area near Icmesa: sudden falling of leaves; death of small animals (birds and cats); a “mysterious” skin disease (chloracne) affecting children. Anxiety grew in the population. On July 19<sup>th</sup>, Roche experts informed Italian public authorities that the accident at the Icmesa plant had caused a widespread dioxin contamination. The evacuation of a part of Seveso and Meda population was highly recommended as precautionary measure.

On July 24<sup>th</sup>, the evacuation begun: 700 inhabitants of Seveso and Meda were forced to leave their houses and all the personal belongings inside them. 200 people never came back to their houses that were demolished during the clean-up operations. “Risk zones” (3) were created, officially on the basis of the estimated trajectory of the toxic cloud and of random tests of dioxin concentration on the ground, but mostly following criteria such as practical feasibility and reduction of negative social side-effects to be expected in case of massive displacements. The design of the risk zones implied a delimitation of the area officially considered “at risk”. Confronted to a widespread contamination which probably affected a large area hardly definable, public authorities tried to reduce to the utmost the territory at risk. This reduction of the crisis area had the effect of producing an overlap between the territory of Seveso (and its population) and the territory at risk. Of the municipalities affected, it was Seveso the only one constantly associated with the crisis situation, in particular in the media: this overlapping between the name of Seveso and dioxin was considered by Seveso citizens as a form of injustice and Seveso appeared to them as the town authorities have decided to sacrifice in order to reduce the extent of the crisis.

The clear-cut definition of the area at risk was just one of the measures adopted by public authorities in order to reduce the informational-cognitive uncertainty they were confronted to. In fact, public authorities decided to reduce uncertainty through denying it, and acting “as if” uncertainty was not there. Technical-scientific committees of experts were created and asked for the solutions to be taken with respect to dioxin health risk, decontamination, socio-economic implications of the crisis, assuming that the definition of the problems at stake was non controversial. This implied a deny not only of the condition of informational-cognitive uncertainty in which decisions had to be taken but as well of the dimension of normative uncertainty involved in those same decisions. The public good of guaranteeing security and safety against the “chemical aggression” (4) was the normative frame imposed by public authorities (Centemeri, 2006, ch.III). Embracing public authorities a paternalistic stance, citizens (and their political representatives at the municipal level) were not allowed to participate in decision making, even if decisions were taken that heavily affected them, as persons and as community. In particular, given the suspected teratogen effects of dioxin, pregnant women of the contaminated area (within the third month of pregnancy) were “left free” to ask for medical abortion, even if abortion was still illegal in Italy. In fact, the fight of Italian social movements for the de-penalization of abortion was at its peak (5). In a very tense and conflictual atmosphere, about thirty women of the contaminated area –but the precise number is not known- decided to interrupt their pregnancies (Ferrara, 1977).

Given the radical scientific uncertainty surrounding dioxin, it was clear that public decisions couldn’t rely on any kind of scientific ‘truth’: the scientific controversies about dioxin risk were widely discussed in the media. The insistence of public authorities on denying the condition of informational-cognitive uncertainty created a situation where the common good justifying public action (safety) was not supported by an agreement on the reality relevant for deciding about safety issues. In fact, the uncertainty was not only informational-cognitive but normative, implying the lack of a solid agreement on what has to be considered as a “common bad”.

This double uncertainty (normative and informational-cognitive) is always present in controversies concerning the definition of environmental damages. Still, it is usually the dimension of knowledge to be central, in the sense that controversies are related to what kind of knowledge has to be considered relevant for the definition of the damage. Nevertheless, an agreement exists concerning the moral-normative definition of what has to be considered as a damage. On the contrary, in the Seveso case two controversies emerged concerning the very

same definition of what had to be considered as damage and as risk, under a moral-normative aspect.

In particular, one controversy was centred on the question if malformation caused by dioxin to newborns should be considered as a potential damage to be prevented through abortion. In fact, abortion became rapidly the central issue in the national public debate concerning dioxin effects, so that other controversies concerning the informational-cognitive uncertainty of dioxin long-term effects slipped in the background. The other controversy was related to the question of what has to be considered as “safety”. As we have already said, public authorities defined safety starting from the detached standpoint of experts and laboratory science. In this detached view, safety is the condition of not being exposed to risk, so that displacement from the contaminated area was considered as the solution guaranteeing the higher level of safety. A different definition of safety was supported by local committees of Seveso citizens, criticizing public authorities decisions on the basis that not only dioxin risk should be considered but as well the risk of the Seveso community to disappear. The common good to be preserved was not just the public good of safety but as well a more local good, that is, the attachment to the territory including a strong emotional dimension shared in terms of “being a community”. These local committees found themselves opposing not only public authorities but as well the mobilization of social movements arrived in Seveso in order to support the victims struggle.

