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Conflict & Participation in the Governance of Nature: the case of the Seveso River Basin, Milan

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"I mean...what lies underneath does not bring votes:

it takes away money and does not bring votes"

– Water Quality Expert (personal interview, April 2016)

"La menzogna non è nel discorso, è nelle cose."

– Italo Calvino, "Le Città Invisibili"

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List of abbreviations

CDF – Contratto di Fiume

RC – River Contract

RL – Regione Lombardia (Lombardy Region)

EM – Ecological Modernisation

PE – Political Ecology

SD – Sustainable Development

UPE – Urban Political Ecology

WFD – Water Framework Directive

DB – Detention Basin(s)

CSNO – Canale Scolmatore Nord Ovest (NorthWest Waterway)

AdBPo – Agenzia del Bacino del Po (Po Basin Agency)

EU – European Union

EC – European Commission

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1. Introduction and Thesis Outline

> "The myriad of processes that support and maintain social life and sustain economic growth (water, energy, dams, food, computers…) always combine society and nature in infinite ways; yet, these hybrid socio-natural "things" are full of contradictions, tensions, and conflicts" (Swyngedouw 2015:21).

This research analyses the case of an urban environmental conflict, partly within a participatory process of river restoration in Milan. It is aimed at understanding the triggers, consequences and potential of dissenting and conflictual voices in the making and remaking of territorial organization for alternative narratives, discourses and imaginaries about socio-ecological scenarios. The research analyses moments of consensus and conflict in displaying a "river contract" (*contratto di fiume*) for the Olona-Lambro-Seveso river basin. The analysis will provide an understanding of how consensus is built and why conflicts emerge, exploring how these types of confrontation may re-shape the goals and opportunities of participatory arrangements and territorial planning.

The study begins by focusing on the European environmental governance adopted in the EU over the last 15 years, aimed at reducing the environmental impact of human activities on the environment. Such policies are deeply embedded in two pillars: sustainability, and participation as a means to achieve sustainability. The fact that European citizens have a limited degree of influence on ecology and sustainable environments (decisions about consumption, production, technologies, territorial planning for urban development) has been considered an obstacle to sustainability. For this reason, in recent years the EU has encouraged country-members to use participatory governance tools in the management of natural resources (mainly land, water and forests). Such institutional arrangements – through the enhancement of local participation – are meant to foster civil society involvement in the decision-making process, which can be an effective strategy for instilling a sense of social responsibility over local natural resources (Agrawal 1999; Bastiani 2014). It is not clear whether, in concrete practice, these institutional arrangements are able to contain environmental degradation and allow a more effective handling of conflicts through the democratization of territorial politics: our research has the aim of filling this knowledge gap. It is well-documented that people and communities are often negatively

impacted by state interventions in the name of conservation or the restoration of polluted areas, and these projects are often conceived of, implemented, and evaluated by outside agencies and their teams of "experts" (Cook and Kothari 2001; Campbell and Vainio-Mattila 2003). Most often, they see local peoples as passive beneficiaries of project activities and have failed to involve the public in decision-making, thus giving rise to conflicts. Such forms of participation seem to fail to address fundamental power imbalances, however, and in some cases may even exacerbate them (Meynen & Doornbos 2004; Swyngedouw 2005; Penning-Rowsell & Johnson, 2015). Some scholars, in fact, argue that these forms of 'democratic governance' work to de-politicize the root causes of ecological change and degradation, neutralizing the political nature of these issues through techno-managerial means. Such projects are thus seen as an expression of the current process of post-politicization (or post-democratization) we are experiencing (Marchart 2007; Swyngedouw 2009, 2011; Blühdorn 2013). Others consider them to be perfect tools to *sustain the unsustainable*: democratic and simulative assemblages to change the façade through reassurance policies that fail to change the real cause of today's unsustainable configurations (Baker 2007; Blühdorn 2007; Ker Rault and Jeffrey 2008; Durant 2015).

The second section of the research analyses how participatory governance arrangements are conceived of, analysing the narratives, discourses and ideologies on which they are built. This proves to be fundamental for addressing the causes of environmental degradation and embedded socio-ecological visions for sustainable futures. It is highly useful, to this end, to understand who has the power to impose a certain socio-ecological vision on others. The currently prevailing socio-environmental paradigm, from supra-national systems to local policies, is based on the ideology of 'sustainable growth' which relies on technology and green business as possible solutions to 'rescue' society from un-sustainability. European environmental policies shape local socio-natural configurations, which have thus far been aimed at tackling ecological issues separately (water, land and related problems), avoiding – for instance – taking small steps to place serious physical limits on growth (e.g. on the built environment). We argue, however, that moments of conflict and dissensus show alternative possible strategies for overcoming current socio-ecological impasses. Thanks to our empirical material, we seek to move theoretically

beyond the binary 'consensus'/'conflict' deadlock, exploring how the 'governance of un-sustainability' (§3) takes place in the contemporary EU. Furthermore, we argue that urbanization, the current political-economic system and current narratives of eco-modernity reinforce a 'post-ecological paradox' in which environmental awareness does not stop environmental degradation as a result of the non-negotiable lifestyles of consumer urban democracies.

The research stresses that democratic consultation regarding the use and transformation of natural resources does not exist *a priori* and 'participatory tools' are therefore most often used only when nature requires recovery/decontamination, for example in polluted areas. We argue that, as long as these toold avoid debate and antagonism in the process – not reshaping the power imbalances which produced the ecological change in the first place (degradation) – they serve merely as restoration/conservation tools. On the contrary, we believe these political processes and responsibilities are embedded in specific types of political-economic visions, since we agree that any political project must, of necessity, also entail an environmental discourse and associated socio-ecological scenario (Swyngedouw 2015).

Outline – This work consists of three parts and ten chapters. In the next chapter (§2) I outline my research questions and discuss the operational section of my study and the research methods required, as well as limitations, constraints and ethical issues encountered. The third chapter discusses our theoretical and conceptual framework, also taking into account the contribution this research makes. We use a rich intellectual puzzle that weaves together different areas of the social sciences and aims at moving beyond intellectual impasses, dichotomies and academic disciplinary divisions. We believe this is no easy task: nevertheless, we argue that this area of research is caught up with many other, overlapping topics, and so it should be open to different theoretical interpretations (Kallis et al. 2011). We do this by bringing together literature and epistemologies from Human Geography, Environmental Sociology, Urban Studies and Political Sciences.

In Chapter 4 we analyse the eco-politics, discourses and paradigms that have been deployed in the EU, taking into account the issues of sustainability, participation, resilience and ecological modernisation (EM). We do this through a detailed analysis of documents and legislation, also considering the already broad existent literature. In Chapter 5 we analyse the Water Framework Directive (2000) as an exemplary and ground-breaking document of European Environmental Governance that foregrounds the issues of sustainability and participation. We begin by examining how this piece of legally binding legislation has directly influenced local policies, highlighting participatory arrangements and conflictual situations in a general European context. We then focus on Portugal and Sweden, as examples of diverse and variegated outcomes of a common European environmental directive, seeking to underline convergences and differences in the outcomes. This comparison is based on data from secondary analysis.

The second part of this study is directly related to our case study: the issue of water management amidst conflict and participation in the basin of the Seveso river, in the Milan area. In chapter 6 we begin by tracing the territorial political ecology of Milan and the Seveso basin, uncovering the modes and purposes of the *urbanisation of nature,* that is, the perpetual process of socio-ecological change (Kaika 2005). This process consists in controlling and taming nature through technology, human labour and economic investments in order to make cities autonomous from nature. The 'domestication' of water through technological networks (pipes, canals, damns) is the means by which urbanity is maintained, keeping nature 'under control' inside and outside the city. In the case of Milan, the process of relating to water has undergone a process of attracting (collecting), expelling and recasting water, and has been nurtured by certain imaginaries and discourses which, in most cases, ended up benefitting the wealthy social classes at the expense of rural and peripheral populations (La Montagna 2010; Paolini 2014). In chapter 7 we describe the territory of the Seveso river basin from a socio-economic and environmental point of view; we then introduce the governance arrangements known as "River Contracts" (*Contratto di fiume*), focusing on the Italian case and its direct link to European policies and national legislation. In chapter 8 we present the voices, perceptions and evaluations surrounding the Seveso CDF based on our fieldwork. It focuses on understanding the innovative features

of this arrangement, exploring the weaknesses and failures that took place, investigating the motivations and causes of the conflicts along the basin. In chapter 9 we discuss the causes and triggers behind the conflicts and unsustainable territorial configuration of the basin. In chapter 10 we try to draw some conclusions and areas for further development of this research.

2. Research Design & Methods

This research reflects an affinity with critical studies and historical-geographical materialism. According to this vision, processes of socio-environmental intervention and transformation reflect and grant material form to particular political visions, rendering water – or nature more generally – inherently political, along with its management. From this perspective, ecology is not so much a question of morality or ethics as it is a way of understanding the evolving material interrelations between human beings and nature (Foster 2000). We also insist on the knotted relationship between nature and society (Lefebvre 1991), as an inseparable process of co-development; in view of that point, water is here conceived as a hybrid that fuses together physical, biological, social, political, economic, and cultural processes (Swyngedouw 1996; 2015). From this standpoint, water flows narrate a number of interrelated social group stories: "socio-nature therefore, requires constructing multiple narratives that relate material practices, representational visions and symbolic expressions" (Swyngedouw 2015:21).

2.1 Design of the research

This study is about participatory processes and environmental urban conflicts. The aim is to analyse how participatory governance in managing natural resources is designed to address the causes of environmental problems. It highlights the strengths and weakness, internal contradictions and power relations of participatory projects by examining them from the theoretical perspectives of UPE and Post-Ecology studies. Employing a UPE (Heynen, Swyngedouw, Castro, Kaika, Angelo, Wachsmuth) approach, we treat the process of urbanization as the main force responsible for any socio-ecological transformation and ecological change (land/water degradation), embedded in specific political and economic visions. In the specific case of the Seveso river, the process of urbanizing the territory shows water's potential to put different actors on different socio-political scales into relationship. Ultimately, it reveals how urbanization has consisted of a process of de-socializing relational practices from nature. Urbanity, as a non-negotiable socio-historical

moment and process, must keep nature under control: its crisis is the justification for more urban development (Kaika 2005). We also consider the role of conflict as a necessary and constructive element in shaping societal relations: in this view, social division is acknowledged and seen as necessary for peaceful democratic engagement (Metzger et al. 2015 in: Buizer & Kurz 2016). Given this territorial set up, we test how effectively the Post-Ecologist framework (Blühdorn 2014; Blühdorn and Welsh 2007; Ker Rault and Jeffrey 2008) can be applied to our case(s). Post-political governance is analysed as a contemporary tool for depoliticizing ecological issues, issues which are in reality deeply political in the sense of being hotly contested, as seen in recent years in PE and EJ research. We hypothesize that these apparatuses 'sustain the unsustainable' (Bluehdorn 2007; 2011; 2014), working to manage the incremental risks and contradictions stemming from the environmental crisis in order to avoid any radical change in the spectrum of possible socio-ecological configurations. In other words, they tend to depoliticize the root causes of ecological degradation, relying on the paradigm of 'ecological modernisation' which is in turn predicated on the notion of 'sustainable growth'. These 'politics of unsustainability' work as a non-solution to avoid democratic (and more time- consuming) debates around socio-ecological alternatives. Bringing these two major conceptual lenses together, we argue that local contestation and conflicts emphasize and unpack the contradictory tendencies underlying contemporary socio-ecological relations and imaginaries. In this context, we argue that, moving beyond the simplistic binary democracy/technocracy of UPE analyses, Bluehdorn's insights can help us to better theorize current society-nature relationships in western democracies, re-elaborating post-democratic management of environmental issues (Kuchler and Lövbrand 2016). This disturbing but extremely interesting approach shows that new modes of democratic governance work to stabilize and legitimize current socio-ecological relations by managing the unpleasant implications of ecological change for as long as possible through politics (i.e. electoral democracy) which are supported by the majority of citizens.

Aims and Research Questions – On the basis of the points made thus far, the main research questions driving the study concern:

A) Discourses, Narratives and Contexts around Socio-Nature

Through what kind of discourses, paradigms and narratives have environmental policies and legislations been implemented in the EU? What have been the effects on local (urban) context(s)? How is nature conceptualized in these participatory tools?

B) Participation and Ecology

How are citizens consulted about ecological transformations? How are participatory tools designed to enhance the ecological sustainability and democratic governance of natural resources? Does more participation and consensus lead to more sustainable environments? What type of relations take place between ecological sustainability and these arrangements?

C) Power, consensus and conflicts in environmental planning

What type of expertise and power relations are created within such arrangements? How is consensus built and why do conflicts with local environmental groups emerge? Do conflicts reshape the goals and opportunities of such projects or do they reinforce the same power relations? What are the consequences of such conflicts in territorial configurations?

A broader aim is to inquire into the politics of society-nature relationships as they emerge in supra-national, regional and local arrangements focusing on current European experience, investigating democratic participation in the production and governance of societal relationships with nature.

Case study – We analysed the case of a "river contract" (C*ontratto di Fiume*) in the Olona-Lambro-Seveso river basin. The "river contract" is a process of negotiated governance of multi-sector and multi-scalar actions to restore the eco-landscape of river basins (Regione Lombardia, 2006)[1]. The River Contract is founded on the EU principles of democratic

1 The 2000 World Water Forum defined River Contracts as a form of agreement which permitted the "implementation of a system of rules in which the criteria of public utilities, economic profitability, social value and environmental awareness are equally involved in the research for effective solutions" for every

participation in decisions: communities are called upon to develop a shared vision for the development of the basin, promoting dialogue among actors with different interests. In Italy, the Region of Lombardy has promoted – for the first time in Italy – River Contracts as an effective tool for solving the problems of its basins, starting with the Olona/Lambro/Seveso rivers in 2004, as they were the most damaged from an eco-landscape viewpoint. These processes were mainly aimed at developing better governance within the basin as a whole, pursuing actions to lower hydraulic risks and protect and valorize the river, reducing pollution and restoring the landscape and its historic-natural sites. In the last 5 years, conflicts have arisen around the detention basins which will be constructed along the Seveso river in order to lower hydraulic risks of flooding in the metropolitan area of Milan; indeed, such flooding has already caused substantial economic losses (the last caused about 25 million euros of damage). The conflicts mainly stem from the fact that these detention basins will be constructed in areas currently hosting the last undeveloped land (parks, crops). These areas were not urbanized in the past, partly in order to save green areas for the hyper-urbanization of these communities: the major contradiction lies in the fact that the excess of urbanization represents the root cause of floods and of extremely bad water quality. This fact has raised the issue of a 'land consumption paradox', i.e. launching new construction in highly populated areas. Moreover, most of the communities protesting have proposed that the water and rivers first be cleaned in order to ensure better river flow; secondly, they complain about the fact that, in the past 40 years, major political parties and economic actors have been able to continue urbanizing along the rivers, despite the critical socio-environmental impasse. This situation has generated mistrust towards institutions due to contradictory territorial planning in the last 20 years, generating a vibrant group of local citizens who gathered around the issues of Seveso river floods and water quality. Major conflicts took place in Bresso/Milan and Senago, where the DB are to be built.

river basin (European Water Framework Directive- WFD Directive 2000/60/EC). The basin is identified as a unit of reference for policies supporting biodiversity; the borders of this territory are not political but rather correspond to the geographical and social boundaries of the ecosystems and settled human communities

This type of opposition might easily be read as an episode of 'nymbism' or, on the contrary, as a struggle for 'the right to decide' over territory (De Rosa 2017). What we analyse and find relevant in this context is that, even though a participatory process had been implemented (since 2006), this type of contestation and conflicts still took place. Indeed, we seek to uncover the causes and consequences of these events within the framework of participatory governance.

2.2 Methods

Our research, while of interest from a general European perspective and for the purpsoes of comparison, is mainly focused on a single case study. In line with Yin (1994:15), we argue that the most important feature of case study research is: to explain the causal links in real-life interventions that are too complex to be integrated into general theories; to describe an intervention and the real-life context in which it occurred; to illustrate certain topics within an evaluation; and to explore situations in which the intervention being evaluated has no clear, single set of outcomes. In other words, given some general hypotheses, such an approach considers contextual conditions to be highly pertinent to the social phenomenon. In our case, this would mean that socio-historical-geographical conditions are situated and contingent, and thus no general social theory can be formulated from such conditions. According to Flyvbjerg (2006), to date the social sciences have not been able to produce general theory independent from the context, nor predictive theories and universals. For this reason, the most valuable achievement that can be made through the social disciplines is generating concrete, context-dependent knowledge. From this perspective, the case study is especially well-suited considering that it

> "is a necessary and sufficient method for certain important research tasks in the social sciences, and it is a method that holds up well when compared to other methods in the gamut of social science research methodology. Good social science is problem driven and not methodology driven in the sense that it employs those methods that for a given problematic, best help answer the research questions at hand" (p. 223-224).

This means that, apart from using the case study to generate or test hypotheses, paradigmatic or extreme cases can be used to generalize, thereby supplementing scientific development. Also, "the case study inquiry copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result relying on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result; benefits from the prior development of theoretical propositions to guide data collection and analysis" (Yin, ibid:13). Furthermore, we emphasize the fact that boundaries between disciplines, phenomena and contexts are hard to define and may not be clearly evident: from our epistemological and theoretical approach, in fact, it is clear that our research rests on a patchwork philosophical puzzle. Indeed, we argue that trying to articulate different facets of the same case allows different scholars from disparate theoretical perspectives and disciplines to approach the same topic, drawing different conclusions (Flyvbjerg, *ibidem*).

Data – We conducted qualitative analysis of policy documents, consultation responses, interviews, focus groups and participatory observation. We used this method to measure actors' perceptions and experiences and also deployed it for the more descriptive parts of the study, identifying where and at what stages of the administrative process stakeholders are involved (Lundmark and Jonsson 2014). We first analysed all relevant documents and policies related to environmental legislation, water, participation and governance from the EU. We did the same for national and regional policies related to River Contracts in Italy, Lombardy and Milan. The first part of this dissertation thus relies heavily on official documents and secondary analysis of already existing studies, reports and documents cited in the bibliography. In agreement with Boeuf and Fritsch (2016), we argue that comparing northern and southern EU member states can aid in understanding water-related issues associated with environmental and participatory policies and how implementation is being carried out, stressing vicious and virtuous cycles. In light of this point we analysed two different member states (Sweden and Portugal) with very different environmental-governance heritages and compared them with our case in Italy. From this comparison we

sought to draw general similarities which can explain commonalities and different approaches to water-related issues in Europe.

The second part, in contrast, relies much more on interviews, archive documents and media content (including social media and blogs). I used the interviews as 'informative facts', as well as discourses on the basis of which to analyse the informants' perceptions and visions of specific issues, as well as their more general ideological views. This comprised my 'on-site fieldwork'.

Fieldwork – I carried out three periods of fieldwork in Lombardy, along the Seveso river basin. The first one lasted 4 months and took place within a research-internship in a company[2] appointed by the Lombardy Region to facilitate, advise and stimulate participation in the 'Contratto di Fiume Seveso'. It consisted of 10 interviews, 2 focus groups and 'internal conversations' (emails, skype-calls, meetings) with the people from *Regione Lombardia*. Working as an insider proved to be key for understanding the priorities and plans of the central coordination of Contratti di Fiume at Regione Lombardia: this period lasted from July to December 2013. After I began my PhD (February 2014), I started desk-researching the conflictual situation unfolding along the riverbanks and the issue of detention basins. I already had a phonebook of contacts inherited from my previous work, so I managed quite easily to re-establish institutional contacts (Regione Lombardia, experts, local authorities, and politicians). I located environmental groups and activists through internet research (blogs, social medias, newspapers) and, where necessary, emailed or called them. They were always quite enthusiastic to release interviews and be interviewed. At this point I also used a snowball technique, building on key informants suggested to me by interviewees during the fieldwork. This second period lasted from January to July, with interviews carried out between April and July 2016. After I started analysing my data I was able to collect important information and – at the same time – assess any 'lack of data'. To fill gaps, I carried out more interviews in December 2016 –

2 The company is called Eco&Eco – Economia ed Ecologia (Ltd.) – and it is based in Bologna.

January 2017; the last 'control interviews' were conducted in September-October 2017. Interviewees (see table in annexes) have been divided in three main groups:

1) institutional representatives (politicians, functionaries, managers from the Regione Lombardia);

2) experts and technician who I approached because of their direct involvement in the CDF or because they were particularly informed about the issue;

3) environmental groups, activists and people from civic society mainly involved in the protests against the detention basins.

All of the interviews were recorded except for two: for these two, I kept a written report in my fieldwork diary, also transcribed. During recordings I also wrote down the most important information; the interviews lasted between 20' and 110' and have all been transcribed, selecting the most important topics. In the end I collected 38 semi-structured in-depth interviews: 28 interviews during 2016-2017 and 10 in 2013. Depending on the eloquence and personality of the interviewees as well as timing and context, some interviews spontaneously flowed into more open interaction and a more in-depth discussion of certain topics; in other cases I had to prompt the respondent with short questions to keep the conversation going. A certain degree of flexibility in the interview protocol was allowed to let the interviewee express personal reasoning about particularly relevant issues and, also, to reduce the psychological distance between him/her and the interviewer. Informal conversations and participant observation were also carried out. I took part in spontaneous/voluntary walks or drive-alongs in routes determined by the participants in Bresso, Senago, Carimate, Seveso and Milan. I also took photographs, collected newspaper records and consulted on-line videos about the public meetings and from local and national media.

Analysis – I used ATLAS.ti, a qualitative data analysis software, to code my recorded interviews. The transcription was done in the original language, Italian. I also coded my field notes, diary entries and other documents (e.g. maps, newspapers articles, reports). I

used interpretive coding (Cardana 2007) for both more general main topics and specific ones. I created my own code words by deducing them from research questions and my ontological perspective (Mason 2002). During the process of coding, the list of codes was constantly supplemented in order to incorporate previous findings and new interpretative keys. I constantly went back and forth from data to theory in a process of theoretical sampling until reaching theoretical saturation. I created diagrams using the 'Network' feature in ATLAS.ti to see all the quotes that were associated with/linked to a chosen code or group of codes. I visually analysed the material and created themes, most of which are used and discussed in §9.

Research approach and ethical implications – During our fieldwork, although we tried to act as 'mere observers' as much as possible, the 'researcher's point of view' was not objective. Specifically, more empathy and understanding was given to the speeches, fears and instances of activists and critical voices in general. Furthermore, most of the ethical implications are based on two major issues we encountered during our interviews. The first one is related to recordings and privacy. As we carried out interviews, we specified how we planned to conceal names and ensure privacy, in part to obtain as much information as possible. Despite these measures, two interviewees refused to have their voices recorded; others spoke more frankly only after asking that we not report certain information. Other informants asked us to turn off the recorder at some point in the interview, while some others only offered relevant information before (or after) the official interview, in informal talks. In some cases, the informants preferred not to answer or invited me to not ask certain questions. The second issue concerns trust and expectations, mainly in regard to environmental groups. Their hope, before, during and after the interviews, was that I might become a means for better articulating their demands, help them to spread their requests and petitions and, eventually, support them in 'solving the problem'. Although I always presented myself as a researcher with the aim of listening to different voices, in some cases I felt guilty for 'taking advantage' of their time and involvement to produce this research.

Limitations and constraints of the research – The initial intention of this research was to compare (at least) two case-studies in the EU. The more deeply I delved into the fieldwork, however, the more I realized that comparing my case study with another similar one would be a very difficult task. First, because of similarities in the geographical object and its territorial configuration (Milan and its periphery) and secondly because it would have been a very time-consuming task to carry out in the limited time at my disposal. For this reason I preferred to concentrate my fieldwork on a single but in-depth and robust analysis, using existing secondary studies on other EU countries.

During my fieldwork, most of the constraints were related to the availability of some informants and timing. Not all informants I wanted to interview were available or answered my requests. Time was also a major constrain, considering the limited duration of the PhD scholarship and new temporal provisions (i.e. the requirement to finish in 7 semesters). Finally, this study investigates a conflict and participatory process which are not yet concluded: in this sense, the research is likewise not definitely over, and some facts arising in the future might partially modify some of the analysis presented in the findings.

3. Conceptual framework

Contemporary democratic institutions have been struggling with ecological issues for the last 40 years. To date, it appears that efforts to reduce or reverse unsustainable paths have been almost in vain. Although there has been a great deal of concern, research and investment in these issues, as yet there are no signs that contemporary western liberal democracies produce more sustainable outcomes (Bosselmann Klaus, Engel Ron 2008). It is quite clear, in fact, that wherever a move towards sustainable development (SD) might impact on economic growth, sustainability loses out. As a matter of fact, democracy is closely associated with capitalism – blending the distinction between political/economic features – which is why it makes sense to talk of liberal or capitalist democracies. As early as Marx, however, contradictory relations between capitalism and environmental sustainability have come to the fore, as critics have argued that capitalism necessarily undermines the conditions of production (soil, water, energy, and so forth) to sustain capital's endless accumulation (Marx 2008 [1867]; O'Connor 1998; Foster 2002). Nevertheless, although capitalism and environmental sustainability can seem to occupy opposite ends of a binary (because of the constant economic growth capitalism requires), since the beginning of the 1990s the paradigm of sustainability has promoted the current socio-ecological configuration as "no longer contradictory when brought together under the banner of sustainable development" (Baeten 2000:73). Based on a rational and efficient ecological modernisation of the means of production and consumption, economy and ecology could now be combined through 'green eco-friendly' industrial apparatus and the careful use and consumption of natural resources (Gouldson and Murphy 1997; Pellizzoni 1999). Recently, however, it has become clear that this way of approaching ecological and social issues is failing, as all social and ecological indicators suggest that we are witnessing a very delicate phase in the *Anthropocene* that might lead to increasedly unsustainable conditions, if not outright extinction, for much of humanity as well as animal and vegetal species (Mikkelson, Gonzalez, and Peterson 2007; Motesharrei, Rivas, and Kalnay 2014;

Ceballos, Ehrlich, and Dirzo 2017; Hallmann et al. 2017). Many scholars suggest that ecological demands as well as 'green arguments' have been somehow "hijacked" in the SD discourse. Critical scholars argue that the radical demands for different socio-ecological futures which arose in the seventies have been slowly co-opted by the dominant discourses that were part of the SD narrative. This has occurred even while incorporating some aspects of activists' demands, such as eco-friendly energy production, 'green' food and participatory tools to enhance local democracy (Blühdorn and Welsh 2007; Læssøe 2007). "Much of the sustainability argument has evacuated the politics of the possible, the radical contestation of alternative future socio-environmental possibilities and socio-natural arrangements, and has silenced the antagonisms and conflicts that are constitutive of our socio-natural orders by externalizing conflict" (Swyngedouw 2010:228).

The most frequent problem that democracy poses for SD stems from the tendency to prioritize short-term economics over long-term sustainability: in this sense, representative democracy with institutions and timeframes favours short-term gains over long-term responsibility.

> "Representative democracy creates 'politicians', a type of decision-makers whose jobs depend on meeting the immediate needs of voters. In fact, their performance is measured solely by their success in meeting immediate needs. In this sense, unsustainable decisions are a key characteristic of representative democracy. In exceptional cases, politicians will respond to voters with a long-term perspective, but as a rule they make unsustainable decisions to keep their jobs" (Bosselman ibid. 2007:15).

In the current European framework, some view the "alliance" between technocrats and bureaucrats as the only possible way to solve such issues while others see it as a dysfunctional anti-democratic arrangement (Beck 1992; Pellizzoni 1999). The direct result is that those most affected by socio-environmental problem are often excluded from debate because of their lack of knowledge, background and technical skills and their excessive emotional involvement, even in participatory arrangements which are supposed to enhance democracy (Agrawal and Gibson 1999; Baeten 2000; Fischer 2000; Pellizzoni 2001; Grodzińska-Jurczak and Cent 2011; Celata and Sanna 2012; Essebo and Baeten 2012; Islar 2012; Kothari 2014). In the EU, with citizens ever more dissatisfied with the current

institutions – considering them too centralized and distant from communities – local environmental governance and participatory planning is widely held up as a fundamental tenant in governance for sustainability, in order to enable decisions that are more democratic and better tailored to local conditions (Page and Kaika 2003; Antunes et al. 2009; Jager et al. 2016). Along these lines, more and more governance arrangements are fashioned to address environmental and sustainability issues, giving a strong positive emphasis to the participatory (democratic) process. This invitation to participate and manage nature most often takes place in relation to already-exploited natural resources or socio-ecological arrangements that were exploited previously: citizens are often called on to take part in restoring (re-greening) polluted or environmentally depleted spaces. In the last 20 years, EU policies and directives [3]have strongly encouraged citizen involvement. The state, civil society and private actors organize around governance tools to foster an ecological sense of responsibility and achieve better ecological outputs, managing conflict and enhancing sustainable environments (European Community 2000, 2003; European Union 2013). These tools rely on participatory mechanisms, enhancing democratic principles such as transparency, accountability and trust; they are conceived of as working towards a goal that all the interested parts agree on, to generate better synergies between societal actors and achieve ecologically sound outcomes.

We begin by using a political ecology lens to understand and trace urban transformations, contested natures and socio-ecological change in order to reconstruct the political and ecological roots of the environmental issues currently facing the Seveso basin. We then move to the issue of governance and nature, in particular how democracy and the ecological issues of contemporary governments are framed as forms of participation and post-political governance to sustain present-day socio-ecological configurations. Finally, we present some relevant theoretical insights that will be explored here with a view to contributing to research in this field.

3 See: Local Agenda 21, WFD/2000, Lisbon Treaty Common Implementation Strategy for the Water Framework Directive 2000/60/EC and Directive 2007/60/EC on the assessment and management of flood risks

3.1 Urban Political Ecology and the urbanization of nature

> "The dystopian underbelly of the city that at times springs up in the form of accumulated waste, dirty water, pollution or social disintegration, produces a sharp contrast when set against the increasingly managed clarity of the urban environment. The contradictions are becoming difficult to be contained or displaced. This is particularly acutely expressed by the emergence of environmental problems and issues, many of which are directly related to urbanization and the city. Whether we consider water, energy, food or clean air, cities are central to growing socio-environmental issues and their unpredictability exemplifies the fallacy behind the myth of the perfectly managed city" (Kaika and Swyngedouw 2000:136).

We will use Urban Political Ecology (UPE) as a theoretical lens to analyse and trace urban transformations, contested natures and socio-ecological changes occurring in the city, in order to reconstruct the political and ecological roots of current environmental issues related to the river Seveso basin. Indeed, UPE is "the social science for the global urban age, where nature can no longer be tenably understood as outside the city, but is fundamentally incorporated into its further development" (Wachsmuth 2012:520). According to this understanding, environmental problems are framed as urban problems, in the sense that they are closely related to how people live in cities and metabolically consume/produce *nature*. Strangely, as many UPE scholars have noted, among urban scholars *nature* has been eliminated from urban studies, treated as a merely technical issue by engineers and architects. Much of the research in this field has naively addressed the issue of "greening the city", thereby overlooking the most pressing and urgent aspect of the 'urbanization of nature' as a *process* of socio-ecological change and struggle: cities are, in fact, "built out of natural resources, through socially mediated natural processes" (Heynen et al. 2006:4). Indeed, it is important to recall that "Urban and regional studies have long sidelined questions of natural relationships. Urban sociology, in particular, after basing much of its theory on ecological concepts and metaphors in the early 20th century, has insisted on its distance from biologistic concepts since the 1960s(…). There has been little sustained interest in urban studies for urban natures. This should not come as a surprise as cities have been widely looked at as the very opposite of nature" (Keil, 2003:729). This disconnection between nature and urbanity can be seen as a contradictory process which serves to visually exclude "socio-material networks that continuously pump in good nature (water, gas, electricity) while pumping out bad nature (wastes)" (Arboleda, 2015:6).

Nevertheless, we cannot fully grasp the workings of the urbanization process at a given historical-geographical moment without seriously taking into account the mobilization and metabolization of nature, while also considering urbanization as the spatial form of capital accumulation (Harvey 1996; Lefebvre 1973) through the transformation of nature (Marx 2008 [1867]). In this sense, urbanization is understood as a process of continuously territorializing/deterritorializing nature in order to shape and transform it to meet social needs, economic purposes and 'decontamination' (Virilio, Kaika, Swyngedouw and Kaika). "The political-ecological history of a city can be written as the continuous and never-ending attempt to tame, domesticate and urbanize nature to keep pace with urban metabolism. Urban metabolism can be conceptualized as a number of dynamic, inter-connected, and mutually transformative physical and social processes" (Castán Broto et al., 2012 in: March 2013:351). The process of urbanisation is a dialectical process – historically and geographically situated – of attracting, expelling and recasting nature to sustain certain type of spatial configurations and urban forms.

> "[S]ocial power and conflict unfold around the processes by which access to nature is socially organized, the way the metabolic transformation of nature is socio-ecologically structured and managed and the mechanisms through which the results of this process are distributed (…). The capitalist circulation of capital and its expansion, therefore, is of necessity predicated upon the socio-ecological circulation and metabolism of non-human matter whereby new and distinct socio-ecological configurations, in a material, political, and social sense, are constituted in the process. It does so through widening and deepening the socialization of nature and its incorporation within expanding metabolic processes" (Swyngedouw 2015:26-26).

The 'urban fabric', therefore, must expand the ecological frontier of the city beyond the city itself with the aim of taming circulatory flows. The history of these flows inside the city is often invisible and hidden underneath a blurred and complex network of pipes, meters, water laws:

> "urban networks in the contemporary city are largely hidden, opaque, invisible, disappearing underground, locked into pipes, cables, conduits, tubes, passages and electronic waves. It is exactly this hidden form that renders the tense relationship between nature and the city blurred, that contributes to severing the process of social transformation of nature from the process of urbanization. Perhaps more importantly, the hidden flows and their

> technological framing render occult the social relations and power mechanisms that are scripted in and enacted through these flows" (Kaika and Swyngedouw, 2000:121).

Scholars have defined these technological networks (Kaika 2005) as "harms of modernization" that ensure nature-social relationships and maintain nature inside/outside the city. They permit the urbanization of nature in a blurred and veiled manner and, in so doing, they naturalize the process of urbanization and urbanity. This visual exclusion is maintained through social power relations which cause alienation from nature, or from the complex fabric of social and spatial relations involved in its production, relying in part on practices of political hegemony and social exclusion which serve to keep natural processes under control (*ibid*:71).

Used in the past decade by political ecologists to analyse socio-ecological assemblages, the concept of "hydro-social cycle" theorizes and analyses water-society relations as deeply co-related and inter-connected, basing its assumptions on the co-production of society-nature relations. "Water flows over space and time is shaped by human institutions, practices and discourses that determine modes of control, management and decision-making" (Linton and Budds 2014:173). Recent studies, in fact, have demonstrated that water is not external to social relations but rather embeds and expresses such relations; society thus shapes and is shaped by water, both materially and discursively (Bakker; Gandy; Kaika; Swyngedouw). In light of this point, we must fully recognize the mutual constitution between social construction and materiality (as H2O) if we are to interpret the discursive and material dimensions of water. Managing water therefore has a profound impact on organizing (urban) societies, which in turn powerfully impacts the material condition and disposition of water in such a way that different types of social-spatial relations produce different geographies of water. The physical properties of water can structure social ties or disrupt them: the act of controlling its materiality produces variegated power relations, governance arrangements and social issues (Linton and Budds 2014; Swyngedouw 2015). The hydro-social cycle is a powerful analytical tool for unveiling the social and power relations embedded in water (and its technologies) and produced in different geographical contexts, relations we might otherwise overlook. We will deploy this

framework to analyse the river basin and its power geometries, political balances and socio-ecological equilibriums throughout the river pathways and the local areas they traverse. In particular, we use the term "hydro-social territory" to indicate "the contested imaginary and socio-environmental materialization of a spatially bound multi-scalar network in which humans, water flows, ecological relations, hydraulic infrastructure, financial means, legal-administrative arrangements and cultural institutions and practices are interactively defined, aligned and mobilized through epistemological belief systems, political hierarchies and naturalizing discourses" (Boelens et al. 2016). Territorial politics thus have to do with divergent and diverse political interests which compete and struggle with one another through discourses, norms and knowledge generation, constantly forming and re-forming territorial configurations.

From a UPE perspective, the only possible sustainable and ecologically-sound politics are those that generate a more equitable distribution of social power and a more inclusive way of producing nature, i.e. a democratic management of the *commons* (natural resources). According to this perspective, principles of equality and justice are not goals but means, as in the origins of democratic politics. The space for expressing dissensus and negotiating conflict becomes visible and forms a key part of narratives that create different socio-ecological configurations and different modes of transforming nature (Swyngedouw in: Kallis, D'Alisa, De Maria 2105).

Through this research we seek to provide new insights into the field of participatory governance tools in environmental issues, exploring how the governance of nature has been shaped and disentangled in the complex relationship and interaction between the state and civil society. We focus on the European context, namely the way participatory governance has been internalized in the EU through adherence to a common environmental legislation framework.

3.2 Governing nature, naturalizing governance

In 2000, the EU introduced one of the most ambitious and comprehensive pieces of EU environmental legislation ever, called Water Framework Directive (Graefe 2011; Jager et al. 2016). This legislation "aimed to protect and enhance the quality and quantity of EU aquatic ecosystems in order to ensure an adequate, but sustainable, supply of water for economic development and growth" (Kaika and Page 2003:3). It includes an important point of innovation, namely the requirement for stakeholder involvement in water resource management to generate innovative, equitable, effective and widely supported strategies for meeting the demands of various interest groups. This can be seen as part of a wider shift from *government* to *governance* taking place in the US, Latin America and Asia (Anderson et al. 2016; Empinotti 2011; Jager et al. 2016; Molle 2005; Page and Kaika 2003; Swyngedouw 2005; Zinzani 2016). Such innovations have brought about major changes, the consequences of which have been assessed and evaluated by scholars in many disciplines. Many argue that, although local participation may have increased in some cases, governance framings tend to privilege the knowledge and expertise of powerful actors, thereby failing to more broadly include the public or community groups; indeed, the technocratic and centrally determined nature of these initiatives results in only limited instrumental learning (Graefe 2011; Guerrin, Bouleau, and Grelot 2014; Penning-Rowsell and Johnson 2015). This process has been framed on a larger scale as a move to depoliticize decision making, neutralizing political arguments by flattening them into technical or economic issues (Marchart 2007) as part of an attempt to extrapolate political dimensions, social structures and power relations in water governance, draining the political aspects from decision-making processes. "The Water Framework Directive is thus reflective of a techno-managerial approach for water management based on efficiency, productivity and inclusiveness (…) where there is a subversive disappearance of the political from public debates and silencing some of the most pressing issues facing the domain of water." (Melo Zurita et al. 2015:176). Public participation enacted in an institutionalized manner has been viewed with a great deal of suspicion: when managed and oriented toward building consensus, it represents a symptomatic type of institutional subjugation through co-optation and testifies to the absence of the political dimension

(Blühdorn 2014; Dikeç 2005; Holifield and Schuelke 2015; Swyngedouw 2005). From this perspective, even by simply addressing the political causes of environmental degradation sustainability can be enhanced in a broader sense. The struggle for democracy, which constitutes the very heart of the emancipatory project of political ecologists (and critical scholars in general), is the only and most important means to achieve real socio-ecological sustainability, understood as a strategy for fostering a more equitable distribution of social power and more inclusive way of producing nature. On the other hand, the brand of politics in which techno-managerial planning and intervention, expert management, and bio-political administration take the place of ideological or dissensual contestation has been referred to as "post-political". Critical scholars argue that the *post-political governance* under which local adaptation projects enroll stakeholders as democratic participants is actually aimed at supressing internal conflict among actors and limiting space for dissensus (Richardson 2015). One result of this post-political condition is that communities are deprived of their political power, as has been shown by post-political analysis of contemporary eco-political discourse and practices (Bluehdhorn 2010, 2011; Swyngedouw 2005, 2011; Kenis 2014).

The recent debate about post-politics has also been taken up in eco-politics and eco-governmentality analysis, in particular by prominent scholars Erik Swyngedouw (2011, 2013, 2015) and Ingolfur Bluehdhorn (2010, 2014). The debates address the way new forms of participated governance exploit and reinforce power constellations that further privilege those who are already privileged. Swyngedouw, in particular, defines these tools as 'Janus- Faced', since "these new modes of governance are rarely based on codified and transparent rules, tend to be selective regarded to which actors are accredited stakeholder status and allowed to participate, are ill-defined in terms of the nature of the representation they offer and the legitimacy they generate, and their political objectives and priorities often remain ambiguous, dispersing political responsibility and obscuring chains of accountability" (Swyngedouw 2005:31). Ingolfur Bluehdorn, engaging with the eco-political analysis of post-politics, has recently argued that these qualities – i.e. their contradictory Janus-faced character – render these flexible structures of governance exceptionally attractive to the post-political (and post-democratic) condition and suitable for the *politics of*

unsustainability. Critical perspectives have framed this type of politics as the practice of managing the unpleasant implications of ecological change for as long as possible through politics which prioritize the interests of today while discounting those of future generations (Bluehdorn 2011, 2013, 2015). According to this view, democracy becomes a tool for governing *unsustainability*, i.e. the lifestyles choices and value-preferences created by modern democratic-mass consumption societies which have indeed become socially exclusive and ecologically ruinous. These new modes of democratic governance function to stabilize and legitimize lifestyles which exacerbate social injustice and environmental exploitation, through a mechanism of 'simulative democracy'. They represent a powerful tool for reducing opposition and social conflict, generating a form of democratic legitimacy for policies that allow some sections of society to sustain their non-negotiable norms and lifestyles while at the same time establishing significant restrictions for others. Governance approaches focused on stakeholder participation are a response to "a strong societal demand for arenas and practices of simulative politics" (Blühdorn 2013:31). Blühdorn argues that democracy is actually maintained for ecological purposes, albeit in a perverted manner, turning it into the most important tool for the 'politics of unsustainability' (2014:161). Both of these critical scholars thus reason in a very similar way, expressing different visions of the culture/political dilemma as a tool for facing societal problems. While Swyngedouw focuses to a large extent on the political axiomatic concept of equality, which is constantly being undermined, Blühdorn argues that we must recognize the cultural shift (changing notions of subjectivity) and related lifestyles as socially and ecologically responsible for the current situation.