### **From scientific controversy to cultural conflict: local rival interpretations of the dioxin crisis**

Social movements already active in the Italian political scene and some of the left-wing political parties (mostly Democrazia Proletaria) mobilised in Seveso. They organised a “Scientific Technical Popular Committee” (STPC) in order to help victims having justice for what they were suffering. One of the most important actor in this mobilisation was Medicina Democratica (MD) (6). For MD, the Seveso disaster called for a large coalition (between citizens and workers) in order to impose in the political agenda the issue of the health damages caused by industrial production, inside and outside plants. Underlying it, there was a social critique of the capitalistic exploitation with its hidden costs. This exploitation was made possible as well by the control exerted on scientific knowledge production by hegemonic forces, in order to cover the real costs of the capitalistic development. A democratization of knowledge production was thus needed in order to make socially visible the negative consequences of the industrial society.

The call for a wide mobilization asking for participating in the production of knowledge about dioxin damages found no answer among Seveso population, thus reducing the critical charge of the MD public arguments and, more generally, its force of political pressure (7). The failure of MD (and of the STPC) in mobilizing the victims of the Icmesa accident in order to ask for democratic and participative procedures of knowledge production about dioxin effects helps us to understand why the critique of traditional expert knowledge disappeared from the issues discussed in the local public space. The existence of this critique is usually crucial in explaining conflicts in CTD situations. This critique is based on the fact that damages caused by residential toxic exposure need to be explored through grounded methods of analysis, taking seriously into account the dimension of the territory. Traditional forms of expert knowledge are considered as bounded to fail in their effort to assess the true toll of contamination in terms of health effects.

As we have already said, this critique of knowledge production about pollution related diseases, was framed by the leftist mobilization inside a broader critique of capitalism: in this sense Seveso disaster was considered as a typical “capitalistic crime” (Maccacaro, 1976, p. 6), as a paradigmatic situation. What was happening in Seveso was a clear example of the capitalistic system injustice which needed to be denounced. Seveso people were asked to join the pre-existing cause of workers and class struggle. No place was allowed to more local and even personal definitions of the problems at stake in the disaster situation. More precisely, in order to serve the leftist cause Seveso people had to exist in the public space only as victims of an irreversible damage. In this respect, the leftist militants were as unable as public authorities to understand what Seveso people cared for in responding to the dioxin crisis.

For a large majority of Seveso people, the priority was to maintain their previous way of living, preserve the specificity of their community and their territory. Neither public authorities nor leftist militants were able to take into account this dimension of attachment to the territory and the community.

Appealing to the scientific uncertainty about dioxin risk, which implied that no reality tests were there to support the interpretation of public authorities and national social movements, a grassroots mobilization of strong catholic background took shape and asked for public authorities to consider not only the seriousness of risks for public health, but the fear also that Seveso community might disappear. However public authorities did not open any participative arenas to discuss publicly these moral and normative issues nor they proposed any mediation. This caused the grassroots movement to radicalize its protest.

The radical turn became visible in the central role assumed inside the grassroots mobilisation by the militants of the catholic movement of “Comunione e Liberazione” (CL) (8). For CL the disaster was not “a crime” but a “test” for the community that, being under attack not only because of dioxin but as well because of the moral-normative frame the state and social movements were trying to impose in the name of helping victims (and visible, according to them, in the abortion controversy), had to stick to its own values. CL asked public authorities to recognize an auto-organisation right of the local community in responding to dioxin contamination social consequences. In actual fact, CL militants auto-organised services to support families the contamination had put into trouble, trying to keep alive a communitarian cohesion based on shared values. The collective damage caused by dioxin was thus seen as a damage to a community and not to individuals holding rights denied by the disaster. The return to normality, to the usual community life, was thus considered as the true reparation of the dioxin damage, besides the actual environmental clean-up of the contaminated areas.

This interpretation of the dioxin damage as a cultural threat to a community and its values has prompted a recovery process based on the individualization of the controversial implications of the contamination, the ones jeopardizing communitarian cohesion, in particular long-term dioxin health effects (9).