Our contribution – In this context we argue that, beyond the simplistic binary democracy/technocracy of UPE analyses, Bluehdorn's insights can help us to more effectively theorize current society-nature relationships in western democracies, re-considering post-democratic management in environmental issues (Kuchler and Lövbrand 2016). This extremely interesting (albeit disturbing) approach shows how new modes of democratic governance work to stabilize and legitimize contemporary socio-ecological

relations by managing the unpleasant implications of ecological change for as long as possible through politics (i.e. electoral democracy) which are sustained by the majority of citizens. In order to enrich the UPE body of research and theoretical apparatus, we will explore new approaches to move beyond a theoretical impasse. Taking into account the socio-economic system in which the urbanization of nature has been inscribed, what is needed is a more complex analysis of the capitalistic governance of nature, one that is not simplistically reduced to dualistic terms (capitalistic/elite/technocrats VS radical democratic/activists). Indeed, we believe that the ultimate aim of capital's *accumulation for accumulation's sake* has been widely and fully collectively assisted by the state, local/regional governments and private citizens, actors that continue to reinforce this process in order to pursue their own private interests and lifestyles. This impasse of UPE (especially in the European context) takes the form of analysing and schematising all relations within a capitalistic/technocratic VS democratic/non-capitalist framing, which can serve only to reassure activists (Bluehdorn 2014), leaving no hope for potential transformation. The production/governance of nature still generates a number of theoretical doubts (Demeritt in, Perreault et al. 2015), which is why a "virulent question in Urban Political Ecology is, therefore, that of democratic participation in the production and governance of societal relationships with nature" (Zimmer 2010:349). Thanks to our empirical material, we will theoretically move beyond the binary 'consensus'/'conflict' deadlock, exploring how the 'governance of unsustainability' takes place and how environmental conflicts in participatory governance tools open up spaces for new imaginaries and new socio-ecological relations.

4. Environmental Governance in Europe: sustainability, resilience and participation

Echoing the United Nations Stockholm Conference on the Environment (1972), the EU (at that time still the European Economic Community – EEC) started with a very idealistic approach to environmental issues. In its first Environment Action Programme (EAP), in 1972, the recent publication of the 'Limits to Growth' published by the Club of Rome had a strong influence. Arguing that economic development, prosperity and the protection of the environment were mutually interdependent, for the first time the Community proposed the protection of the environment as an essential task of the Community (C:1973:112:TOC). These ambitious targets, however, were formulated, "in a spirit of optimism as regards the feasibility of far reaching policy change, which became frustrated during the following decades of environmental policy making" (Hey 2005:19). In the 70's and 80's, then, the EU shifted from conservative and protection policies to a more complementary and encompassing regime of sustainability covering all spheres of productive activities (from agriculture to industrial processes). In fact, the following Action Programmes appear to be more in favour of "shared responsibility between various actors – government, industry and the public – considered to be necessary to achieve progress towards sustainability, NGOs, business and industry, consumers, farmers, local and regional authorities, and academic communities advocated a more inclusive approach including more specific targets and an increased use of marked-based measures" (Bosselmann & Engel 2008:22). The Brutlad Report (1987) coined the Sustainability Development (SD) paradigm, and it became a normative reference for environmental policy in the EU from the beginning of the 1990's onwards, with the result that SD was effectively a win-win tool for improving environmental protection, social equity and competitiveness, all at the same time (Hey 2005: 21). Another big step towards incorporating the Sustainability paradigm was the Amsterdam Treaty[4] (1997) which granted quasi-constitutional status to the idea of sustainability by integrating environmental considerations into economic policies and making it an organising principle of the EU,

4. Amsterdam Treaty, available at www.eurotreaties.com/amsterdamtext.html

linking integration to the achievement of sustainable development (Bosselman 2003). "At the end of the 90's one can observe a patchwork of different, partially contradictory trends, with different environmental policy approaches being promoted simultaneously. There was a certain revival of the 'sustainability approach'. New ambitious legislation (...) can be observed, as well as continuing attempts at deregulation and diffusion of competencies" (Hey 2005:25). The latest actions and programmes are, on one side, also linked to social and ethical issues such as justice, equity and democracy; on the other side, they maintain a strong focus on the economic growth of EU due to the application of environmental policies, with special concern for western consumers (such as food and health safety) delinking issues such as environmental destruction and food security on a global scale (Baker 2007). Moreover, while in the 2000's an impressive system of environmental programmes, duties, rights and incentives was created, the last two EAP do not share the ambitious goals of their predecessor and appear more reluctant to set targets and identify key instruments (Hey 2005:27). To provide just one example, the 6th EAP (2002-2012) is concerned with and begins assessing 'persistent environmental problems' (climate change, the loss of biodiversity or the over-consumption of resources) and invokes a broader approach, beyond environmental legislation. It argues that there is an increasing need to consolidate existing legislation, especially in view of enlargement: it adopts a very cautious approach and postpones potentially contentious and controversial political decisions to later phases or avoids them altogether by relying on cooperative approaches to environmental policy-making.

> "The Commission is changing its key role from an initiator of legislation to a manager of policy processes. Environmental policy may hence lose its previous political profile and become more and more a theme for small specialist expert communities. Those communities are responsive to scientific evidence, but the selection criteria for representatives from civil society wanting to participate in those communities has also increased. The cooperative management of the policy processes is very demanding in terms of resources and staff and some processes simply fail to gain momentum because of insufficient public investment (…). A further problem is that policy approaches become over complex. Holistic and integrated approaches promise to tackle and balance everything with everything at the same time. However the risk is that in the end they amount only to fine rhetoric on principles and little action. (Hey 2005:27).

The last EPA (7th) (2014-2020) has largely the same approach as the 6th, showing more concern for the ecological and physical limits of the world (in fact, the report's title is "Living well, within the limits of our planet")[5]. It focuses on long-term policy orientation intertwined with sustainable, favourable and inclusive smart growth. With the Juncker presidency the role of environmental policies has been thoroughly undermined for the next few years, also considering the substantial impact of the economic crisis (Čavoški, 2015).

In this setting, sustainable development has been closely linked to the stimulation of economic growth because it leads to eco-efficiency, which offers both short-and long-term competitive advantages to European industry. The SD strategy adopted in the EU has always relied on the three axes of social progress, environmental protection, and social policy for stimulating economic growth which is supposed to focus on the instruments of the market economy (Mihalcea & Verdes 2013). Stressing eco-efficiency, eco-compatibility and efforts to create a feedback loop between communication and policies, this strategy also significantly emphasized public participation to achieve better environmental outcomes.

4.1 European Environmental Policies: Sustainability as Ecological Modernisation

> "If large parts of the developing world are to avert economic, social, and environmental catastrophes, it is essential that global economic growth be revitalized" (World Commission on Environment and Development, 1987)

The *trait d'union* between ecologically sound policies and the continuation of economic growth relies precisely on the paradigm of Ecological Modernisation (EM), "exploring attempts in late industrial society to respond to the negative environmental consequences of modernity" (Baker 2007:299). EM theory argues that economic and environmental goals can be integrated within a framework of industrial modernity and economy, in which ecology can be favourably combined in pursuing this goal (Ayres and Simonis 1994; Hajer 1995; 1996). Indeed, authors from different academic areas have argued that western

5 See. http://eur-lex.europa.eu/procedure/EN/2012_337

democracies and industrialized countries more generally have relied on this paradigm as a win-win situation for markets and the environment, opening up 'spaces for the development of new alliances and new roles for states, market actors, and the environmental movement' (Bostrom in: Bulkeley and Mol 2003:145). This has led to fully embracing and pinning all hopes on a green economy, which blurred other views on the issue and became hegemonic in liberal economic discourse (Kenis and Lievens 2014). It is believed that a specific rational and scientific explanatory factor will permit societies to consume less 'stuff' and become fully ecologically sustainable in the very near future, namely the de-materialization of the economy. This process has been proven ineffective, however, given the skyrocketing consumption of energy-heavy, material-waste-based life styles in many parts of the developing world (Martinez-Alier et al. 2010; Asara et al. 2015). Energy efficiency, apart from being counter-balanced by a 'rebound effect' (*Jevon's Paradox*), has not taken the form of a total de-materialization of the economy, continueing as it does to rely on natural capital consumption and deterioration (Magee and Devezas 2016; EEA 2012). It also leaves unresolved the problems of inter-generational equity and global redistribution and, in general, issues of social justice and society-nature relations. The social justice aspects of sustainable development are ignored by ecological modernisation (Langhelle 2000), as growth is framed as a solution to the planet's ecological crisis. It therefore appears clear that, throughout the EU's history and succession of environmental policies, the aim of policies has been to promote growth and eco-efficiency through EM, so that "by framing the environmental *problematique* as a business opportunity, it allows the centrality of economic interests to be retained" (Baker 2007:310). As Bluehdorn and Welsh argue (2007), this proves to represent a powerful reassurance for the EU's future development and integrated economy as well. The tempting option promised by EM, indeed, reveals the inherent purpose of the EU project, an agenda based on a neo-liberal, free market economy and industrial competitiveness. However, the mere choice of having embraced EM in all the most recent EAP indicates that we are still facing the problem of achieving sustainable development, a goal that has been established but continues to elude the goals of the Brutland report (UN 1987)[6] The EU environmental

6 See: http://www.un-documents.net/our-common-future.pdf

project is therefore to green European societies through ecological modernization and a 'weak' and unclear conceptualization of sustainability. The main drivers – economy and technology – are largely unchallenged and there are no efforts to address the important lifestyle changes needed to reduce ecological change and natural resources use and transformation.

> "Even if it is rhetorically recognized that achieving such goals requires fundamental changes to European and global production and consumption systems, EU initiatives to date rely largely on modest efforts to increase the use of more environmentally friendly technology and green capitalist markets without challenging the way these operate at more fundamental levels—efforts outlined while EU leaders seemingly wedded to a neoliberal economic agenda simultaneously seek to improve the international competitiveness of European firms and support technological development" (Selin and VanDeveer 2015:328).

As mentioned previously, the last EAP report (2012), titled *Living well, within the limits of our planet*, emphatically sets priorities "to turn the EU into a resource-efficient, green and competitive low-carbon economy", once again disclosing its faith in economic growth as the panacea for environmental protection. "The European Commission thus seems convinced that the strategy of ecological modernization will increase resource efficiency to a point where we are all «living well, within the limits of our planet»". (Lundqvist 2015:215). The fact that ecological limits are now appearing as a concern, however, represents a novelty, suggesting that for the first time the sustainable paradigm has begun to shift its focus from the attempt and will to solve the environment conundrum, to a new phase where the main goal is acknowledging limits and coping with them. In our view, this represents the beginning of a more general shift towards the resilience paradigm, which will lead our society to manage natural resource sustainably virtually (*ibidem*: p.176). This can be seen in the UN Secretary-General's High-Level Panel report on Global Sustainability (2012), called 'Resilient People, Resilient Planet: a future worth choosing'. There is an ever-present mantra according to which Climate Change now represents an issue requiring action: "Action to mitigate and adapt to climate change will increase the resilience of the Union's economy and society, while stimulating innovation and protecting the Union's natural resources" (p.178). Ecosystem resilience is understood, along these lines, as offering

"cost-effective options for climate change mitigation and adaptation and disaster risk management" (p.180) and thus 'measures to enhance ecological and climate resilience, such as ecosystem restoration and green infrastructure, can have important socioeconomic benefits, including for public health' (p.188). In sum, resilience thinking is 'the next big thing' in dealing with the environment: this change in the underlying rhetoric of the policies spearheads a shift from seeking to avert ecological crises to managing their implications and consequences (Bluehdorn & Welsh 2007).

4.2 From Sustainability to Resilience

"Sustainability is a resilient, sustainable idea" (Campbell 2016:392).

Nowadays, the resilience paradigm is emerging as a planning and management agenda for governments, NGOs, planners and social scientists, taking the place of or supplementing the *sustainability* discourse. The consequence is a growing ubiquity of the term 'resilience' within the academic literature on urban-regional issues (Leichenko 2011). "The successful resilience renaissance, cutting across academic disciplines and the interface between science, policy and practice, may find its explanation in the 'elasticity' of the term and the 'flexibility' of the concept" (Weichselgartner and Kelman 2014:1). This concept has migrated from the natural and physical sciences into the social sciences and public policy as the identification of global threats – such as economic crisis, climate change and international terrorism – has focused attention on the responsive capacities of places and social systems. "Well-known already and applied in fields such as IT, material science, psychology and ecology, the concept of resilience definitely has made its way now to urban regional planning and politics in Europe" (Stumpp 2013:10). The theory of resilience is based on a list of entities from the ecological/natural sciences. Holling (1973; 2001) describes ecological resilience as a natural system's ability to persist in spite of natural or anthropogenic changes. As more and more people move into densely populated cities, using massive amounts of resources (water, energy, soil): 'local resilience' is generally used to refer to the ability of a city or urban system to withstand a wide array of shocks and stresses (Folkes 2010; Lang 2010; Elmqvist 2011; Leichenko 2011; Chelleri 2012; Wilkinson

2013; Weichselgartner 2014). Holling (2001) and Alberti et al. (2003) have defined *urban resilience* as the degree to which cities are able to tolerate alteration before reorganising around a new set of structures and processes. They assert that urban resilience can be measured by how well a city can simultaneously balance ecosystems and human functions: as resilience declines, it takes progressively smaller shocks to cause system crises or chaos. Some key characteristics of resilient cities, populations, neighbourhoods, and systems include: diversity, flexibility, adaptive governance, and a capacity for learning and innovation. In general, it is said that resilience can be improved by reducing exposure and sensitivity to shocks, as well as by increasing adaptive capacity (IPCC 2014). Many events and associations in Europe have already been promoted to assess resilience as policy[7]. In 2013, the OECD set up recommendations to guide countries towards more *resilient growth*, to help them monitor good practices and to improve the well-being of local communities after disasters[8]. "The framing of recommendations is technocratic, being heavy on quantitative data while not acknowledging wide swathes of qualitative research with solid evidence for the success of resilience endeavours" (Weichselgartner and Kelman 2014:9). Lastly, in order to achieve resilient environments and participated/legitimated governance, in the 7th EAP, local resilience and the need to transition to a low carbon society took centre stage in EU policy, where

7 These include: ICLEI (*Resilient Cities* –Bonn, 2014), Real Corp (*Re-mixing the City – Towards Sustainability and Resilience*, Vienna 2012), USAR (*The first International Conference on Urban Sustainability and Resilience,* London), Pop! Tech (*Toward Resilience* – Reykjavik), IDRC (Integrative Risk Management in a Changing World – *Pathways to a Resilient Society* – Davos), as well as the EU project "Transitioning towards Urban Resilience and Sustainability" (TURAS) Horizon 2020' (Stumpp, 2013). In 2010, the UN International Strategy for Disaster Reduction (UN-ISDR) launched the 'Making Cities Resilient' campaign – 'My City is Getting Ready' – to achieve resilient, sustainable urban communities, with a growing number of local governments taking action to reduce the risks to disasters, based on common standards and tools.

8 More recently, nine institutions including the World Bank and the Global Facility for Disaster Reduction and Recovery (GFDRR) announced a new global collaboration at the World Urban Forum expressing their collective commitment to help cities improve resilience to disaster and climate risks, as well as to economic and other systemic shocks, economic growth and prosperity. The collaboration between UN Human Settlements Programme (UN-Habitat), UN Office for Disaster Risk Reduction (UNISDR), Inter-American Development Bank, the Rockefeller Foundation and its *100 Resilient Cities*, the C40 Cities Climate Leadership Group, and ICLEI Local Governments for Sustainability, in addition to the Bank and GFDRR – aims to improve the flow of knowledge and financial resources necessary to help cities become more resilient (2014). Collectively, these organizations work in over 2,000 cities globally, with over $2 billion committed annually toward advancing resilient urban development.

> "In order to enhance the sustainability of Union cities, the 7th EAP shall ensure that by 2020: (a) a majority of cities in the Union are implementing policies for sustainable urban planning and design, including innovative approaches for urban public transport and mobility, sustainable buildings, energy efficiency and urban biodiversity conservation. This requires, in particular: (i) agreeing on a set of criteria to assess the environmental performance of cities, taking into account economic, social and territorial impacts; (ii) ensuring that cities have information about, and better access to, financing for measures to improve urban sustainability; (iii) sharing best practice between cities at Union and international level in relation to innovative and sustainable urban development; (iv) in the context of ongoing Union initiatives and networks, developing and promoting a common understanding of how to contribute to improved urban environments by focusing on the integration of urban planning with objectives related to resource efficiency, an innovative safe and sustainable low-carbon economy, sustainable urban land-use, sustainable urban mobility, urban biodiversity management and conservation, ecosystem resilience, water management, human health, public participation in decision-making and environmental education and awareness" (EU 2013:197).

Critiques of the resilience system approach have been advanced, especially from scholars who lament 'hard-scientists' colonising the social sciences. MacKinnon and Derickson (2012) argue that viewing cities and regions as self-organizing units is fundamentally misguided, serving to divorce them from wider processes of capital accumulation and state regulation. The recent literature on resilience and socio-ecological systems (Wilkinson 2014; Ernsts et al. 2010; Davoudi 2012; Shaw 2012) stresses the close relationship between social dynamics, structure and inequity, and the ability to sustain ecosystem services at different scales, not only the urban one. MacKinnon and Derickson (*ibidem*) argue that the abstract language of systems theory and complexity science comprises a mode of intellectual colonization which serves to objectify and depoliticize the spheres of urban and regional governance, normalizing the emphasis on adapting to prevailing environmental and economic conditions and foreclosing wider socio-political questions of power and representation. The concept of resilience, derived from ecology and systems theory, is said to be conservative when applied to the social sphere; it "closes off wider questions of progressive social change which require interference with, and transformation of, established systems" (*ibid*:254). Critics explain how the pervasive idiom of global governance, being abstract and malleable, stretches to encompass the worlds of high

finance, defence and urban infrastructure. It is risky, they argue, to take capitalism for granted as if it were an immutable external force akin to the forces of nature, while focusing attention on the self-organizing capacities of places to become more resilient. Reasoning in this way serves to normalize the uneven effects of neoliberal governance and invigorates the trope of individual responsibility with a renewed 'community' twist. Such 'top-down' strategies invariably place the focus on individuals, communities and places and their ability to become more resilient and adaptable to a range of external threats, thereby reproducing the wider social and spatial relations that generate turbulence and inequality. In other cases, critiques focus on the idea that neoliberal thought as a dominant feature of current capitalism can be seen to have become maladaptive and to constitute a major threat to urban and regional resilience (Lang 2011). In fact, the resilience of capitalism and dominant neoliberal models of regional development trigger national state interventions; therefore, resilience policy fits closely with pre-established discourses of spatial competition and urban entrepreneurialism. There is no doubt that cities are attractive to private enterprises because so much business activity, private investment and demand are concentrated there. Private enterprises generally favour cities with functioning urban infrastructure and a wide range of services (IPCC 2014). It is interesting to note that the shift to a developmental urban politics comes at a time when the local state is facing increasing demands in terms of protecting and enhancing the natural environment, and environmental politics are being constructed around ecological modernization and the partial greening of capital (Schneider and Teske 1993). For some locations, promoting resilience may come at the expense of other aspects, or improving resilience at one scale, such as the level of the community, may reduce resilience at another scale, such as the household or individual (Weichselgartner and Kelman 2014). Therefore, we cannot consider resilience in social context without paying attention to issues of justice and fairness in terms of both decision-making procedures and the distribution of burdens and benefits. It is surprising to see that power, governance and social capital do not play a more prominent role in both theoretical and practical approaches to increase resilience – actors that cannot be captured with available data through measurable indicators, such as power relations, are often neglected (Davoudi 2012; Shaw 2012). The resulting emphasis on

'bounce-back-ability' reveals the underlying assumption that more resilient people can 'bounce back better': in operational practice, the resilience label may often be used to maintain control over established actions rather than to question the status quo and find solutions to problems, in part because apolitical ecological resilience (and apolitical ecology in general) tends to favour established social processes and traditional societal structures at the expense of social transformation (Shaw 2012; Weichselgartner and Kelman 2014). Shaw (2012) argues that communities cannot be left to fend for themselves: local authorities still need to support them, manage problems and provide resources, although if some communities have high levels of social capital or "natural resilience", this might be used as an excuse for government to step back and leave communities to tackle these problems on their own[9].

4.3 Participation in Environmental Governance: towards consensus?

As previously indicated, the Rio Summit in 1992 spread a great deal of environmental consciousness and highlighted the need for public engagement in environmental issues as key to solve these problems.

> "The argument that the public should be more engaged in debates about environmental risk and sustainability has been well rehearsed during the 1990s. From the international arena, exemplified in documents such as Agenda 21 and the initiatives of the World Bank, to government policy initiatives, local policy and planning systems, scientists and business groups, there is an emerging consensus that the public need to be more involved in the processes of environmental decision making" (Bulkeley and Mol 2003:147).

Especially in urban and environmental planning, participation in science and technology policies has been viewed with much hope and expectations (Carvalho, Pinto-Coelho, and Seixas 2016). From the beginning of 2000, indeed, there has been an impressive array of environmental legislation related to the issue of civil society involvement and rights, mainly due to the signing of the Aarhus Convention (2003) and associated freedom of

9 Resilience is increasingly linked to progressive community-led environmental initiatives such as Transition Towns, and to approaches to climate change that argue for resilience as a strategy towards de-carbonisation and sustainability.

information, participation rights and access to justice (Hey 2005:26). The main point rests on the assumption that citizens well-informed on environmental issues are better equipped (and more authorized) to participate in decision-making for the implementation of environmentally sound goals. After a decade of Agenda21, the Johannesburg Summit recognized that many expectations had not been achieved, such as global poverty and natural resource pressures in particular. The aim of widening participation was considered a main goal for achieving sustainable development, mainly through better systems of governance, improving openness, participation, accountability, effectiveness and the coherence of policy making, enhancing public participation in the implementation of a range of environmental directives (EU 2002). In 2003, Directive 2003/35/EC stated that public involvement in decision making is vital in terms of objectives, plans and programmes for justice (European Community 2003). Based on the fact that the EU has suffered a crisis of legitimacy and lack of democratic responsiveness, participatory processes have been seen as key in legitimate and effective governing, reinforcing democratic governance and successfully implementing policies, from centralized member states to the sub-national levels (Schout and Jordan 2005; Rauschmayer, Paavola, and Wittmer 2009; Newig and Koontz 2013). Lately there has been a rise in new strategic players in environmental governance, players such as non-profit organizations and community and environmental groups, with the goal of tackling environmental concerns where government had basically failed (While, Jonas, and Gibbs 2004). Mainly, participatory planning was used in the Water Framework Directive (2000), Flood Directive (2007) and Air Quality Directive (2008) (Newig and Koontz 2013). The assumption is essentially that "if properly understood and applied, participation implies more democratic decision-making processes, greater social cohesion, improved policy quality and effectiveness, and, in some cases, even conflict resolution" (Scolobig, Pellizzoni, and Bianchizza 2016:97). Nevertheless, "numerous empirical studies raise doubts about those visions. They show that participatory processes are often marked by constraints, limitations and biases that severely condition their outcomes" (Carvalho, Pinto-Coelho, and Seixas 2016:3). Issues have to do with the multiple levels that exist across different jurisdictions and the top-down nature of such arrangements, as well as the fact that different degrees of

participation have different effects on planning and implementation. In particular, it has not been proved that such approaches are fully endorsed by local populations, since it is quite common for participation to be used to improve governance among institutions and 'official' actors (mayors, representatives, managers) while effectively excluding the average citizen. Also, despite the fact that participatory planning presents itself as a virtuous governance instrument with no political 'colour' of its own, it actually represents an attempt to politicize from the top down, consisting as it does of political decisions "making processes results" (Newig and Koontz 2013); furthermore, legal regulations can be used to pressure actors to participate in public decisions (Rauschmayer et al. 2009). "If managed improperly, participatory processes may lead to inefficiencies, stabilize existing power distributions, slow decision making, foster conflicts and immobilize institutions" (Scolobig, *ibid*:98). The involvement of new stakeholders in environmental concerns in some ways spells the final loss of state power over territorial politics, having introduced the need to involve the private sector and civil society through a managerial shift from government to governance. This 'socialisation of environmental politics' (Bulkeley & Moll 2003) has ambiguous effects on economic and power unbalances in decision making processes and challenges environmentalists' demands and concerns by differentiating between 'hard' and 'soft' groups, the latter being institutionalized and co-opted. In particular, as Laessoe and Bluehdorn argue, the ultimate aim of participatory tools may be part of the "post-ecologist transformation" currently taking place. Critics understand this as a narrowing influence on policies from environmental groups, a state of affairs which differs greatly from grassroots environmentalist participation in many senses. The post-ecologist transformation involves simulating deep concern for ecological issues and green rhetoric while silently accepting profoundly unsustainable life styles (§3), a situation which entails a sense of powerlessness among citizens (Reid 2013). In this frame, "the shifting from a value-based, political engaged and socio-cultural analyses of the dynamics connected to environmental degradation, has been coopted towards a technical–functionalistic approach, based on consensus and narrowed scopes, through orientation on technical fixes" (Læssøe 2007:246). This shift has the effect of undermining the transformational potential of environmentalism (Giorgi & Redclift 2000 in Baker: 2007). Critical scholars argue that the

critique of modern capitalistic society is effectively co-opted through participation (Cooke and Kothari 2001; Swyngedouw 2005) and ecological modernization, guaranteeing at the same time non-conflict about the neoliberal market economy and a democratic ouverture on sustainable participation in territorial politics. Indeed, Campbell argues that "The collective submitted will of serving the economic mandates of the urban growth machine at all scales is in fact an advocate for the impoverished and disenfranchised urban dwellers" (2016:396). Consensus is the ultimate goal of these arrangements, and it is a vital issue in outcomes. In view of this point, all stakeholders agreeing on final decisions is not *per se* a measure of democratic processes or greater environmental benefits, especially given competing 'ideological' views on nature, the environment and ecology.

> "Bureaucrats and environment experts need 'hard facts' to legitimize their actions. Within the sustainable development discourse, to work professionally means to have certain tools to assess sustainability – tools that fit comfortably with the dominant neoclassical economic paradigm. As such, measuring as one of these tools is essential to make qualitatively different aspects comparable. It means describing the environment with economic tools, since "ecological values can be estimated with economic valuation methods which rely on the same theoretical background as microeconomics. Reductionism and standardization in these tools have severe political consequences: they typically treat society and/or the environment as a whole, not taking into account diverging interests. the process of professionalization is not technically neutral but carries deep political implications, as it is producing, reproducing, consolidating or strengthening power imbalances" (Pfeifer 2011:7).

For this reason, consensus-oriented participation can have the effect of avoiding conflict, moving towards socio-economic solutions which basically leave everything in the 'economic growth' paradigm so that there is no need to make significant socio-political and cultural changes in order to solve environmental issues (Kenis and Mathijs 2014; Buizer and Kurz 2016).

Summing up – We argue that EU politics have made an impressive effort and taken action to become an international landmark in this field, as "EU politics and policy [are now] broader in scope and authority, more deeply integrated across a larger number of countries, and greener than ever" (Selin et al. 2015:329). Nevertheless, more than

technological change it is political and social-economical frameworks that continue to play a key role in addressing most socio-ecological issues. Additionally, it is crucial that we understand what hinders participation, what and who is excluded, and how to face dissensus and disagreement., comprehending why there is an increasing need to use these participatory approaches at all (European) scales, behind regular democratic procedures. One important point is that there is no evidence participation provides better outcomes, only more legitimacy (Pellizzoni 2001). This points to a more general problem, namely the public's general distrust of institutions, an issue that goes far beyond environmental problems as such.

5. The European Water Framework Directive: same regulations, different outcomes

In the last 25 years, the concept of governance has become fundamental in discourses related to (local) government, politics and institutions. Despite its diffusion among practitioners and institutions, in the end there is no single definition of what exactly *governance* indicates: it seems to serve as a container in which new societal arrangements, actors and political procedures can be framed. There are a main elements about which there is a common understanding, namely: the broad involvement of non-governmental actors, decentralized procedures for decision making, new types of governing taking place away from central governments. "These elements are used both prescriptively – as ways to achieve good governance – and descriptively – as empirical manifestations of a changed political landscape and of the new methods by which societies are governed. Therefore, they can be invoked both as policy instruments to achieve democratic norms and as analytical concepts to describe governance" (Behagel 2012:6). Arrangements in this category are based on features such as horizontal interaction among actors (whether public or private) – mostly organized to represent categories, guaranteed access, and the accountability of processes and procedures (Schmitter 2000 in: Swyngedouw 2005).

Environmental governance, as a sub-field of *governance*, refers to the management of natural resources as non-rivalrous and non-excludable goods in a way that restricts and disciplines the use of such resources, mostly granting an economic value to the good. Environmental governance "is particularly concerned with the act of governing resources and environments, and the ensemble of organizations, institutional frameworks, norms and practices, operating across multiple spatial scales, through which such governing occurs" (McCarthy & Prudham 2004, in: Perreault 2014). Environmental governance, therefore, can be studied from different theoretical perspectives and academic disciplines to examine the institutional diversification of environmental and resource management, which is currently undergoing a shift from *government* to *governance*. Behagel and Arts (2014) argue that the WFD can be considered a paradigmatic case – in particular in the EU context – a

claim supported by the fact that it was drafted in the same period as the White Paper on Governance (EC 2001) and that it includes many of this White Paper's recommendations, thereby reflecting its normative discourse". In fact, it represents one of the most significant and prominent examples in this field: although considered highly controversial, it is still portrayed as one of the first and most ambitious pieces of environmental legislation implemented so far in Europe (Jager et al. 2016; Kaika 2003; Page and Kaika 2003).

5.1 The Water Framework Directive in three acts

Historically, the Directive follows the evolution in water legislation which took place in the EU, starting from the 'drinking water' laws of 1975 and proceeding to the 1991 'emission levels legislation'. It represented the first common frame of reference for water legislation in the EU, having had different effects and a huge impact on all the EU countries since it was declared legally binding. On a general level, we argue that the main features to have been implemented are:

a) transforming the water management approach into integrated river basins;

b) establishing ecological and chemical parameters and emission controls to protect water quality;

c) emphasizing the role of public participation – whether information, consultation or involvement – as a way of revitalizing European legitimacy among all EU countries' citizens.

We will now critically analyse these main features in order to obtain a comprehensive picture of the effect of this legislation on our case(s) study.

River basin organization – The first feature (a) of the directive is that it defines a new geographical unit to serve water resource governance, based on a 'new' scale of intervention: the river basin. It therefore creates a river basin management plan. This step was taken because many political borders do not correspond to the 'natural flow' of water.

In this paradigm, the Directive pushes member states to manage water at the hydrological level, ensuring collaboration among states to create transnational river basin districts (Antunes et al. 2009; Boeuf and Fritsch 2016).

> "The WFD planning process consists of eight steps: assessment of water status, characterization of physical and societal pressures on water bodies, designation of artificial and heavily modified water bodies, determination of water bodies at risk, revision of an existing River Basin Management Plan, adoption of a Programme of Measures to specify concrete actions, implementation of those two documents, monitoring, and review. This sequence of activities is to be repeated every six years" (Boeuf and Fritsch 2016:2).

The logical consequence of such an arrangement is an increase in the number of actors who are granted jurisdiction and responsibilities (or stripped of responsibilities) over the management of water, with associated de-politicizing effects. At a more global scale, moreover, this step has opened up space for new private/public organizations to control the water market in a global perspective (Kaika 2003; Melo Zurita et al. 2015). This increase in the number of institutions, agencies and private-public actors related to the management of water fully represents the fragmented space of power that the state has gradually slid into over the last few years and ended up accepting as the ideal way to control territorial resources, in keeping with the EU principle of 'subsidiarity'. Different analyses have shown that river basins "appear as wider arenas where complex interactions between societies and the environment take place and where the definition of a regulation regime—the sanctioned or challenged pattern of access and control over water resources—takes center stage" (Molle 2005:2). Scholars have questioned the major changes enacted by the WFD, showing that rescaling to the local level and river basin fetishism (Graefe 2011) are not necessarily the most appropriate scale of governance, as they are actually political and historically established scales (Del Moral and Do Ó 2014). The 'scale factor' has been criticized by many scholars as problematic for geographical definition in managing water. First and foremost, they question the tendency to presume that 'river basins' are 'natural scales' (and therefore immutable): in reality, critics argue that scale is always socially and politically produced, and changes over time following social practices and political reconfigurations (Guerrin, Bouleau, and Grelot 2014; Molle 2005). Scale privileges some

actors while hindering others, with the result that "scale choice in this sense becomes a technique of government, a conceptual machine for manufacturing consent while treating political struggles and power relations as mere technical problems to be resolved through the right mix of administrative policy and hydraulic infrastructure" (Perreault 2014:237).

Ecological targets – The second feature (b) of the Directive is a huge innovation: a major shift towards and greater attention to the sustainability and ecological issue, at least on a programmatic level. As we noted in the previous section (§4), the sustainability principle had already taken central stage in EU eco-politics, but the WFD represents, for the first time, a legally binding document for the protection of (superficial and groundwater) waters, the combined approach of emissions limits and standards for quality (Antunes et al. 2009) and a 'good status' target within 2015 (art.4). "Environmental protection, hardly a consideration in the first stages of industrial urbanization, now features centrally in debates about water supply and management at all levels of governance" (Kaika 2003:302). After premising that 'water is not a commercial product', the following preambles stresses the importance of ensuring water quality and preventing damage (preamble 11), along with reducing hazardous substances (22) as well as the precautionary principle[10] appearing for the first time in a piece of European environmental legislation (EC 2000). "Good surface water status as well as good groundwater status were the key objectives to be achieved by 2015. Additionally, member states are required to protect existing water bodies from deterioration. For surface waters, the assessment of the status is based on a measurement scale that rates biological and hydromorphological characteristics as high, good, moderate, poor, and bad, and chemical characteristics as good and fail. The directive thus breaks new ground by complementing chemical water quality assessments with the more general assessment of ecological quality. In particular, a surface water body is of good quality if there are only minor departures from the quality of pristine water bodies with minimal anthropogenic impact" (Boeuf and Fritsch 2016:3).

10 http://europa.eu/rapid/press-release_IP-00-96_en.htm

Nevertheless, the tool with which the EU intends to resolve issues of water quality seems to be in contrast with the opening of the Directive, i.e. the non-commercial nature of water. Indeed, the text values the "polluters' pay principle" as the best means of protecting water, through water cost pricing and monetarisation (preambles 11 and 38; art.9). This appears somehow contradictory, and explains the heated debate which took place during the writing of the text, with private (and public) entities playing a powerful role in managing/distributing water as new actors in the internationalization of the water market (Kaika 2003; Melo Zurita et al. 2015). In the end, it is not clear if water has all the rights and status of a public good/common resource (see the recent case in New Zealand[11]), or if it is to be part of the market and commodified as such.

Public Participation – A main argument stemming from the WFD is the importance of public involvement in water management and planning. The preamble and article 14 underline the importance of public involvement through information, consultation and – especially in the river basin organization – collaboration, which is considered a means to ensure successful implementation. In particular, three years later, Directive 2003/35/EC (*Public Participation in Respect of the Drawing up of Certain Plans and Programmes Relating to the Environment and Amending with Regard to Public Participation*) went on to once again stress the importance of this enlargement to involve the wider public (NGOs, organizations and single citizens) in environmental planning as part of the Århus Convention. "Engagement activities involve three components: information, consultation, and active involvement. Information requirements mainly include obligations to make status and risk assessments, background information, and maps publicly available. In terms of consultation, member states must organize three rounds of public comment during the preparation of River Basin Management Plans. Active involvement describes a more intense mode of participation and may include planning in small groups and face-to-face" (Boeuf and Fritsch 2016:2).

11 https://www.nytimes.com/2016/07/14/world/what-in-the-world/in-new-zealand-lands-and-rivers-can-be-people-legally-speaking.html?_r=0

The main point of participation – at least in this case – is to achieve the environmental objectives of the Directive, and in this sense participation constitutes a means of ensuring its successful implementation (Newig & Koontz 2013). Article 2 in particular stresses the serious importance of public consultation for enacting the legislation. At the end of the article, however, it is underlined that "Member States shall identify the public entitled to participate (...), including relevant non-governmental organisations meeting any requirements imposed under national law, such as those promoting environmental protection". This makes the issue of entitlement problematic in terms of what kind of participation is envisioned and how open it will be.

> "The tendency to substitute political action with participation is particularly strong in the decision-making process at the European level. This is partly to compensate for the difficulty of performing direct political action at the European level. The final text of the WFD itself stipulates that there must be 'active public involvement' in river basin management planning. This, however, neither guarantees a fully inclusive participatory process, nor excludes the implication of relations of social power in the ability of each actor (or stakeholder) to participate. Although the European Union asserts its commitment to involve the public in the decision-making and implementation phases of its directives, practices of participation are not institutionally defined and neither are the roles of different political actors (e.g. professional organizations, NGOs, etc.)" (Kaika 2003:303).

Basically, the scope of participation envisioned for the public involves making suggestions (to authorities) and being informed (to the public) in non-binding ways. The decision-making process must be assessed, granting participation in order to render final decisions more legitmate. It is, in a sense, a way of protecting (although without any certainty, of course) the process from the conflict and disagreement that can occur later on. It is basically a type of public involvement that aims to achieve consensus-based deliberation, taking into account the most diverse points of view (although all of them are not taken for granted) instead of dealing with power struggles. In a nutshell, it is aimed at proving that "the rational pursuit of the common good is possible, that barriers to dialogue may worsen the quality of decisions, that resistance to external power is provided by the quest for mutual understanding" (Pellizzoni 2001:69). This contrasts sharply with radical approaches

based on critical theory (Laclau, Mouffe, Ranciere, Swyngedouw, Zizek), approaches which configure political legitimacy and equality *a priori* the social, verifiable sphere.

5.2 So far so good?

The WFD was made official at the end of 2000, with EU countries being allowed to reorganize national legislation based on it until 2003. Although it is a legally binding document, there are at least two important issues related to the results of the Directive that must be taken into account. First, the document represents a binding legal act but, being a Directive, it served (and still does) more as a requirement to achieve a particular result without dictating the means through which that result should be achieved; this is in contrast to 'regulations' *strictu sensu*. Secondly, it is the product of negotiation and a (political) struggle over a long period, and it thus works as a compromise and can be differently interpreted by different member states (Kaika 2003). Considering these premises, then, it is not surprising that most of the goals and objectives of the Directive had not been achieved in the first 15 years. In 2015, the Commission released the latest report (following ones in 2007, 2009 and 2012) of special importance, given that one of the Directive's targets was to ensure a 'good ecological status' for all bodies of water in the EU within 2015. This target remains a challenge for the future, as 47% of the surface waters have yet to be considered good status and there was only a 10% increase of water bodies in these conditions between 2009 and 2015 (EC 2015; Voulvoulis et al. 2017). Two targets in particular have been highly contested for several reasons: ecological quality and the participatory processes. The first one has been interpreted in a variety of ways, with ecological variability and water types not being defined with absolute parameters in of all the EU: scholars also argue that these ambitious targets have not been met mainly due to a (deliberate) lack of specific clarity regarding how such goals should be reached (Valinia et al. 2012; Voulvoulis, Arpon, and Giakoumis 2017).

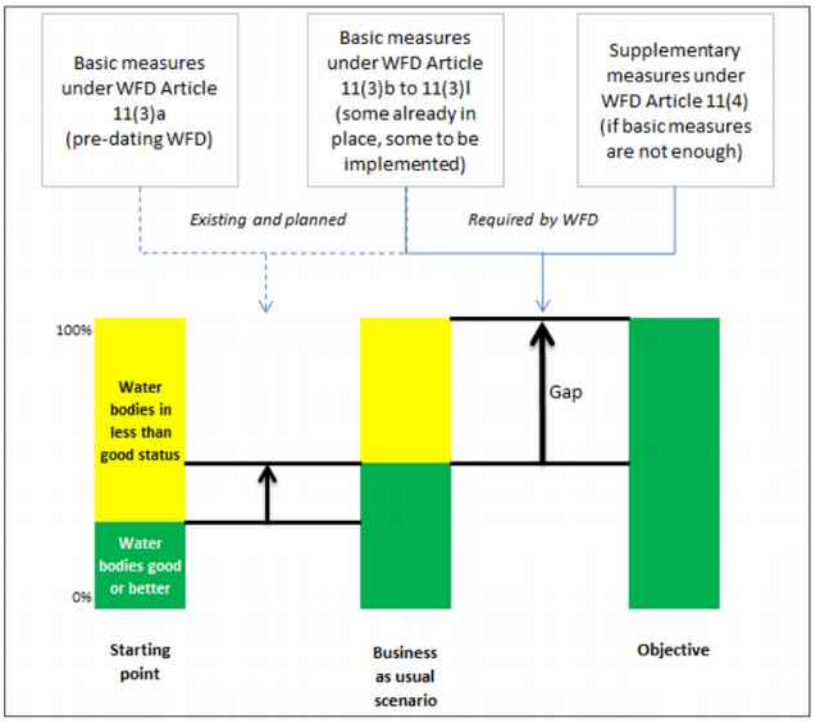

Fig. 5.1 WFD objectives to reach – Source: European Commission 2015:5

The latest report (EC 2015) presents the gap between the goal and the actual situation, outlining different issues as the reason for non-achievement. Pollution mainly stems from agricultural, industrial and household sources, and the preliminary related Directives (Nitrate, Urban Waste, Industrial Emissions) are seen as 'challenging' to implement in view of financial and planning aspects related to infrastructure and treatment systems (EC 2015:6). Moreover, there is no general agreement among states over chemical pollution and general measures, with the outcomes not specific enough. The over-abstraction of water due to urbanisation remains a significant issue affecting water-related pressures. The suggestions aim to rely fully on past Directives, using the best available technologies as well as pricing water to reduce inefficiencies, as "The lack of cost recovery, including for environmental, resource and infrastructure costs, only adds to the bill to be paid by the next generations in those areas which will face dramatic water scarcity and failing water infrastructure" (ibid:10). Recognizing that the path to ensuring 'good status' for water quality is difficult, the text states that, in the end, most of the improvements can only be achieved through compulsory measures. Addressing climate change, it argues that "water scarcity and droughts are an increasing problem in many areas of Europe, at least

seasonally, due to climate change"; in the end, however, it presents "climate and socio-economic changes such as urban sprawl and soil land use" as naturally part of a consequent logic that needs to "be factored more widely", as they will prove important in future flood risk management. Again (as shown in §4), the focus is now oriented towards dealing with and accepting major structural changes. Also, paragraph 4 reports that the Flood Directive works in tandem to solve water issues, stating that "Measures such as the reconnection of the floodplain to the river, re-meandering, and the restoration of wetlands can reduce or delay the arrival of flood peaks downstream while improving water quality and availability, preserving habitats and increasing resilience to climate change" (ibid:8). As noted by Smith et al. (2014), the WFD is supposed to dictate its objectives of ecological status or floodplain reconnection and supersede national policies (for urban planning, for instance) in order to achieve these results. However, the Directive fails to do so in two ways: by not giving precise instructions for meeting the goals, and by naturalizing certain types of territorial politics, such as sprawl generation and soil sealing. It can be deduced, then, that the recommendations are aimed at reconciling environmental and economic objectives, long term economic sustainability and the 'genuine green growth' of the EU economy (EC 2015:10).