The moral-normative conflict opposing the local committees and the STPC, with victims delegitimizing the efforts of STPC counter-experts, brought to a situation where the task to explore and assess health consequences of the dioxin contamination has been entirely put into the hands of experts. The design of the research on the dioxin health effects has been heavily influenced by laboratory science, without any kind of victims involvement or participation in the process (10).

As remarked by Wynne (1996, p.52) absence of criticisms towards expert knowledge doesn't automatically equal trust. The relationship between lay people and expert is in fact ambivalent: dependency and lack of agency might both explain lack of voice. In the case of Seveso, the exploration of the informational-cognitive uncertainty concerning dioxin health damages didn't succeed in being supported by a public, composed by the affected people, because of the way in which the dioxin damage was normatively framed and interpreted in the local public space in terms of cultural and communitarian threat.

The very chemical properties of dioxin made even thicker the veil of invisibility on the consequences of the damage. Dioxin can indeed cause a wide variety of diseases so that it doesn't exist a clear pathology linked to this contaminant. This implies that people in the contaminated area were affected in very different ways, with several harmful effects at

various degrees of gravity (from lymphatic and hematopoietic tissue neoplasms, to circulatory diseases in the first years after the accident, to chronic obstructive pulmonary disease, and diabetes mellitus among females). This epidemic variety confronted science with the problem of establishing clear cause-effect relationships and contributed to decrease the public visibility of the damage.

Today the population still worries for the long-term consequences of dioxin. But each family deals with health concerns as if it was a personal matter, only informing local physicians (“medico di base”). When one is asked to speak about dioxin, there is a clear cut separation between private and public situations. In public sets, there is an emphasis on the capacity of the Seveso community to respond to dioxin. In private occasions, more concerns about health effects are shared, mainly through a vocabulary of acceptance and fatalism.

The dominant view in the local community of the contamination as a test for community cohesion has become visible in the process of building a collective memory of the Icmesa accident, started in 2000 by a local environmentalist group (11). This process led in 2004 to the opening of a “memory path” in the urban forest, the Oak Wood of Seveso and Meda, created in the former risk-zone A. This process has made evident that conflicts are still present in the community: even today it is quite difficult to find a way to publicly speak of what happened back in 1976, in particular as far as compensations, abortions and long-term health damages are concerned. Nevertheless, a collective and shared interpretation of the event has emerged: the disaster was not merely a suffered tragedy but also a moment in which the community recognised the value of its own attachment to the territory, making it an active instrument in response to the contamination. A member of the local committee in charge of writing the panels of the memory path explains that in these terms:

The memory we are here writing must be a tactful memory, respectful of the personal suffering. We ought to avoid in this process to re-open old wound, to force people harking back to painful or anguished things they want to forget. We should avoid the nihilism that considers the recovery from such a damage as something impossible, and we should rather stress how the civic community has being capable to stay together.

Today the damages of the 1976 dioxin contamination on public health have only been partially assessed by scientific research; controversies remain sharp (Steenland *et al.*, 2004). However, no local mobilization has ever emerged addressing the issue of the long term impact of dioxin on public health. The affected population has not tried to force a full

disclosure of the contamination, even if a wide variety of health abnormalities have been noticed (for one of the most recent case that emerged, see Baccarelli *et al.*, 2008).

The community affected is not limited to the city of Seveso but also includes citizens of Desio, Meda and Cesano Maderno. Despite of this large concerned area, media tend even today to reduce the area at risk to Seveso. This attitude provokes a form of defensive reaction from Seveso citizens. The way in which the crisis was framed in the late 1970's (identifying Seveso as the community at risk) implies that any new information concerning the consequences of dioxin on the wide area affected by the accident will be considered by Seveso people as a new threat to the existence of their own community, rather than a true concern for their health.

### **Analysing communities response to CTDs: final remarks**

Seveso is considered as a case of successful recovery from CTDs. The community has apparently succeeded in building a shared collective memory of the accident. Still, as we have showed, the recovery has been marked by controversial aspects, in particular concerning how the local community has dealt with the question of the long term and uncertain dioxin health effects.

The question of dioxin long term health effects –and of the difficulties to detect them through standard epidemiological approaches- has not become a public issue in the local community, as it has been in other communities affected by CTDs (see Allen, 2003; Robinson, 2002). Nevertheless the question of long term dioxin health effects has continued to be present in the local community but at most as personal troubles, shared in familiar backgrounds, not associated with any kind of collective action meant to ask for a full disclosure of the damages caused by the accident. On the other hand, the question of long term dioxin health effects has been dealt with by experts, in the frame of laboratory science, with no involvement of the population.