As far as participation assessment is concerned, various collective works by scholars have shown – including through comparative analyses – how the Directive has functioned in different EU countries these in last few years. Major findings from 13 European countries (Jager et al. 2016) show that, in general, participatory processes are:

-more or less inclusive;

-information may be more or less intensive;

-power may be delegated to a greater/lesser extent and have different magnitudes of influence over final decisions.

An important general finding is that there is no evidence of a relationship between participation and environmental impact. Data showed that stakeholders were involved in 20% of decision-making process and that, often, the processes did not meet the

expectations of the environmental NGO involved in the processes (being too little and too late). "This tendency to favour more traditional practices of centralized decision-making could lead to significant barriers to the enabling of effective multi-sectorial integration and governance championed by the WFD" (Voulvoulis et al. 2017:362). Valinia et al. (2012) also demonstrated that establishing parameters and participation in the very definition of the reference would be more effective. In summary, it is argued that

> "Recognizing that public, scientific, and relevant authority definitions of reference condition are all valid, and that they are often in agreement with one another, will go a long way toward incorporating true public participation based upon deliberative democracy into the WFD. It is only through recognizing the validity of alternative reference conditions based on a combination of lay and scientific knowledge that it will be possible to align the two pillars of the WFD: good ecological status and public participation" (*ibidem*:489).

In most cases, scholars emphasize that most of the objectives of the WFD were not reached because of the Directive's extreme malleability and ambiguity, and in part because this implementation had no systemic intent. As discussed above, issues related to water must be dealt with in a systemic way so that other sectors – such as urban planning – are integrated as part of new programs and novel scenarios (Smith et al. 2014; Voulvoulis et al. 2017). Melo Zurita et al. (2015:177) suggest, for example, that the WFD should focus more

> "on broader aspirations about social and ecological goals for future water governance. We therefore declare that the WFD needs to promote a multi-dimensional definition of water that is accompanied by metrics and instruments that reflect multiple values and with equitable and just participation (i.e., beyond just environmental-focused NGOs) as a means of enabling the legitimate reconciliation of those values in nationally-appropriate contexts. The WFD would then be more effective in creating a critical space for water governance solutions to be realised."

Kaika & Page (2003) and Kaika (2003) argue more generally that better (European) environments are directly connected to more egalitarian societies and that these must be addressed together in order to avoid the so-called 'inevitable social costs' asserted by industry. Undoubtedly, this must be the goal of enhancing participatory democratic processes from the very outset.

We argue that regulating the environment through mono-practices, each one dealing with a different issue, one at a time, is a strategy doomed to failure, since it is clear that systemic connections are only resolved by working holistically. It is indeed a political choice to recognize and 'connect the dots' between water management, planning policies and limits to economic growth and the built environment. This is precisely why governance – environmental governance, in this case – is shaped by ideological preferences (Bakker2010 in: Perreault 2014) and must therefore be reframed as a bottom-up politics. Also, it might make sense to foreground physical limits on growth (Smith et al. 2014) to more effectively resolve the environmental conundrum.

5.3 Northern and Southern Europe: comparing Sweden and Portugal

In agreement with Boeuf and Fritsch (2016), we argue that comparing northern and southern EU member States can help in understanding the water-related issues surrounding environmental and participatory policies and how implementation is being carried out, thus underlining vicious and virtuous cycles. The current centripetal governance in the EU is coupled with a decentralization strategy on issues to obtain the same targets in various geographical areas while enjoying more legitimacy. The WFD – as mentioned above – casts public participation[12] as having a central role and as a requirement for river basin management. Indeed, although there is no direct link between PP and good ecological results (Valinia et al. 2012; Benson et al. 2014), PP is understood as improving decision-making processes, ensuring that new and creative/innovative options are workable and accepted by the public, as an alternative to top-down, centralized planning. In other words, PP appears to be not a goal in and of itself, rather a means of obtaining legitimacy and ensuring accountability for the public that is involved and affected. No definition of PP is specified, however, and this approach can be variously understood as 'information', 'consultation', or 'active involvement'. As many cases show, participation is often limited to accountability or information without any tangible involvement in evaluation or policing by the public (Antunes et al. 2009; Van der Heijden and Ten

12 From now on PP.

Heuvelhof 2012; Benson et al. 2014; Jager et al. 2016). In fact, it is common for governance processes to raise questions about democratic accountability and environmental justice (Rauschmayer, Paavola, and Wittmer 2009), also considering that the conflicts and social struggles surrounding water are discursively hidden (Melo Zurita et al. 2015:176). In particular, as argued by Maynard (2013:230), the "degree of participation and influence for 'non-certified' experts is often inversely proportional to the scale of the project: as project scale increases, the number of local experts becomes disproportionate to the number of scientists and intermediaries, to the point where personal exchange of knowledge becomes unfeasible". The main goals for providing new information to public and creating better institutional arrangements among institutional actors have been met, but on the other side there has been a lack of holistic and integrated, systemic management of land and water to include all actors in addressing socio-environmental issues.

The case of Sweden – Traditionally, the central state in Sweden has been the regulatory authority for waters and municipalities, with these latter the main units that dominate in both land and water planning (Hammer et al. 2011). Hence, with the implementation of the WFD – as for most of EU countries – the greatest changes involved the new management of water issues by the river basin rather than by the county or municipality[13]. Sweden has thus been divided into five river basin districts; each river basin district is administered by a Water Authority, which, in the Swedish system, is identified as one of the county administrative boards in the area. Each Water Authority is responsible for developing water management plans and related measures for its river basin area (Keskitalo 2015). A Water Authority, responsible for putting the regulations into practice, has been appointed for each district, and five water boards with experts appointed by the government have decision-making authority. The practical planning tasks, however, are mainly carried out by drafting committees within the regional county administrations (about 20 in number), which are generally hosted by the environmental offices (Hedelin and Lindh 2008).

13 290 in total.

As ours was a secondary analysis, we mainly collected information from scholars which revealed the following issues surrounding WFD implementation and relative participatory arrangements:

– overlapping of roles and competences between the national and municipal scales;

– problem of accountability (who does what);

– issues for ecological targets.

Keskitalo's research underlines that, although the WFD had a positive impact in terms of focusing attention on water issues, "political control either at national or lower levels—e.g., in providing advice on how to balance conflicting interests – had been limited and that most of the work with developing the implementation process for the WFD had fallen to civil servants" (2015:2207). The roles of different actors were not clear and the question of to whom responsibilities and funding are to be assigned has likewise been unclear; furthermore, the consultation process has limitations in that the documents have been too complex to properly involve local citizens. Hedelin and Lindh (2008) focus on showing how cooperation between municipalities (which make master plans) and new water authorities (post-WFD)has been critical given that local actors at the municipal level and on water councils outlined unclear roles and responsibilities. Also, it seems that planners do not perceive water planning as political. "If the work had been perceived as political, it would have been natural to engage seriously in the task of making the participatory efforts democratically" (ibid:340). As for other processes, consensus decisions are preferred as a way of avoiding conflict despite the political nature of (water) planning and democratic involvement in such processes, i.e. handling power imbalances and values or the apolitical character of planning. "In consequence, the main objectives behind participation – contributing new knowledge and perspectives to the process and the creation of legitimacy, acceptance or engagement – are actually at risk" (ibid:342). More recently, in relation to participatory approaches, "there are no systematic activities to identify those actors that are most affected by the decisions undertaken, and no concrete plans to involve local actors other than the municipalities. Issues of handling power imbalances or stakeholder learning are not covered" (Hedelin 2016:159-160). This speaks more generally to a common trend

in which the knowledge and perspectives that are the province of experts represent the main reference, preferred over local knowledge and the perspectives of local actors. Lundmark and Jonsson (2014), in their study on the Lule River Basin, also point out at that stakeholder involvement is central in both the WFD and Swedish legislation. Nevertheless, their study shows that institutions have reported difficulties in involving the public and are puzzled about strategies to engage the public[14]; indeed, this is a common trend in other European contexts as well. Even if the public is primarily expected to contribute with its knowledge, therefore, Water Council meetings and consultation processes have lacked a formal channel for influence and "representatives from the general public and small-scale enterprises seldom contribute to on-going water management with their experiences and understandings" (ibid:171). Franzén, Hammer, and Balfors (2015) instead pointed out the role of integrating central and regional strategies: these different strategies are often not well-linked due to unclear or weak legislative hierarchies or to the fact that a clear leadership in driving processes to meet specific goals is essential. They argue that "new institutions for the implementation of the WFD are necessary since old institutions in place might not be appropriate for the new requirements on stakeholder participation" (ibid:218). In particular, there has not been effective empowerment in the rescaling of water management, since actors such as water associations have not gained legitimacy in planning decisions, political power or a role in decision-making. They propose, in fact, that to pursue a long-term strategy for meeting water quality goals, municipalities need to take an active role in water councils. In our view, it is important to note that the research we conducted also found that coordination between the supra-regional and municipal levels represents a major issue when it comes to land use planning and water planning. This also appears to be a key issue among EU countries, as well as in Sweden (Carter 2007).

Integrated environmental management including both water planning and land use planning carried out at the municipal level is threatened by the WFD. Andersson, Petersson, and Jarsjö (2012) reported that, in their case of the Oxunda Catchment, conflict between the scientific and the socio-economical perspective represents a confrontation

14 "How do we get people to come to our meetings? Should we advertise more, knock on doors, or have meetings on the afternoons instead of evenings?" (ibid:167).

between current legislation based on environmental conservation and exploitation, i.e. between the "environment" paradigm and the "planning" paradigm. Their conclusion is that

> "effective collaboration between authorities and municipalities may prevent severe system malfunction such as dual systems of water management. Such effective collaboration could also potentially mitigate the effects of problems (…) regarding low accountability and the legitimacy of WFD-regulations implemented in Sweden, caused by unclear formal relationships between the supra-regional and municipal levels. The results of the present study also showed that municipal-level employees expressed concerns regarding the lack of financial support. Considering the relatively ambitious goals of the WFD, it is likely that many measures to improve water quality would need to be taken at the local level, at least in regions where both agriculture and urban development causes eutrophication and other pollution problems in inland waters, as in the considered study area" (ibid:80).

Regarding environmental quality standards, scholars also report a lack of precise definitions and issues with interpretation, as extensively documented by Voulvoulis, Arpon, and Giakoumis (2017). In the case of Sweden, many have argued that reference parameters were not clear (Valinia et al. 2012); Hammer et al. (2011) also argued that several of the municipalities were not sure how to classify the status of water bodies, lacking a shared normative document. As others have mentioned, there is also a lack of clear roles, responsibilities, financial resources, and other forms of support for municipalities and water councils as well as many uncertainties regarding appropriate forms and roles for participation, as well as the use and transfer of knowledge from local levels.

In general, the fragmentary management of water based on single components (tackling separately land, water, forestry) and a techno-economic approach also constitute major issues. Hence, most of the scholars call for efforts to be focused on a more eco-systemic approach based on holistic and integrated systems management of land and water.

The case of Portugal – When the WFD *(Directiva Quadro da Água)* was implemented in Portugal in 2005, it provided a useful justification to introduce long-desired basin authorities. Since the mid-1980s, in fact, the organization of water governance had changed

with every new government. As Thiel (2015) explains, water laws were considered fragmented and malfunctioning, and administrations were criticized for a lack of transparency and insufficient horizontal coordination between sectors. Water governance was thus re-oriented for the whole country, shifting from a successful territorial approach based on sanitation for urban populations to a basin-focussed scheme aimed at achieving "good" ecological status for surface waters. The state was required to implement the WFD's river basin plans to avoid penalties: since 2005, "formal decision making on allocation of responsibilities for water management [has been] organized as a regular legislative process where all Ministries are consulted" (ibid: 179). Despite the new arrangements stemming from the WFD, after 2010 powers and responsibilities over the newly created water districts were recentralized as a consequence of the economic crisis. Del Moral and Do Ó (2014) argue that this re-centralization process reflects the will to retain national control over transboundary water resources, showing that "spatial reconfiguration of water management can substantially reorder power constellations, and that (…) spatial fit, like river-basin management in general, should not be seen as a panacea for environmental problems (Ostrom et al., 2007) but as a practice of adaptive (co)management, involving a wide range of relevant stakeholders operating in different spatial contexts and scales" (p. 343). An EEA (2014) collection of case studies focused on participatory water management proves very useful in this regard. Such participation activities were organized in Portugal between 2009 and 2012. The main issues have been PP access, conflicts of interests and access to relevant information and decision-making process. Most events were not perceived as successful, since relatively few members of the public participated in the events, and activities attracted fewer participants than expected: it appears that these events focus more on disseminating information than on encouraging participation in decisions. "One of the main barriers to increasing the involvement of members of the public is the use of highly technical language, which makes it difficult for non-experts to engage with the issues. At higher levels, the detailed approach and technical nature of discussions may be difficult for many members of the public to follow. [participants] said that meetings were often quite technical, even though there were attendants from non-technical backgrounds" (ibid:24). Workshops were coordinated by

professional facilitators, who encountered heated debates and conflicts between, for example, environmental values and economic interests such as those in agriculture and industry concerned with the functional services provided by water[15]. In most of the case studies, final decisions were not made in participatory meetings and forums: written comments provided input which was accepted by the participants as a form of decision-making process. Although PP functioned to discuss a range of topics – such as themes not specifically covered by the workshop – these methods did not address an important issue related to the development of new, large hydropower plants.

As argued by Carvalho, Pinto-Coelho, and Seixas (2016), PP in Portugal in similar cases

> "was discursively managed to justify the decision of constructing 10 large dams and to reject critical or alternative views. Together with the social and political conditions that surrounded the process, discursive manoeuvres regarding the problem definition, the definition of the scope of the agenda and the reconstitution of participants' submissions(...) turned public participation into a meaningless practice whereby official authorities appeared to listen to citizens but just enacted their power and authority" (p. 15).

In this sense, when conflicting interests of an economic nature are at stake, it seems that proponents excluded citizens from decisions, constructing highly unequal power and knowledge relations between proponents and participating citizens and not empowering individuals and groups located outside the existing circles of power. Ioris (2008) reported in his case studies on the Douro river basin that most of participants in participatory meetings were civil servants (60%), thus leaving out the majority of people affected by water management decisions (p. 352); in other words, participation appears significantly limited due to the pattern of interest-group power. The case studies show that "degradation happened because of the intensification of electricity, industry and irrigation promoted in the second half of the 20th century to fulfil specific economic goals. In other words, the underlying reasoning is one that abstractly equates human interference with environmental disruption, without sufficiently taking into account the historico-geographic circumstances of local problems and potential management responses" (ibid:353). In recent, updated research on the Douro river, Ioris (2015) again stresses technical and economic efficiency

15 Largest water consumer in Portugal is represented by agriculture: almost 80%, 9% industrial use, 7% urban use and 4% other uses.

as the most emphasized aspects of WFD implementation so far, with this implementation portrayed as a consensual and politically neutral objective.

> "...[R]egular clashes between stakeholders and public authorities ended up giving the impression to the general public that the 'WFD moment' is ultimately about the calculation of monetary costs and the application of bulk water charges, rather than about expanding the agenda of environmental conservation and removing sociopolitical asymmetries related to the allocation and use of water. For most of the local population, the public image of new water management regime has been dominated by business expressions and the related commodification of water resources. The perception is that the water commodification advanced by the WFD underpins the neoliberalising strategies adopted by the Portuguese government, such as the privatisation of water utilities" (p. 322).

In this regard, scholars argue that local knowledge about and understanding of hydrological system is being rapidly lost in the name of techno-managerial efficiency. Sharing such issues only among elected, official stakeholders is a way of ing the more time-consuming steps set out by the new regulation, in particular public participation, information-sharing and environmental education. Notwithstanding legal and discursive improvements, political pressures to maximize economic outcomes and minimize investment in social equity and environmental conservation give rise to water problems (ibid:326).

In the case of the Alviela river as well[16], Fernandes (2004)show how no political party had the courage to propose any structural measure for the river basin vis-a-vis economic interests in the further development of "savage capitalism" (p. 103). As only global intervention on Alviela's water quality could subvert the situation, e.g. proposing alternative models of development, in the end a process of economic and social marginalization continues to afflict local municipalities.

Similar arrangements also occurred in other national areas even following WFD regulations, as shown by Teiga, Pedroso, and da Silva (2007) in the case of Ribeira da Barcarena, in the Tagus catchment, where weak public participation[17] failed to help improve the quality of the river basin as hoped in the masterplan. Antunes et al. (2009) also

16 The emergence of pollution in the Alviela River was marked by power plants and tannery industry, causing its transformation into an open-air sewer.

17 They reported an average of 10 participants per activity.

confirmed "the need to test other platforms and tools to promote participation and deliberation in the context of the WFD implementation process and to meet the requirement arising from water policy developments" (p. 934), determining in advance what the goal of PP might actually consist of (education, reaching consensus, innovation, specific policy actions or space for conflict to play out).

More recently, in their study about the Hydrographic Region Councils' taxation[18], Ribeiro et al. (2014) reported that PP in the Algarve and Alentejo regions mainly addressed local politicians and the representatives of economic activities, lacking important stakeholders such as farmers, fruit growers, and aquatic farmers. In this case, citizen participation did not empower the public and, in fact, it did not have any influence on the final setting of the tax rate.

Conclusions of the section – At this point it is possible to sketch some general conclusions. The WFD is based on the assumption that river-basin governance should facilitate the management and participation of water users at a local scale, where uses and conflicts are supposedly grounded (Bobbio 2006; Guerrin, Bouleau, and Grelot 2014; Thiel 2015). It has been demonstrated, however, that this type of governance can "promote fragmentation rather than interconnection, and [does] not necessarily facilitate a bottom-up, multi-layered and multi-scalar approach" (Del Moral and Do Ó 2014:337). Concerning PP, Valinia et al. 2012 argue that "The WFD lacks clear indications about how, who and when public participation ought to be used; public participation by itself is not a goal of the WFD, rather a process that should be implemented; public involvement is encouraged only in the implementation phase in the WFD, not in the goal setting or planning stages". Both water management and PP thus continue to be highly politicized matters, as they are heavily dependent on the political will of the authorities involved. Regarding PP in particular, on the basis of our main findings we argue that

18 The case study refers to the definition and implementation of the Water Resources Tax (TRH), one of the main legal instruments for the political and institutional reform of water management in Portugal (Decree-Law 97/2008)

– participatory arrangements can work efficiently in focussing renewed attention on water issues, especially in terms of enhancing horizontal links between institutional actors in addressing multi-layered territorial issues;

– they work as catalysts for stimulating information, dissemination and interest about river-related issues, including by working materially (in certain cases) through 'field-activities' (cleansing, restyle) for water bodies;

– local stakeholders from civic society are often left out of decision-making processes, especially the ones more closely related to local issues;

– even when PP is initiated, it does not create much interest or motivation among citizens, as few attendees actually show up.

In this general framework, we can say that for both cases (Sweden and Portugal) the common issues have been:

1) local VS supranational planning systems (municipalities' regulations VS River Basin organization);

2) water and land planning issues are most often not tackled as a common, inter-related matter;

3) there is a lack of a more interdisciplinary and holistic view on environmental issues which would potentially lead to regulations and legally binding documents (such as the WFD) in which information is co-created by all the actors at the local level (especially those who are going to be affected the most).

According to this perspective, as suggested by Araújo et al. (2015), actions should be taken to address land use, pollution control, and the availability and use of water resources in urban and rural areas. The case of Sweden clearly introduces the issue of conflict between an environmental paradigm and a planning paradigm (Andersson et al. 2012). In the case of the WFD, systemic thinking (Voulvoulis, Arpon, and Giakoumis 2017) should in fact be a backbone for a new perspective based on 'systemic legislation', in which supra-national directives based on interdisciplinarity and structural changes can develop new policies,

moving beyond water-centric perspectives (de Loë and Patterson 2017). Nevertheless, EU legislations – even if they are legally binding – seem to leave little room for moving towards broader political–ecological frameworks in which such issues would be addressed.

6. Water and the city: the socio-ecological production of urbanity in Milan

> "Nine tenths of that land, therefore, is not the work of nature; it is the work of our hands; it is an artificial home" – Cattaneo, *Industria e morale*, in *Opere scelte*, 2° vol., 1841: p. 472[19]

> "The map of our city greatly resembles the section of a tree; the protuberances and concentric layers are quite evident. It is a very rational map that has an example in nature: all that has been done, therefore, is to grant it a greater scope" – Beruto [1884] in: AAVV, 1992: pp. 227-238[20]

> "It is not the tropics with their luxuriant vegetation, but the temperate zone, that is the mother-country of capital. It is not the mere fertility of the soil, but the differentiation of the soil, the variety of its natural products, the changes of the seasons, which form the physical basis for the social division of labour, and which, by changes in the natural surroundings, spur man on to the multiplication of his wants, his capabilities, his means and modes of labour. It is the necessity of bringing a natural force under the control of society, of economising, of appropriating or subduing it on a large scale by the work of man's hand, that first plays the decisive part in the history of industry. Examples are, the irrigation works in Egypt, Lombardy..." – Marx, 2008 [1867]: p.362

Introduction – In this chapter we deploy the concept of 'urbanisation of nature' (§3), i.e. the historically and geographically situated, dialectical process of attracting, expelling and recasting nature (in this case, water) to sustain certain types of spatial configurations and urban forms. For this purpose I mobilize concepts from critical urban geography which have been developed to reconnect materiality, i.e. the importance of nature, metabolic flows and the circulatory network in the fabric of the urban process (Angelo and Wachsmuth 2015; Arboleda 2015; Heynen, Kaika, and Swyngedouw 2006; Kaika 2005; Swyngedouw, Kaïka, and Castro 2002; Kaika and Swyngedouw 2000; Keil, 2003). The aim of this chapter, therefore, is to uncover the modes and purposes of the perpetual process of socio-ecological change (Kaika 2005) in the area of Milan. The 'domestication' of water through technological networks (pipes, canals, damns) is the manner by which urbanity is

19 "Quella terra adunque per nove decimi non è opera della natura; è opera delle nostre mani; è una patria artificiale".

20 "La pianta della nostra città, in piccola scala, presenta molta somiglianza colla sezione di un albero; vi si notano assai bene i prolungamenti e gli strati concentrici. È una pianta assai razionale che ha esempio nella natura: non si è fatto quindi che darle la voluta maggiore estensione"

maintained through a process of de-socializing practices from nature, keeping it under control both inside and outside the city.

In the case of Milan, the relational process of water is fragmented into different eras, as it has undergone a process of attracting (collecting), expelling and recasting water (La Montagna 2010). Our main aim is to foreground the political nature of the urbanizing process, underlining who, how and why certain configurations and metabolic vehicles are maintained (or changed) and for what purposes. As this chapter shows, the configuration of aquatic pathways, and in particular that of the Seveso river inside and outside the city of Milan, is the result of hundreds years of societal adaptation to water use (wells, drains, canals), and its recursive effects on society (floods, pollution). "The process reveals an inherently conflict-ridden nature of the process of socio-environmental change and teases out the inevitable conflicts (or the displacements thereof) that infuse socio-environmental change" (Swyngedouw, 2009:57). The resulting effect has been to de-localize environmental issues outside of the city, to other actors and places, which also creates a sort of parasite relationship between the city and its rural surroundings (Kelly-Reif and Wing 2016). As this chapter will show, as early as the middle ages water-related issues and hydraulic work have been carried out to boost economic trade and create profits for the upper classes that handled regulatory processes of water distribution, making it into a major economic investment. Water has also been enrolled in a process of material representation in the pursuit of social dreams and fantasies, enacted by different social actors (Kaika 2005; Swyngedouw 2015) at the expenses of peripheral areas and the lower social classes.

6.1 Attracting waters

Ancient configurations – The Gaul-Insubrian foundation of the city of Milan consisted of a small village settled around 400 B.C. in the area of today's modern city. The pre-Roman city had a single river that was directly linked to the settlement – what the later Romans called *Nirone* – and a resurgence, the *Molia*. The first used to flow through todays' city centre while the second collected the waters of the northern ditches, with both flowing towards the southern plain. The three main rivers – Lambro, Seveso and Olona – ran into

their natural valleys: the Lambro and the Olona more peripherally, while the Seveso was closer to the core of the village. As Milan was at the centre of the resurgences (fresh water springs) of the Adda and Ticino rivers, the territory was very rich in water. In order to practice agriculture in swamps and marshes, the first inhabitants had to regulate water flow through drainage and canalisation, and these practices overlapped over time, leaving no trace or memory in the present area. In 222 B.C. the Romans took control of the most important town of Celtic-Insubres, (renaming it) *Mediolanum*. Experts in hydraulic techniques, the Romans built cities which were intensely water-consumptive: with their precise and squared systems, they were able to extensively drain the waters from the north-west for irrigating the south-east plains. They created an impressive network of ditches, canals and water springs which remained the most distinguished character of the city of Milan throughout history. Natural hydrography was no longer a hurdle to overcome, the and socio-natural arrangements of territories began to be shaped by both natural and human features. The most common feature of Roman territorial organization was the *centuriation*, that is, the process of reclaiming and reorganising agricultural land by subdividing it into regular plots (measuring about 710 metres on each side), delimited by right angles. The grid drawn by ditches, canals, hedges, walls and paths was the basis for intense exploitation of the land. This particular type of hydro-scape reflected productive processes, urban schemes and political aspirations: the mountain area yielded stone, wood, and all the products of sheep-farming while, in the valleys, oak forests favoured pig-farming and the consequent production of meat (Fontemaggi and Piolanti 2009). By the end of the imperial age (V sec. AD), the Romans had already diverted the river Olona and channelled the Vettabbia – used as a *cloaca maxima* – which flowed through the city, bringing dirty water into the southern river of Lambro[21]. As the city grew bigger and spread out into the surrounding territories, the work of the engineers during the Republican Age served to bring the Seveso river into the city through a canal called *Grande Sevese*, supplying the Erculean SPA located in the city centre (D'Arzago 1942). The legacy of this work of canalization can still be seen today: it still flows inside the 'belly' of the city, carrying invisible waste waters towards the southern areas of the city (Lapini 2004). This entire

21 In fact, this was called *Lambro merdario*.

intricate, elaborate hydro-social system fell in decay during the late medieval period, with drainage systems, irrigated fields and cultivation giving way to scrub and swamps. The only fruitful activities were carried out by the monks of Chiaravalle Monastery (currently Rural Park South Milan), where they developed new agricultural techniques, wool production and marsh cultivation during the Middle Ages.

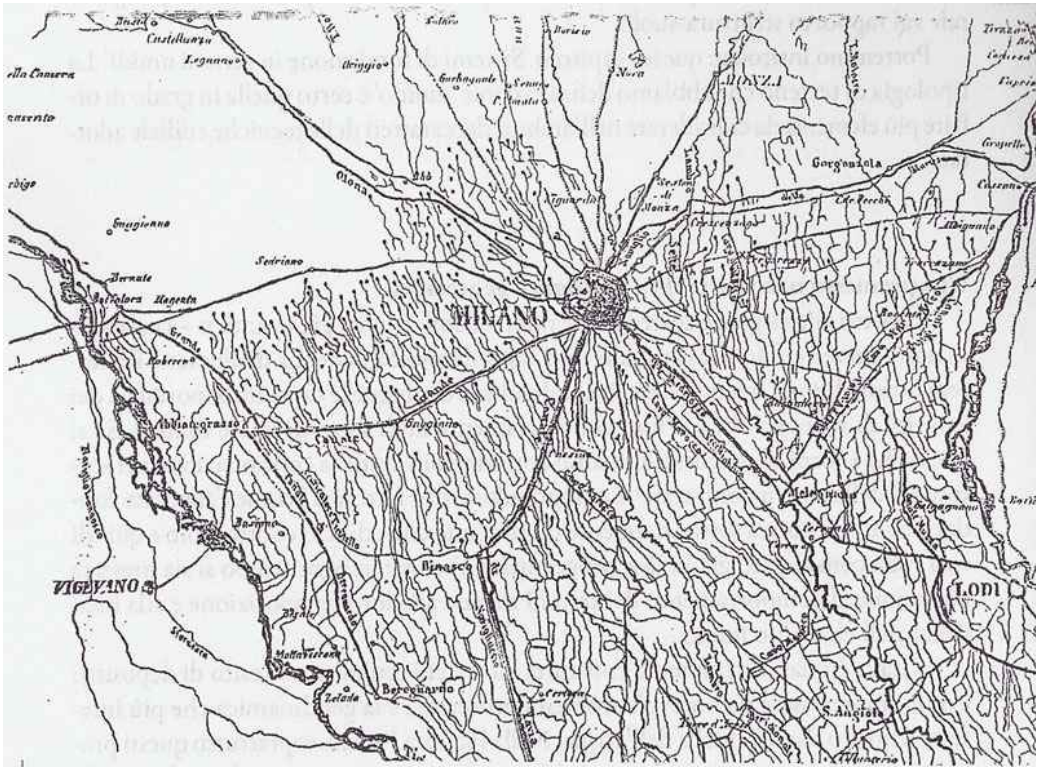

Fig. 6.1 Map of Milan and its waters (Source: Bruschetti, 1836)

Urbanizing waters – During the first half of the XI century, the city of Milan expanded beyond the Roman walls for the first time. The new circular moat was created by diverting the Olona and Seveso river to form a protective ring around the city walls (Casaroli 2010). A rich industry based on mills and armament flourished around the 'cerchia dei navigli', the ring of canals surrounding the city walls. In order to discourage incursions, the mayor *podestà* Beno de' Gozzadini began to build the Naviglio Grande (Ticinello), a result of canalizing the Olona river; these substantial economic efforts were made despite the fact that city was still suffering from previous moments of economic scarcity. With this aim,

Gozzadini's fiscal reformation and enormous investments in the building of the Ticinello canal eventually triggered violent clashes between the local population and the nobility, with the latter forced to leave the city, clashes that ended with the public slaughter of Gozzadini in 1257 (Casaroli 2010; Gusmaroli 2011). The canal became a fundamental waterway for commercial purposes, constituting a driving resource for irrigating the countryside and boosting agricultural productivity and profit. It also caused major conflicts among the people, mainly between landlords and farmers, due to the water subdivisions involved in regulatory processes[22]: in fact, the use of water had become a huge economic investment for the new practice of raising rice and mulberry[23]. Nonetheless, as in Roman times the right to the free passage of water was still considered a priority for meeting public needs, even if this meant 'sacrificing' private property rights (Giovanetti 1873). By the end of 1300s, the Visconti seigniory was in charge of the Duchy and carrying out an aggressive expansionist policy. It was necessary to display power through the materiality of architectural work as well: the Duomo was built to be the biggest and most majestic architectural work in Europe, as a message of new empowerment directed at the other European States. In 1386, the construction of this cathedral was mainly made possible by the construction of the Naviglio Grande, which allowed workers to transport marble, wood, stone and gravel from Maggiore Lake (about 100 km north of Milan). This particular type of marble, found in Candoglia, Verbania, was made exempt from taxation (*ad usum fabricae*) during boat transportation: this constituted Gian Galeazzo Visconti's main fiscal reform to speed up the construction process. In order for barges carrying construction materials to arrive all the way to the building site, the lake Santo Stefano (*Laghetto*) was created close to the Cathedral site, becoming a new harbour for the city. From that point on, it became possible to navigate the city wall pits for the first time[24].

22 In 1296 AD controversies over water rights were countless, with 14 jurists called in to settle disputes.

23 The Torriani family in particular, in the southern part of the city, clearly expressed their status as the new masters of Milan by diverting the Ticinello into their lands.

24 Eventually the Naviglio Martesana linked the two main rivers on each side of the city: the Ticino and the Adda

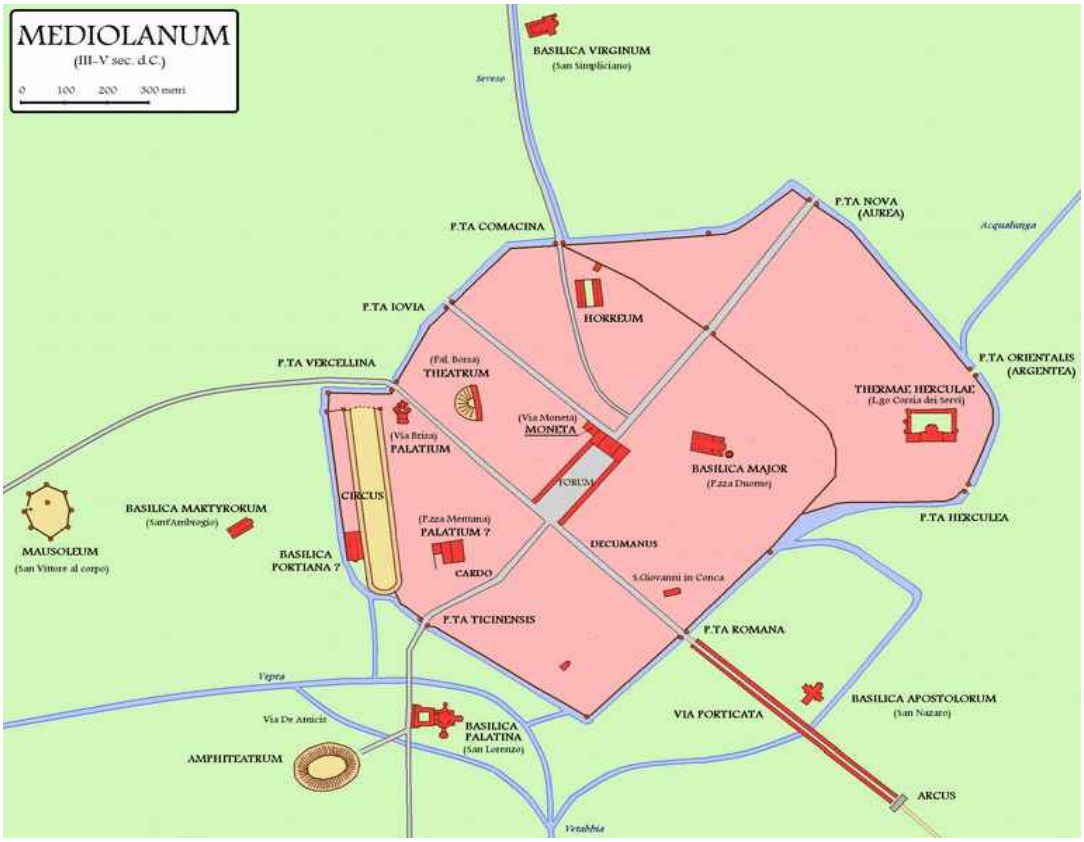

Fig 6.2 "Roman Milan", source: wikipedia, CC

Conflicted canals – At the peak of Visconti's power, the Martesana canal represented an extraordinary project. It was constructed mainly on request of the noble Milanese families, who asked for the Adda river's waters to be diverted to irrigate and power windmills. Furthermore, Sforza also knew that a canal could be an important military and economic asset to be used for navigation (connecting the Ticino with the Adda) in a border area at high risk of conflict[25]. The first stretch was built up to the conjunction with the Seveso river (called *Cassina de pomm*) and, in 1496, during the reign of Lodovico il Moro, the second stretch reached as far as the internal moat. Most of the pressure for its construction was borne by local lords and notables, who were aware of the tremendous advantages it would mean for their lands and hamlets if used as landings: in fact, the canal's highly winding path must be considered a political choice rather than a technical one (Bignami 1868; Bruschetti 1842). Major conflicts also occurred among landowners, most often

25 The last war with Venice was concluded with the Peace of Lodi treaty in 1454

ecclesiastical institutions or local monasteries, as there was an ever-growing need for building materials: this demand had the effect of boosting the local economy with new brickworks, clay quarries, river conglomerates (*ceppo dell'Adda*) and timber from local forests. In 1497, the powerful Abbey of Chiaravalle brought legal action against the Duchy to gain priority in using waters for irrigation; in fact, the canal had a double use, as both waterway and water provider. The main conflict related to the use of the canal often pitted the city of Milan, interested in using the canal for economic purposes, against the countryside, which saw the canal as the main source of water for its crops. Many smaller, secondary canals had been built and could be rented out to others (*ragione d'acqua*): water, in fact, represented a main source of taxation for filling national coffers that had been drained by war expenditures. Throughout the mid-1500s, an excessive use of water rendered the Martesana non-navigable. Francesco Sforza responded by demolishing several hydraulic structures to refill the canal and in 1570 the new Spanish authorities prohibited water extraction for two days out of the week. The result was the creation of the *Generalis Commissarius super ordinariis Navigi Martexane*, an institution tasked with resolving such disputes between actors and economic interests over land (Osio 1872; Tangari 1998). Leonardo Da Vinci's having been brought in by the Sforza family in that period also opened up further prospects for creating new waterways: it rekindled the dream of connecting the city directly to lake of Como, an achievement which, for one reason or another, did not take place until two centuries later. Subsequently, Governor Fuentes hired the engineer Giuseppe Meda to build a new canal which would connect Milan to Pavia: the Naviglio Pavese[26]. Although construction did not take place until the late 1700s, for many years the Martesana, Paderno and Navigli canals represented the logistics highways of Milan, bringing fresh foodstuffs, fodder, straw, wine, grain, construction materials, bricks and sand into the city. The city, on the other hand, exported yarns, fabrics and items crafted in many of the city's local workshops.

26 In celebrating the king of Spain and himself as creators of such a great work, he put a stone plaque before the end of the construction, anticipating this ritual as a political announcement (see Bruschetti 1842:62).

Fig. 6.3 – Giuseppe Barbaglia: "Il Naviglio presso il Ponte delle Gabelle"

The last canals – Under Austrian rule, the new rational principles of the Enlightenment influenced the landscape of the city. Milan was required to supply the building materials needed for renovation (iron, marble, more timber and coal). From this point on, a river of stones poured into the city through the new Naviglio di Paderno, making it possible to pave most of the streets. And yet many accounts also report a frequent problem connected to waterways: Gio Bernardoni, in his report (1819) on the Redefosso canal, illustrates the frequent floods that occurred in the conjuncture between the Seveso and Martesana channel, in the area of Porta Romana, Porta Vittoria and Porta Lodovica[27]. Already by that time many *rogge* (small drains) were misguidedly added to the waters of the canals. All the water users, seeing their lands often flooded, were more likely to put their political trust in the party that protected their property. Moreover, despite its high cost, the best solution would be to build a new canal – namely, the Redefossi– to collect the water from these areas and carry it to the southern area of San Giuliano Milanese. Most importantly, before the construction of the canal, all the people who had been struck by previous flooding were

27 Same thing happened with the Lambro river: in both cases they are described to get worse year after year

addressed by the local government – regardless of their social and economic status – as stakeholders "in order to define and regulate everything regarding the project and its costs, upon a well-shared system based on principles of equity and simplicity" (ibidem, p. 10). Later, in 1868, in his book 'I canali di Milano' (1868) Emilio Bignami reports the intricate state of water management, with a variegated and dispersed system of responsibility over urban waters (p.66):

> "Now among us, instead of the districts, we have so many moral bodies, which interfere the channels, but which act independently of each other, guided by their exclusive interests rather than a common guiding principle. These are the State, The Province and the City of Milan, the Town Hall of the Holy Body, the Congregation of the inner Church, the Seveso Canal Congregation, the Utenza of Vettabbia, the Utenza of Naviglio and so on. - An interest should be common to everyone: the public and public hygiene. It is therefore a matter of finding a way in which they are subordinated to rational and common measures, without taking away special interests"[28]

In his memoire (pp. 77-88)[29] written during the construction of the Redefossi canal, Bignami describes the conflict over the costs of building the Redefossi canal. It was not only the local landlords that had to pay for it; since it represented "a public work,"

> "...there is ever more confirmation of the obligation of the National Office to contribute by taking on an adequate proportion the burden of the significant expense involved, since in the current system the public expenses of each Department are charged to the Tax Administration by virtue of those principles of equality, and of perfect universal communion, which form the fundamental basis of democratic governments" (p.88)[30]

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28 "Ora fra noi, invece dei distretti, abbiamo non meno di altrettanti corpi morali, i quali hanno ingerenza nei canali, ma i quali agiscono fra loro independenti guidati dal loro esclusivo interesse piuttosto che da un comune principio direttivo.— Tali sono lo Stato, la Provincia e la città di Milano, il Municipio dei Corpi Santi, la Congregazione della fessa interna, la Congregazione dei Canali Seveso, l'Utenza di Vetabbia, l'Utenza del Naviglio moi'to e via via. — Pure vi ha un interesse che dovrebbe essere comune a tutti, quello pubblico e della pubblica igiene. Si tratta dunque di trovare il modo col quale, senza togliere affatto di mezzo gli interessi speciali, siano tuttavia subordinati a misure razionali e comuni".

29 He also proves the Redefossi to be the 'natural' prosecution of the Martesana (and Vettabbia) canal in the Seveso river bed and that the new buildings have had an effect on flooding both on the city and in the countrysides' lands.

30 "... sempre più conferma l'obbligo inerente all'Erario Nazionale di dovere concorrere a sostenere con un' adequata proporzione il carico della occorsa rilevante spesa, posto che nell'attuale sistema vengono ad essere accollate allo stesso Erario le pubbliche spese di ciascun Dipartimento, in forza di quei principi di eguaglianza, e di perfetta comunione universale, che formano la base fondamentale dei Governi democratici"

The engineer Pietro Parea ended up resolving this issue by planning a canal that traced a path to Melegnano, in the south of Milan. In this case, using a cost-benefit analysis, the Austrian government decided to spend one million lire on it, since the costs of any single instance of flood damage were to be considered much higher, if added together[31]. As a matter of fact, the cleaning of urban waters was already part of a process that had been initiated by the end of 1600.

Fig. 6.4 – Port in Milan's city-centre, used for discharging materials to build the Duomo. 1845. Drawing by W. Leitch, engraving by T. Higham; source Wikimedia

6.2 Expelling water

Neoclassicism – The neoclassical transformation of the city took place with the construction of sumptuous villas, gardens full of fountains and fresh fruit and, above all,

31 Nevertheless, the canal was buried in the early 1930s as part of a general urban sanitation policy that was implemented in all major European cities

thousands of small streams drawn from the waters of the Navigli. These noble dwellings were located in the northern part of the city, where the canal water was still fresh and clean. In the south-eastern area of the city (Ticinese, Lodovica) were the "popular neighbourhoods", where water instead represented a "means for working". This transformation also required that the water flowing in the streets be eliminated: it had to be kept out of sight and concealed[32]; today, this water still takes the form of a mysterious network of channels which go mostly overlooked because they are effectively invisible, like a "dark world" that must exist to make possible our visible one (Kaika 2005). It is interesting to note that water inside private houses represented a status symbol of the upper class, as it was used to embellish private space. Public space, in contrast, was adverse to water and reluctant to engage with it: the sanitation of the city started with the aim of covering all the waterways from *Laghetto Santo Stefano* to the Navigli, in 1930. Sanitation work had to be kept 'hidden' as well: as Lapini (2004) notes, the 'navazzari' (from 'navazze' or waste containers), the workers in charge of cleaning domestic waste from the streets, are very rarely mentioned in historical accounts. In view of this silence, the 1791 poem 'La salubrità dell'aria' (the salubrity of the air) represents as an important document. The poet, expressing distaste for city's smells and the appalling stench caused by the accumulation of sewage, depicts the conditions of Milan's urban/peri-urban environment at that time[33]. From this account it is possible to identify three main themes:

– the cultivation of 'marcite' (a water-meadow containing sewage water) as a technique that proved highly profitable for landlords for cultivating rice and forage in constantly flooded fields, but which also caused unhealthy off-gassing and spread mosquitoes and malaria beyond the urban area;

–atmospheric poisoning, exacerbated by the collection of organic waste (manure, carcasses) transported by uncovered wagons, with no legislative requirements for disposal;

– the poor sanitary conditions of the city, responsible for the terrible health conditions of local farmers and the high incidence of malaria deaths in this population.