As we have discussed, the corrosive potential of the controversies concerning the identification of long term dioxin health damages has thus been limited. In fact, the damage has not been defined in terms of public health problem neither by State authorities –mainly concerned with crisis management and its possible political backlash- nor by the victims themselves. In particular, a specific interpretation of the damage has prevailed in the local community, re-framing dioxin in terms of cultural threat. In order to respond to this threat, cohesion and solidarity has been crucial resources for the community.

Using the theoretical framework of pragmatic sociology, this emphasis on culture can be analysed as an extension to the public sphere -operated by “Comunione e Liberazione”- of troubles suffered in the proximity sphere. In order to be recognized as damages in the public space, these proximity troubles have to take the shape of recognizable public issues. In the case of Seveso, proximity troubles have found in the vocabulary of culture and in particular of “cultural specificity under threat” a way to be heard in the public space.

In fact, we have highlighted the difficulties these local definitions of damage have found in being recognized in the space of public decision. On one hand, this recognition has not taken place on the initiative of public authorities, because of their paternalistic approach to what has been defined as a crisis situation of exceptional gravity, entailing basically a suspension of democratic procedures of public decision. On the other hand, it has not taken place on the initiative of social movements, because of their strong ideological frame of interpretation not allowing any kind of normative compromise with more local definition of the damage.

The case of Seveso shows the inadequacy of a vocabulary of solidarity-conflict when dealing with communities response to CTDs, since solidarity can appear even in situations where controversial (and potentially conflictual) dynamics are at work. A pragmatic approach in terms of construction of public issues, starting from the experience of proximity troubles, seems to us more promising in order to isolate key relevant aspects which can help us in understanding the observed responses to contamination.

In particular, the analysis of the Seveso case helps us to point out three key-concepts which emerge as particularly relevant in order to investigate how troubles become issues: *historicity*, *realism* and *controversy*.

First of all, let us look at the dimension of *historicity* (Laborier and Trom, 2003). The event of the contamination enters a local space where specific cultural repertoires are available that can be mobilized to define issues and to articulate troubles with issues. In particular, specific issues are already debated in the public space which influence the way the problematic situation created by CTD is dealt with. There is then a specific *endogenous temporality* of the event of contamination -how the contamination is discovered, how it is dealt with, how its consequences are defined - which is intertwined with an *exogenous temporality* of issues debated more generally in the public space. As we have seen in the case of Seveso, the disaster is interpreted by actors (in particular social movements) in relation to issues already there and sort of instrumentally appropriated so to exemplify the relevance of previously existing positions.

Besides, the social construction of the contamination and its consequences in terms of issues, is confronted to a specific kind of damages CTDs can cause. There is an element of *realism* which should be taken into account when analysing communities response to contamination. The specific nature of the disruptions caused by contamination can (or can not) offer a solid “reality test” for the conflicting interpretations confronting each other in the public space. In this sense, it is true that a difference exists between natural and technological disasters, in the sense that in the two situations the realism of the damages is different. In the case of CTDs, damages are usually characterized by informational-cognitive uncertainty (it is difficult to know how and when damages will emerge) and invisibility, so that a strong intervention of expert knowledge is necessary. Natural disasters are usually less controversial when it comes to the definition of the negative consequences they engender. Nevertheless, the case of Seveso shows the relevance of both normative and informational-cognitive uncertainty (the latter being particularly high in CTDs). The very same definition of what should be considered as a damage is as well at stake and it should be taken into account when observing the way communities respond to CTDs.

This point brings us to introduce the dimension of *moral-normative controversies* through which the event of the contamination has given its collective interpretation, thus defining as well the kind of collective responses addressing its consequences. We have proposed to analyse these controversies in terms of conflicting normative qualifications. In particular, we have highlighted a condition of normative uncertainty linked to a vertical pluralism of normative criteria, with legitimate definitions of the common good confronting local normative criteria of evaluation anchored in the experience of proximity attachments to the environment.