32 Most of the channels in the city centre had already been buried by the end of 1600 together with the moat surrounding the Roman walls, and along *Monte di Pietà*, *via Montenapoleone* and *via Durini*

33 Based on: B. Panebianco, M. Gineprini, S. Seminara, 2011: Giuseppe Parini, *Odi*

In the poet's opinion, this situation was caused by the greed of landlords, breeders and tradesmen, who caused pollution without taking into account the collective well-being[34].

Fig. 6.5 – Navazzaro (trash collector); source: Storia di Milano, online

The first city plan – The first project for a modern drainage system in Milan dates to 1868, thanks to the work of the engineers Cesa, Bianchi and Bignami. They drafted a plan for the central part of the city, encircled by the waters of the Seveso. Seveso river and its branches continued to constitute the main discharge, as shown by the report Bignami wrote in 1868: "The Seveso canal is therefore made up of a set of different channels, which although all have the same destination as the sewerage channels, although not all have the same arrangement, or depend on the same surveillance" (p. 13)[35]. Ten years later, more than 3,700 km of conduits had been built, but rapid population and urban growth made it impossible to resolve the problem of water pollution (Lapini 2004). In 1884, the new land use plan (Beruto) provided a chance to solve this issue in the construction of new urban

34 Indeed, his conservative reformism, in line with a physiocratic notion of agricultural economy, positioned economy at the centre of the needs of the community, rather than focused on trades and the entrepreneurial industry of the middle class.

35 "Il canale Seveso è dunque costituito da un assieme di diversi canali, i quali benché abbiano tutti la stessa destinazione quella di canali di fognatura, pure non, hanno tutti la stessa sistemazione, nè tutti dipendono dalla stessa sorveglianza"

areas. Beruto's plan represents the first local strategic plan for the city of Milan; it underwent a long process of revision before being definitely approved in 1889, as it dealt with a number of conflictual issues such as private/public construction permits and land expropriation for public good (Cappiello 2011)[36]. The document tackles the problem of water management concerning rivers, canals and the sewage system in general. Beruto addresses the displacement of the Olona river and the move to enclose the Redefossi, Seveso and Vettabbia waterways which at the time flowed "uncovered" through the streets of city: in his view, then, canalization was key to cleansing the city. The principle of *Salus Publica Suprema Lex* (public health as the most important law) was the main directive and principle to follow, meaning that water and canals were destined to disappear under the city: hygiene and health committes were formed in this period to push for this solution. Unsurprisingly, Beruto also discusses the Seveso and Olona floods and proposes to cover them; the actual high point of work ended up beginning in the late 1910s and did not conclude until the late 1950s. The two rivers

> "produce flooding in some places and not always among the lowest ones. This is the case for the Seveso in the north-eastern part of the city (…). The introduction of drinking water can reduce the aforementioned defects for smaller channels, but in the case of the principal canals it is essential to have a more abundant supply of water. Another important result will then be to throw all the dirt in the water, extending the system which is in part already functional. While the system of disposing of any water can be considered a dubious solution for some cities, it is important to consider it as a solution for Milan, not only because has already been in use since antiquity, but also

36 The main goal of the plan was to organize the city's development and modern growth: today, it is still considered one of the best city plans the city has put in place in terms of regulation and public investment. It was not the result of pressure related to land ownership and the real estate regime, although this pressure became a key factor later, as it became clear to many that this type of urban capitalism could result in much higher profits (Campos Venuti 1986). From the start, the plan makes clear that: "In the task of honouring the office, the writer has been inspired by a faith, that of the prosperous economic and material future of the city; By a conviction, the necessity to do what he can to ensure the immediate execution of the principle that is absolutely necessary, not forgetting, to satisfy decorative needs and also those of beauty". The two inspirational principles behind this plan were, in fact, faith in economic and material progress, and the certainty that it would have positive effects in terms of beauty and decorum. The plan claims that, for the "protection of its many interests, for the domain that is indispensable to the functions of his life, it is evident that the city needs to be surrounded by a conveniently large rural area within its jurisdiction" (p. 5). The author further asserts the importance of technical aspects for ensuring the city's functions: from cultivated lots to the width of streets, as well as graveyards and factories.

> because it is used here for farming using filthy waters and for which many other parts of the territory will be able to boast the miracles of the production of irrigated land by the Vettabbia..." (Ibidem: p.10)[37].

The main argument was that canals and rivers should be used as a drainage system (the *tout-à- l'égout* system); at the same time, a major shift was starting to take space involving radical changes in Milan's hydrographic system. The rapid growth of the city, its different economic assets and the new historical phase of capitalism called for a new organization of the urban landscape (Romano 2012). The internal navigation of the Navigli, for instance, had to be suppressed because there were fewer and fewer ships in the urban waters.

> "The average annual boat activity for the inner moat, which from 1848 onwards was constantly decreasing, fell in the five years from 1879 to 1883, [with] a decline of about five hundred boats compared to the previous five years and the transit of boats now reduced to an insignificant number. It is also to be noted that ascending navigation for Martesana is, for several reasons that are considered lasting, undergoing a significant decrease, and that the usefulness of the stops along the moat has lost its importance vis-à-vis public services and the private interest of users, as proven by the fact that many others have found a suitable place some distance from it, arguing, nevertheless, competition with the top places. Given such considerations, many would adopt the resolution for the abolition of indoor shipping and the consequent interruption of navigation in the Martesana, in order to improve public hygiene and the transformation of the moat into the most beautiful, continuous and elegant ring road of the city" (ibidem, p.11)[38].

37 "...producono l'allagamento di alcune località e non sempre fra le più basse. Così si verifica pel torrente Seveso nei terreni a nord della città; (...) L'introduzione dell'acqua potabile potrà diminuire i citati difetti pei canali minori, ma in quanto ai principali è indispensabile una più abbondante dotazione di acque. Allora si potrà ottenere un altro risultato importante, quello di gettare alle acque ogni immondezza, estendendo maggiormente il sistema già in parte vigente. Se il sistema di gettare ogni immondezza all'acqua può essere un problema di dubbia soluzione per alcune città, è desso da risolversi favorevolmente per Milano, non solo perché già in uso per fatto antico, ma sibbene perché trova qui le coltivazioni ed i terreni atti ad utilizzare immediatamente le acque immonde e per le quali molt'altre porzioni del territorio potranno vantare i miracoli di produzione dei terreni irrigati dalla Vettabbia...".

38 "...il movimento medio annuo delle barche per la Fossa interna, il quale dal 1848 in poi fu in continuo decremento, subì nel quinquennio dal 1879 al 1883 la diminuzione di circa cinquecento barche rispetto al quinquennio precedente e che il barcheggio di transito è oggi ridotto ad una cifra insignificante. D'uopo è anche notare che la navigazione ascendente per la Martesana è pure, per diverse cause che si ritengono durevoli, in sensibile diminuzione, e che l'utilità delle soste lungo la Fossa ha perduto la sua importanza rispetto al pubblico servizio ed al privato interesse degli esercenti, come lo prova il fatto che molte altre trovarono opportuna sede a distanza dalla medesima sostenendo ciononostante la concorrenza colle prime. Per tali considerazioni, non pochi fautori della tombinatura adotterebbero il partito della

This eventually led to the Navigli system being fully covered as well, later in the 1930s[39].

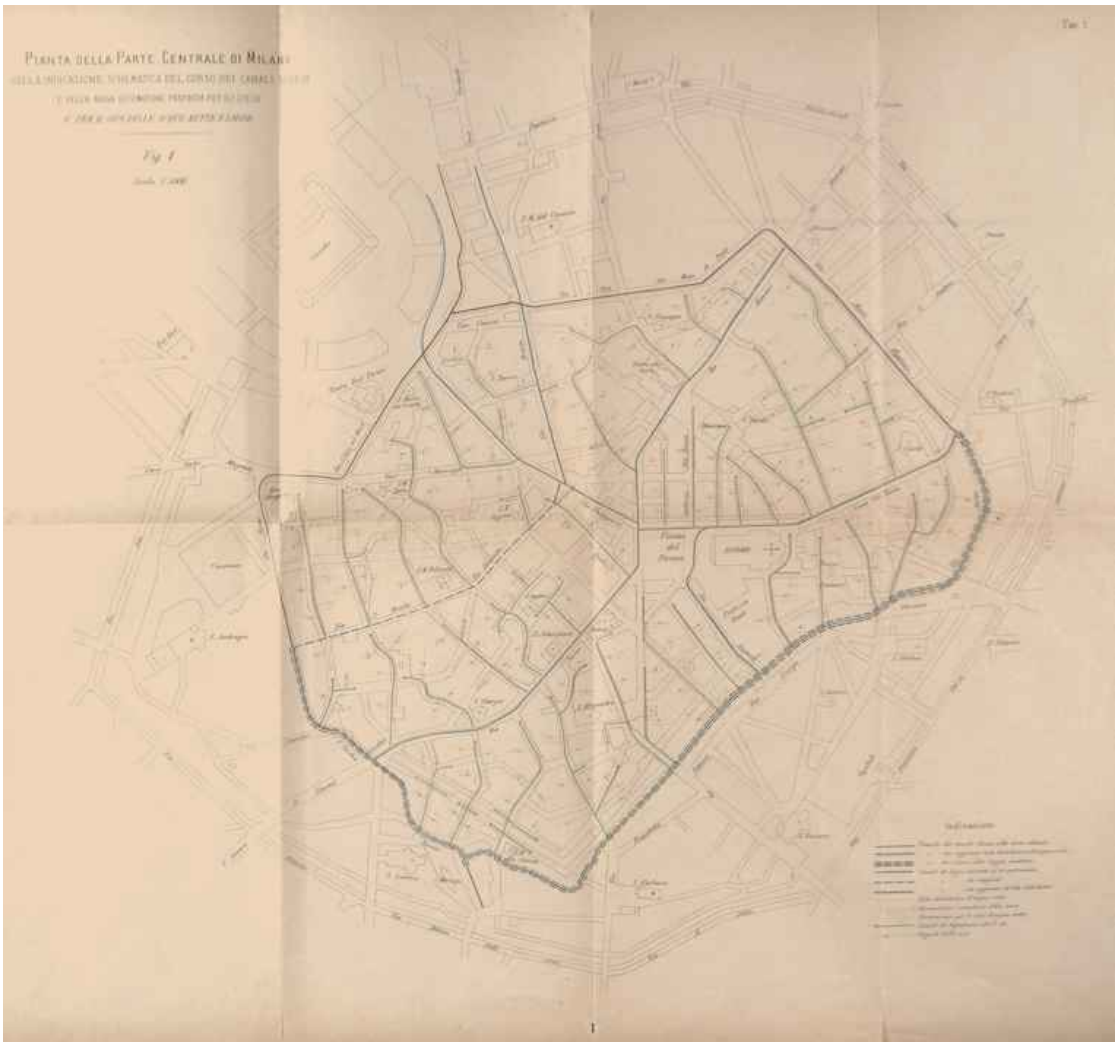


Fig. 6.6 – Map of Milan with canals and rivers; source: Tagliasacchi, 1889

On January 13, 1886, the Milan City Council appointed a commission of 'skilled people' to comprehensively resolve the lack of a sewer system in the city. Their report reveals the critical environmental state of local rivers and canals in Milan, describing the colour and smell of their waters, the existence of ponds and marshes, and the poor condition of the air

soppressione del barcheggio interno e della conseguente interruzione della navigazione colla Martesana, pur di ottenere il miglioramento della pubblica igiene e la trasformazione della zona della Fossa nella più bella, continua ed elegante via anulare della città"

39 Recently the city councils have been drafting new plans to reopen them, a point which will be discussed later on in this chapter

which regularly caused typhus, diphtheria and tuberculosis among residents. The municipal study highlights that, among the 1,710 cesspits identified in the city, more than a thousand had not been decontaminated (Tagliasacchi 1887). Following a comparison with other European cities' systems, the council ultimately resolved that human faeces and other wastes had to covered over and dispersed (ibid.:28) as agricultural drainage, considered the best and most appropriate solution in terms of both economic and health perspectives. The Seveso river was described as being in a barbaric state, with stagnant waters that needed to be buried, a move which would also generate new space for the urban development of neighbourhoods (Piazza delle Armi) or, to put it more accurately, to give space to "that constant progress, [which is] our indivisible companion" (ibid.:30). "The process of burying urban rivers underground in the name of keeping bad nature away (…) [was] hailed by authorities as an inevitable side effect of the necessary process of sanitizing urban space" (Kaika 2005:71). The Seveso filled the ancient moat surrounding the city and worked to provide drainage for the entire city, together with the Martesana and Vettabbia canals[40]: Tagliasacchi notes that these waterways were buried, only flowing uncovered across private property. Since most of the houses discharged their waste into a private canal connected to the river, it was decided that, from that point on, fresh water must be pumped into all houses in order to dispose of waste. Tagliasacchi stresses that, although Milan was a new, modern European city, it still represented an anomaly in terms of its drainage system: the city was rich in groundwater and had the perfect slope to run sewers. The city centre, delimited by the perimeter of the Seveso, had 67,000 residents and 2,100 houses in 1.5 sqKm: "a perfect calculation could channel the river's waters to all the houses" (ibid:54). The municipal council accepted this proposal and worked to construct a large sewage canal (so large it could be walked through, for inspections), as well as a public aqueduct. In 1893, under the guidance of Felice Poggi, the project was ready and in 1897 the first 60km of public sewers were built: the further extension of this system had to be adapted to the city's ongoing expansion.

40 It is itself divided into seven different canals according to Bignami (1845:13): Canale Seveso or Canale civico di P. Garibaldi; Canale grande Seveso; Canale piccolo Seveso; Canale di Borgonuovo; Canale Vetra; Canale di Porta Romana; Canale Vettabbia.

In 1887, the plan for the aqueduct kindled a number of conflicting debates, with 22 projects rejected by the municipal commission. Poggi proposed a project based on using the same technique employed in the past, namely drawing up ground water. Historically, in fact, wells dug to a depth of 5-15 metres underground were enough to guarantee good, drinkable water. In the 1880s, the project of diverting the waters from Val Brembana (Bergamo) – outside the city of Milan – came under heated criticism and was never implemented: the virulent protests of local people against the abstraction of water once again led the municipality to invest in groundwater resources (Stoppani 1883). As early as the 1930 this had already resulted in an overall lowering of the groundwater table due to excessive water use for industrial applications and drinking water. During the 1990s the opposite phenomenon occurred due to the delocalization of local industries, causing groundwater levels to rise (Province of Milan 2007:38; Altamore 2008). The first water station pumping water from the ground was built in the *Arena* and went on to provide fresh water to the new residential area of the *Castello Sforzesco*. The Canale Villoresi represents the final project of taming nature, as it is highly representative of nature-society relationships and expresses the will to keep water away from the city as a sign of renewed historical and technical progress (Gallizioli 2014:68). The engineer Villoresi built this canal to connect the plain's two major rivers; it took water from Ticino and sent it 86 km away, to Adda, distributing water to all the northern territories of Milan. With more than 800 km of branches, this canal was not completed until 1890 and was mainly used for irrigation, as well as the newly emergent hydroelectric industry (Bortolotti 1997:192). The new forms of economy and progressive change in the global industrial sector had a significant impact on urban configurations[41].

41 In the last years of the 1800s, Italy was struck a very serious socio-economic crisis due mainly to the rise of international food prices. As early as 1893-1894 there were the Sicilian revolts of Fasci Siciliani organized around the demand for 'bread and work'. In Milan in particular, on May 7, around 60,000 people gathered to strike: the mob clashed with the forces of General Bava-Beccaris in Piazza Duomo and the result was a long struggle involving barricades and national troops firing on protestors. In the end, when the streets were cleared, the fighting had accounted for approximately 300 deaths and more than 1,500 injuries. Strikes continued to break out until the beginning of the century, reaching a peak on July 29, 1900 when Umberto I, the King of Italy, was assassinated by the anarchist Gaetano Bresci, an act explicitly motivated by Bresci's desire to have revenge for the deaths of 1898. These are the years in which Milan was characterized by a strong socialist wave and a radical-socialist mayor won elections for the first time.

Progress, waterless – The beginning of the century was marked by a new modern spirit of faith in science and technology: in fact, in 1906 Milan hosted the World Expo for the first time[42]. The main theme was transportation, as the Paris-Milan railway line across the Alps had recently been completed. The inauguration of the 20 km Simplon Tunnel (*Traforo del Sempione*) represented an example of the extraordinary heights that science and technology could now achieve. The most important message of this event sought to frame Milan as a leading player in the new international trade rapidly growing in Europe and around the world in that period. The exhibition was simultaneously located in two different places, Parco Sempione and Piazza d'Armi; innovative electric railways and trams were used to transport people between the pavilions, and the highlights of the exhibitions included innovative trains, cars, signals and communication systems as well as prototypes for aircraft, thereby celebrating progress and modernity (Marescotti 1906; BIE 2017). One of the buildings was the Civic Aquarium – the only exhibition structure still standing today – a symbol of new architecture which was built specifically for the occasion: at this time, controlling water was still part of the innovative spirit of taming nature (water) through modern technology and progress (Benton-Short and Short 2008). Between 7.5 million and 10 million visitors attended the Expo, making the event into a catalyst for accelerating the construction of civic waterworks, both sewage systems and drainage, and the construction of new residential buildings. A chronicle from this period underlines the fact that, since housing was a pressing issue at the time, covering the Redefossi canal – between Porta Venezia and Porta Nuova – could represent an opportunity to build new houses. Faith in modernity matched by a disdain for urban waters is quite clear:

> "The exhibition will without any doubt (…) be worth remembering for the coverage of Redefossi, the putrid irrigation ditch which polluted the neighborhoods of Porta Venezia and Porta Principe Umberto with its exhalations of stagnant water. Complaints had followed complaints, opinions of health councils and hygiene committees were in agreement, yet the Redefossi (…) resisted the intimidation of trade unions and the prefecture: dammit! (…). The exhibition had the merit of achieving in a few months what

42 Italy had been involved in Expos since the 1851 Great Exhibition in London, and hosted its first World Expo in Milan in 1906. Since then, Italy has participated in most Expos and has hosted five Specialised Expos – 1953 Rome, 1954 Naples, 1955 Turin, 1961 Turin, and 1992 Genoa – as well as a World Expo 2015 in Milan. Since 1933, Italy has also organised 14 editions of the Triennale di Milano under the auspices of the BIE (http://www.bie-paris.org/site/en/italie).

had been invoked in vain for many years. Today, work continues feverishly, day and night, thanks to an efficient electrical system. They are demolishing the ramparts of Porta Nuova on the east and the stones were used to fill the pit where waters of the 'ditch' were flowing. The channel was subdivided longitudinally by an armoured concrete wall, which also supports reinforced concrete beams, resting on one side of the wall of the bastion. This very important project will cost about three hundred thousand lire, and although it is 10,000 square meters, it will be completed by the end of March. On these areas, therefore, provisional hotels for the visitors of the Exhibition will be erected"(Marescotti 1906:114)[43]

43 "L'Esposizione avrà senz'alcun dubbio un titolo notevolissimo e sopra ogni altro degno di memoria pei Milanesi nella copertura del Redefossi, la putrida roggia che inquinava colle esalazioni delle sue acque presso che stagnanti i quartieri di Porta Venezia e di Porta Principe Umberto. I reclami avevano seguiti i reclami, i pareri dei consigli sanitari e delle commissioni d'igiene erano stati concordi ed unanimi, eppure il Redefossiresisteva alle intimidazioni sindacali e prefettizio. Ohe diavolo! l'Esposizione ha avuto il merito di ottenere in pochi mesi ciò che per lunghi anni era stato inutilmente invocato. Oggi si lavora febbrilmente, giorno e notte, mercè un'efficace installazione elettrica. Si son demoliti i bastioni di Porta Nuova sul lato est e li matisriale che ne provenne fu precipitato a colmare la fossa dove lentamente scorrevano le acque della "roggia„. Il canale è stato suddiviso longitudinalmente da un muro m cemento armato, il quale sostiene travi pure in cemento armato, appoggiantesi da un lato al muro del bastione. Questi muri dovettero, naturalmente, esser rinforzati per riuscire atti allo scopo e perciò furono instaUate parecchie pompe, le quali hanno il còmpito di mantenere asciutta la parte dove si compiono 1 lavori di rinforzo ai muri di sostegno. L operà riesce tanto più complessa in quanto che anche il fondo del Redefossi viene abbassato senza la possibilità di rigurgiti, le acque in caso di piena. L opera importantissima costerà circa trecento mila lire, e benché si tratti di 10 000 mq di superficie, sarà ultimata per la fine di marzo. E allora su queste aree sorgeranno gli alberghi provvisori per i visitatori dell'Esposizione".