In the case of Seveso we have highlighted the presence of a conflict opposing public authorities, interpreting the disaster as a sanitary crisis out of the ordinary, and national social movements, interpreting the disaster as product of a specific socio-economic organization in need to be changed. We have also analysed the conflict opposing these two actors to local committees, interpreting the disaster from the perspective of more local normative criteria, wishing that “attached goods” could be taken in account. In this conflictual context, the frame of emergency set up by public authorities, with the emphasis on expert knowledge as the only legitimate form of knowledge in defining the situation, has been highly detrimental: it has produced the absence of legitimate public arenas in which trying to articulate the different normative positions at stake.

The way in which normative and cognitive uncertainties are dealt with in CTDs are both crucial in order to understand how communities respond to contamination. The specific realism of the damages suffered (visible, invisible; contingent, permanent) is as well crucial. Still, in order to understand how this realism affects communities responses to contamination, it has to be analysed as a part of a more general process through which damages are collectively defined as pertaining to a community. All along this process, historicity, realism and normative controversies are all crucial in order to understand how common interpretations of CTDs and their consequences can emerge in the affected communities.

## Notes

- (1) It is worth mentioning that in their seminal work about the Centralia disaster, Kroll-Smith and Couch (1990, p.164) do use the distinction by Mills but just evoking it and not exploring more in deep what makes (or makes not) “troubles” shifting into “issues”.
- (2) This approach is linked to a wider “pragmatic turn” of French social sciences occurred in the 1990 (Dosse, 1999). For a synthetic presentation of this approach see Bénatouïl (1999) and Breviglieri and Stavo-Debaugé (1999). It is important to specify that French pragmatic sociology was not directly influenced by American pragmatism, even if later connections have been drawn in particular with John Dewey’s work (Karsenti and Quéré, 2004). For the application of this approach to the articulation of “troubles” to “issues” in urban conflicts see Breviglieri and Trom (2003).
- (3) In Zone A (108 hectares, 700 inhabitants), the whole population was evacuated; in Zone B (269 hectares, 4.600 inhabitants) nobody was evacuated but inhabitants were forced to follow strict rules of conduct (including “restrain from procreation”); in the “Zone of Prevention” (1.430 hectares, 31.800 inhabitants) nobody was evacuated but inhabitants were forced to follow some precautionary rules of conduct.
- (4) Actually the army was employed in order to enforce the ban to enter the Zone A.
- (5) Voluntary pregnancy terminations were finally admitted by law in 1978.
- (6) MD (Democratic Medicine) is an Italian social movement born in the 1970’s on the initiative of industrial workers, scientists and intellectuals. MD claimed the importance to develop participated forms of knowledge production on health problems related to industrial activities.
- (7) On the importance of victims mobilization as a form of pressure that can bring to “external incentives” for political action on health and environmental issues see Reich (1984).
- (8) “Comunione e Liberazione” is a catholic movement born in Italy in the 1950’s and particularly active in Lombardy. Its main trait is the charismatic dimension that goes with the promotion of what are called “opere”, that is the supply of social services through associative organisations. The relation between CL and the state has always been quite conflictual. In CL opinion the state can not and ought not take part in the society organisation: for CL “the welfare State must limit its intrusion in people lives” (Abruzzese, 1991, p.171).
- (9) The way the Swiss multinational Roche managed compensations to victims in the immediate aftermath of the disaster also contributed to downsize the consequences

of dioxin on public health. The compensation issue has been dealt with instruments of private settlement, like individual contracts passed between victims having suffered material losses and the multinational, with no public discussion about the criteria adopted for defining monetary compensation and how to deal with the consequences of the disaster to be expected for the future. Nevertheless the compensation issue is still open in Seveso (Centemeri, 2006: 135-158) but it is not a case for a collective mobilization. It is important to say that Roche has never admitted its responsibility for the disaster at any court of law.

- (10) An epidemiologist involved in the research concerning dioxin effects on the Icmesa disaster affected population told us: “The accident was a tragedy but for us, I must admit, it has been a rare chance to have a sort of laboratory situation so to explore how dioxin works on human beings”.
- (11) “The Seveso Bridge of Memory” is a project started in 2000 by the Seveso environmentalist group of “Circolo Legambiente”, in order to create an archive of the disaster and a “memory path” in the Oak Wood, with panels telling the story of the accident through texts and photos. The panels have been written by a “guarantee committee” composed of 10 people from Seveso, representative of the different expressions of the local community and not involved in politics or public institutions at the time of the accident. Once written, the panels were presented to the inhabitants of Seveso, asking them for opinions and suggestions.

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