Fig. 6.7 – Construction work to build the metro in Porta Venezia covering the Cavo Redefossi; source: Urban File.org, online

Urban waters are putrid, nature untouched by human hands is simply barbaric and dangerous, and thus the canal, which embodies past times, must be covered in the name of progress and human intellect. It was crucial that the new century be understood as the *epoque* of never-ending expansion, for the good of citizens, by virtue of the fact that the constant progress took shape in opposition to the control of nature and growth of urbanity. There are many similarities between this view and Friedrich Engels' chronicles from the 1800s:

> "At the bottom flows, or rather stagnates, the Irk, a narrow, coal-black, foul-smelling stream, full of debris and refuse, which it deposits on the shallower right bank. In dry weather, a long string of the most disgusting, blackish-green, slime pools are left standing on this bank, from the depths of which bubbles of miasmatic gas constantly arise and give forth a stench unendurable even on the bridge forty or fifty feet above the surface of the stream. But besides this, the stream itself is checked every few paces by high weirs, behind which slime and

> refuse accumulate and rot in thick masses. Above the bridge are tanneries, bonemills, and gasworks, from which all drains and refuse find their way into the Irk, which receives further the contents of all the neighbouring sewers and privies. It may be easily imagined, therefore, what sort of residue the stream deposits." (Engels 2010 [1845]:78).

By 1911, Felice Poggi had already planned a second extension of the drainage system. This was carried out together with the new instances of urban expansion that took place up to 1923: by that point, the city of Milan had doubled its surface area, having annexed 11 new municipalities from outskirts (Regione Lombardia 2003[44]). In 1924, Giuseppe Codara was appointed by the municipality to further expand the system and to improve the new peripheral sections of sewage system. His study involved building a water ring to collect water – including from the Olona, Seveso and Lambro rivers – and bring it southward, as suggested in the Beruto plan from 1884. However, the whole water system of Milan was already taking its contemporary shape, which reflected the modernist dream: more space for roads and private investment to ensure new economic development for the city. This occurred first with the new strategic plans (the Pavia-Masera Plan in 1912 and Albertini Plan of 1934) which were based on encouraging private sector, real estate and land speculation and, eventually, through the monumental construction of the fascist regime (Campos Venuti et al.1986; Oliva 2002; Canessa 2011). Nevertheless, by the late 1800s the city had already lost its economic interests in water: in this sense it is striking, if not representative, that the construction of the Duomo was officially declared complete three years after work had begun to cover the Navigli (1929)[45]. As a matter of fact, the Navigli system did not keep pace with the technological innovation of the time: there were too many sluices along its route and the successful new steam ships were not suited for those narrow canals. According to Franchi and Chiumeo (1972:56-61), the move to cover the Navigli was mainly hailed as a normal and rational consequence of measures to ensure the sanitation of public space (*Salus Populi Suprema Lex*) promoted by fascist authorities. There

44 http://www.lombardiabeniculturali.it/istituzioni/schede/8051332/

45 This is well documented also by the fact that the much desired 'Sea Port' (Porto di Mare) started (1900) and stopped countless times, being declared dead in 2000: the huge dream of connecting the Po with the Adriatic Sea will rest only a project of a greater Milan. Same thing happened for the *Idroscalo*: built in 1930 as transport system for hydroplanes, changed its destination being re-used for sport activities and leisure already in 1934.

was also a pressing demand for more roads and greater vehicular circulation: unfortunately, however, covering the canal only more led to more chaos and fewer facilities for traffic (ibidem: p.57). The entire discourse was also accompanied by a very particular taste for social and racial integrity. Indeed, it was important that the Naviglio not represent an enemy for weak-willed urban residents with suicidal tendencies, since by this time the new fascist society was permeated by a "new spirit of realization and power to ameliorate the race" (p.58)[46]. Nevertheless, circulation and decontamination were not the real reasons behind this choice: once again, the main drivers lay in the maximization of profits through the coverage of urban space and the possibility to re-build. In fact, the Fascist policy was based on demolishing and driving the popular classes from the centre while 'subjugating' the city to real estate speculation: these urban policies have left a deep scar on Milan, having caused the removal of some of the city's most picturesque historical places (Ferrario 2009). In a sense, the move to thoroughly expel water from the city had been completed: this is clearly illustrated by the Martesana canal, which in 1957 began to be used as a mere irrigation channel[47].

6.3 New waterscapes

> "L'acqua in Milano c'è abbondantissima ma i vincoli inerenti ai vari corsi d'acqua della stessa ed anche le private ragioni fanno si che in una sistemazione generale delle fogne l'acqua farà sempre difetto" (Tagliasacchi, 1889:31).

Over the last 50 years, people's relationship with water in Milan has been every bit as complicated as in the past: the continuous struggle to attract/expel water has remained an important issue. The main issues the city faces have included:

–waste water treatment and cleaning systems;

46 "Il Naviglio è un pericolo sociale per l'attrazione che esercita sui deboli e sui vinti di una grande metropoli, i suicidi; è un pericolo pubblico nelle notti invernali, nebbiose, per uomini e vecchi che vi possono precipitare. Del resto nella nuova vita italiana voluta dal fascismo, le ragioni di affermazione e miglioramento della razza debbono avere il sopravvento sopra ogni altra considerazione. La vita delle nostre grandi città è tutta pervasa da uno spirito nuovo di realizzazione e di potenza".

47 This was also caused by the disappearance of the sand ships from Vimodrone to Milan.

–flooding caused by soil sealing and land consumption;

– the use of water in sustainability and cultural heritage discourses for new urban projects, i.e. re-opening the Navigli system.

The new cleaning system – Between 1972 and 1979, the City Council took charge of a project to build two new waste water plants for the city's growing needs. It is important to recall that the Milanese population was growing quite fast, skyrocketing from 1.580.000 in 1961 to 1.730.000 in 1971 (Istat 2012), fuelled by Milan's status as the economic capital of Italy. Under urgent conditions, it seemed that two plants (one in Cascina Basmetto and the other one in Nosedo) needed to be built: after modifications, however, only one plant ended up being built, in Nosedo, in the south of Milan, where the Vettabbia canal has brought water from the Seveso since Roman times (§6.1), a legacy continued until the beginning of the 2000s (Legambiente 2001). Between 1983 and 1984, the project for the depuration plant was approved but protests over environmental concerns slowed down procedures, as the whole area has signficant natural and cultural value[48]. In 1985, then, the Swiss Research Centre was called in to make an environmental impact assessment to identify the best solution for the waste water plant (Milan City Council 2003). By the end of the 1980s, new modifications were made and throughout the 1990s legal proceedings halted the construction of the plant. In 1991, the European Directive on urban waters had already made the waste water treatment of urban waters compulsory (91/271/CEE; European Community 1991), so by November of 2000 the European Commission fined Italy in view of the fact that "[Italy] had not ensured that by 31 December 1998 at the latest the discharges of urban waste water of the city of Milan were subject to stringent treatment requirements demanded by EC Directives" (European Court of Justice 2002:1)[49]. On the

48 Meanwhile, the Merli Law (1976) and Galasso decree (1984) dictated new (and unprecedented) environmental laws related to water quality and urban waste water, establishing distance restrictions for the construction of new buildings along rivers or lakes.

49 "The Italian authorities contested that the city area was neither part of a sensitive area nor a relevant catchments area of a sensitive area; and that the relevant Decree had not defined the whole of Italy as a sensitive area. They argued inter alia that they were not required to subject the waste in question to more stringent treatment in so far as it did not, at least not directly, discharge into an area identified as sensitive by the Decree. According to the Commission, all urban waste water from agglomerations of more than

28th of December, work started again after many conflicts in the city council: the plant ended up not being constructed until late 2002, however, and became fully operational in April 2003 (Milan City Council ibid)[50]. Today, the Nosedo wastewater treatment plant represents the city's oldest and largest sewage processing site[51]; it is also one of the first funded public projects to have relied on financing from European banks. "The Nosedo plant was funded by a project financing scheme supported by two important banks: Banca Intesa and The Royal Bank of Scotland. The concession consortium provides over 50% of the funds required for the project, in exchange for 16 years of plant management, before it is handed back over to the Municipal Authority in perfect working order"[52]. From that point onward, depuration has also become a business.

The CSNO for hydraulic protection – Over the last 2000 years, the numerous floods affecting the river basins of the Po river have always been faced with measures aimed at defending the population and infrastructure. Over time, ever-expanding urbanization has made these measures inadequate, particularly in the Milan metropolitan area. Apparently, the best solution is still – as in the past – to build canals and waterways to drain the rivers. As mentioned, the main hydraulic projects have been the Redefossi canal in the south of

10 000 p.e. and which reached sensitive areas, either directly or by passing through catchment areas, had to be treated using the more stringent treatment method by 31 December 1998 at the latest. The court held that the second subparagraph of Article 3(1) of Directive 91/271, concerning the treatment of urban waste water, which dealt with discharges of urban waste water into receiving waters considered sensitive areas, and Article 5(2) of the Directive, which required urban waste water entering collecting systems to be subjected to more stringent treatment before discharge into sensitive areas, made no distinction between direct and indirect discharges into sensitive areas. Moreover, Article 174(2) EC provided that Community policy on the environment was to aim at a high level of protection. That objective would be undermined if only waste water which discharged directly into a sensitive area had to be subjected to stringent treatment. The court therefore held that Italy had failed to fulfill its obligations under Article 5 (2) of the Council Directives 91/676/EEC of 12 December 1991 and 91/271/EEC of 12 May 1991 by not ensuring that by 31 December 1998 at the latest, discharges of urban waste water of the city of Milan (within a relevant catchments area draining into areas of the delta of the River Po and the north west coast of the Adriatic Sea as defined by Decree- Law 152 of the Italian Republic of 11 May 1999) and provisions for prevention of water pollution, and urban waste-water treatment were subject to the treatment prescribed by Articles 4 and 5 (2) of the said Directives" (Ibid., p.1)

50 This made Milan one of the few European cities without a waste water plant, at that time.

51 It has a processing capacity of 1,250,000 population equivalents for the south-east part of Milan

52 http://www.depuratorenosedo.eu/en/storia

the city and the Canale Scolmatore Nord Ovest (CSNO). The CSNO [northwest spillway] was the first flooding protection system for the city and the municipalities of the north-west area over the last 50 years, and it remains the most important. Construction on this system began in the mid-1950s and was completed, in an initial functional arrangement, in 1980 (Lombardy Region, 'Fiumi Sicuri' 2003)[53]. Risk mitigation work had been carried out to reduce excessive discharge flowing through urban areas, but as La Montagna (2010) underlines, during the second half of the 1950's, in part because the Navigli waterway had been covered, "the uncontrolled increase of impervious surfaces together with poor designing of sewage system and drainage networks lead to an increase in runoff volumes and to a reduction of concentration times, favouring super imposition of flood waves" (p.3). As a result of the extensive urbanization affecting Lombardy and in particular the Lambro-Seveso-Olona basin in recent decades, the hydraulic defence system has been largely inadequate, resulting in serious economic and social repercussions (Lombardy Regione, ibid.). The canal only started working properly in 1980, 19 years later. The need to plan and adapt the functionality of Milan's hydraulic safeguard system led all the public bodies involved to sign the Agreement for the Safeguard of Milan (Po Agency 1999). After signing, the state government was no longer responsible for soil protection, as this responsibility had been handed over to local regions, the Po Basin Authority, the Magistree of the Po River, and the Province and Municipality of Milan (La Montagna, ibid: p.7). The agreement, signed in 1999 and renewed in 2009, set out to strengthen the CSNO to reduce the flow of the Seveso towards Milan[54]. In order to improve the hydraulic safety of the

53 The CSNO is about 34 kilometres long and extends from the Seveso stream, in the Palazzolo resort, to the Ticino river. The first section of the CSNO, called the Seveso branch, runs in a curv from north to southwest and extends from the grip to Seveso to the hydraulic node of Vighignolo, for a total length of about 14 kilometres.

54 The Metropolitana Milanese SPA, which designed and supervised the construction of all the Metro lines, has extended its field of activity to also include hydraulic engineering and urban plans. Since 2003 it has managed the integrated water service for the city of Milan, carrying out maintenance and investment plans for drinking water and the sewer systems. Today, it is in charge of handling flooding in the city of Milan, protecting "the urban environment by acting when surface watercourses break their banks. In particular, this type of activity field is related to the Seveso river. Metropolitana Milanese redefined its procedures in 2003, with the goal of preventing flooding by constantly monitoring the remote level sensor which detects changes in the culvert section of the river during rainfall. Six emergency stages have been defined. When it floods, Metropolitana Milanese uses its own equipment, specialist personnel and workforce to ensure that the Seveso overflow drains into the sewerage system at the fastest possible rate to free the streets of water" http://www.metropolitanamilanese.it/pub/page/en/MM/difesa_ambiente

area, in 2004 the CSNO was doubled in the stretch between Palazzolo and Senago: in 2005, however, the River Po Basin Authority ruled that the rest of the CSNO could not be doubled, since the entire hydrographic system is in such a critical situation that no watercourse in the area would be capable of accommodating further water intake. It is therefore necessary to avoid transferring the hydraulic risk to the valley areas: to do this, the water must be stored in ponds, in part because the CSNO cannot keep up with the amount of water involved in floods. The first basins are being built in Senago and Bresso/Milan, but these hydraulic construction projects are encountering strong criticism from the local population. This conflict be analysed later in this study [§8].

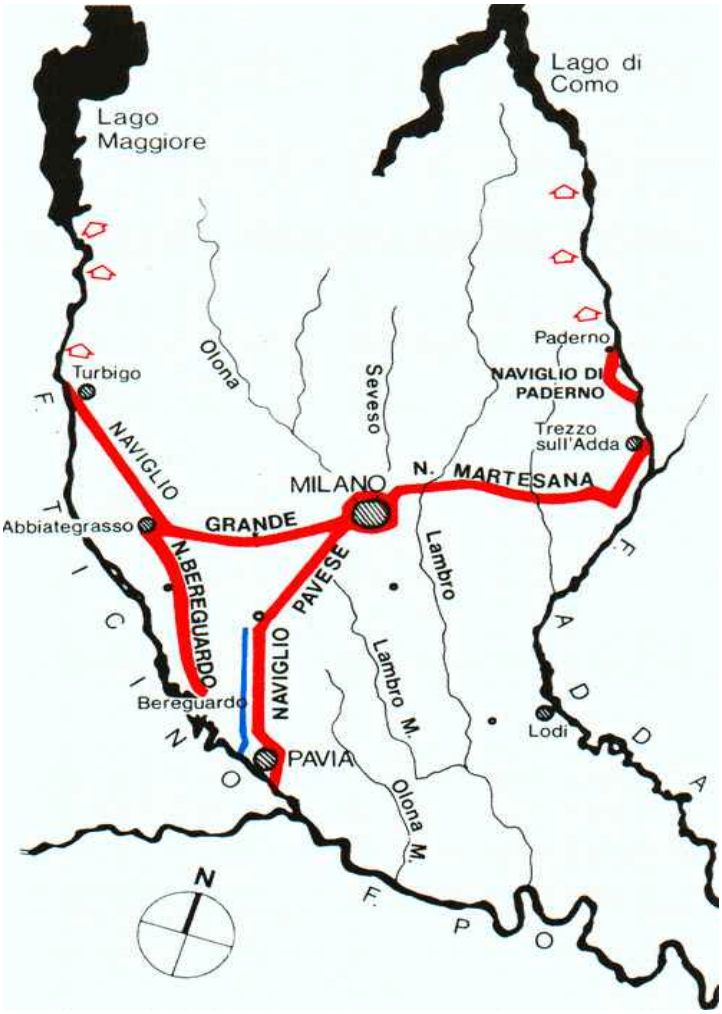


Fig. 6.8 – Diagram of the Navigli system among water courses; source: AdbPo

The re-opening of Navigli – As mentioned above, the Navigli were a complex system of artificial canals built from the 12th to the 19th centuries that worked as an irrigation system and trade network (importing heavy construction materials and food into the city centre) between the Adda and Ticino rivers and the Maggiore and Como lakes. In 1929, most of the urban canals were covered for hygienic reasons and in order to expand the city's raod network; only two major canals – the Naviglio Grande and the Naviglio Pavese – were left uncovered[55]. In recent years, national and local media, politicians and academics have argued over a project to re-open the Navigli system, mainly for urban aesthetic purposes but also with a view to enhancing ecological and cultural outcomes. Outlining the official motivations (and justifications) driving the project, the city Council describes it as

> "an ambitious challenge for a more liveable and sustainable city. The valorisation of tourism involved in creating a continuous system of canals and cycle paths from Adda to Ticino, the possibility of sailing from Lake Maggiore to the Adriatic, the environmental, landscape and historical identity recovery are aspects that characterize the project, which blends the past and future of the Navigli Milanesi" (City of Milan, August 2016)[56].

Boatti (2017) argues that water is the *fil rouge* of the history of Milan, from Roman times to today's industrialization. According to his study, the natural and environmental values of the city can be re-cast in place of an economy based on land consumption, which would also have an effect on people's sense of responsibility given that the visibility of water (and thus its state of cleanliness) represents the best democratic option for guaranteeing its health (p. 109). He claims that Milan could relaunch its own image on the world stage by once again focusing on water and its uses (p. 113), moving from congestion and traffic pollution to the pursuit of a city to enjoy slowly, and savour. The whole project is given impetus by participatory processes which will play a decisive role in decision-making. Boscacci et al. (2017), who are part of the scientific committee for the project, emphasize the economic benefits that would be generated by this urban transformation, roughly twice the estimated construction costs, thus confirming the project's profitability from a social point of view as well: as they argue, it would create new possibilities for recreation (on and

55 While commercial shipping was discontinued during the 1960s, the canal system still plays a fundamental role in irrigation.

56 http://www.comune.milano.it/wps/portal/ist/it/servizi/territorio/Riapertura_navigli_2016

off-water activities), green infrastructure, ecosystem services (flood control) and transport, as well as shaping place (strengthening local identity) and increasing tourist flows (p.17). This "renewed attractiveness" and improved quality of life would label Milan a "regenerated water city", an asset to "attract tourists for business and leisure, and become the favourite location e.g. for the headquarters of foreign multinational corporations" (p.16). It is interesting to note that the authors also warn of a possible gentrification process, which "might take place in the areas currently characterized by low-medium real estate prices (i.e. the northern part of the layout), thus generating social costs due to spatial exclusion and displacement" (ibidem:16).

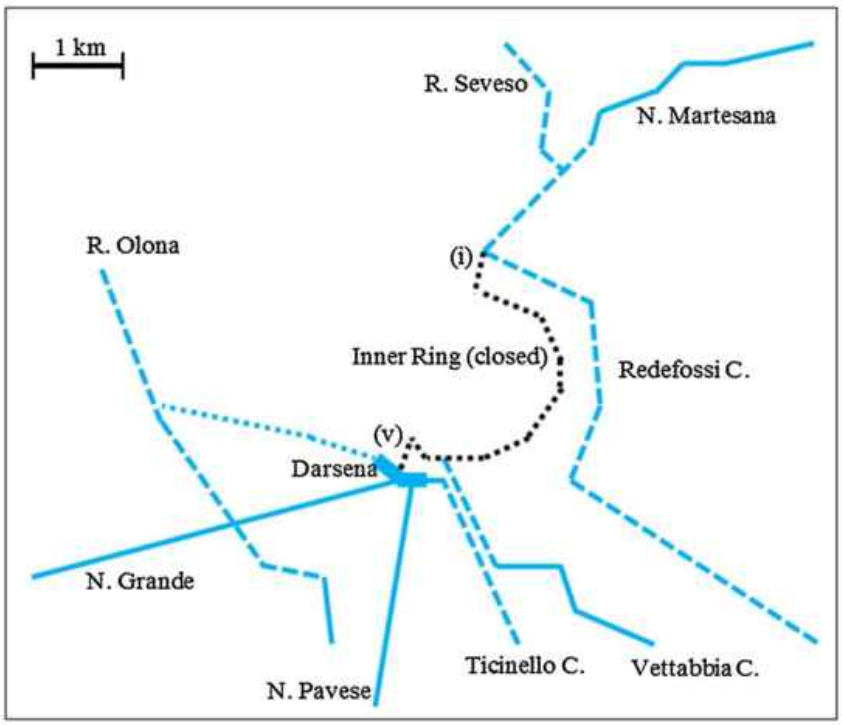


Fig. 6.9 Diagram of water courses in Milan (the covered rivers are dotted); source: Sibilla et al. 2017

Sibilla et al. (2017), in contrast, grant more stress to the urban design and navigation opportunities (and even a possible energy source) as outcomes of the project. "Milan suffers from a rather scarce appeal as compared to other historical tourist destinations in Italy. At present, Milan is a well-known finance, trade, fashion and design hub, but its artistic and historical landmarks are undervalued, because they lay surrounded by the

architecture of a modern city" (p.50). Basically, the main idea is that, as long as the proper hygienic conditions are maintained along the whole canal (the same reason the canal was originally covered in 1929), the project can only have positive trickle-down effects. The most recent study (Prusicki 2017) is more cautious about the consequences: it underlines the important heritage and historical restoration of this reinterpreted "great Renaissance project", warning, however, that there might also be technical outcomes such as an impact on traffic – which will still constitute a major problem – and business activities – which will not be a magnet for tourists and residents, since the majority of the canal flows far from the city centre (p. 94).

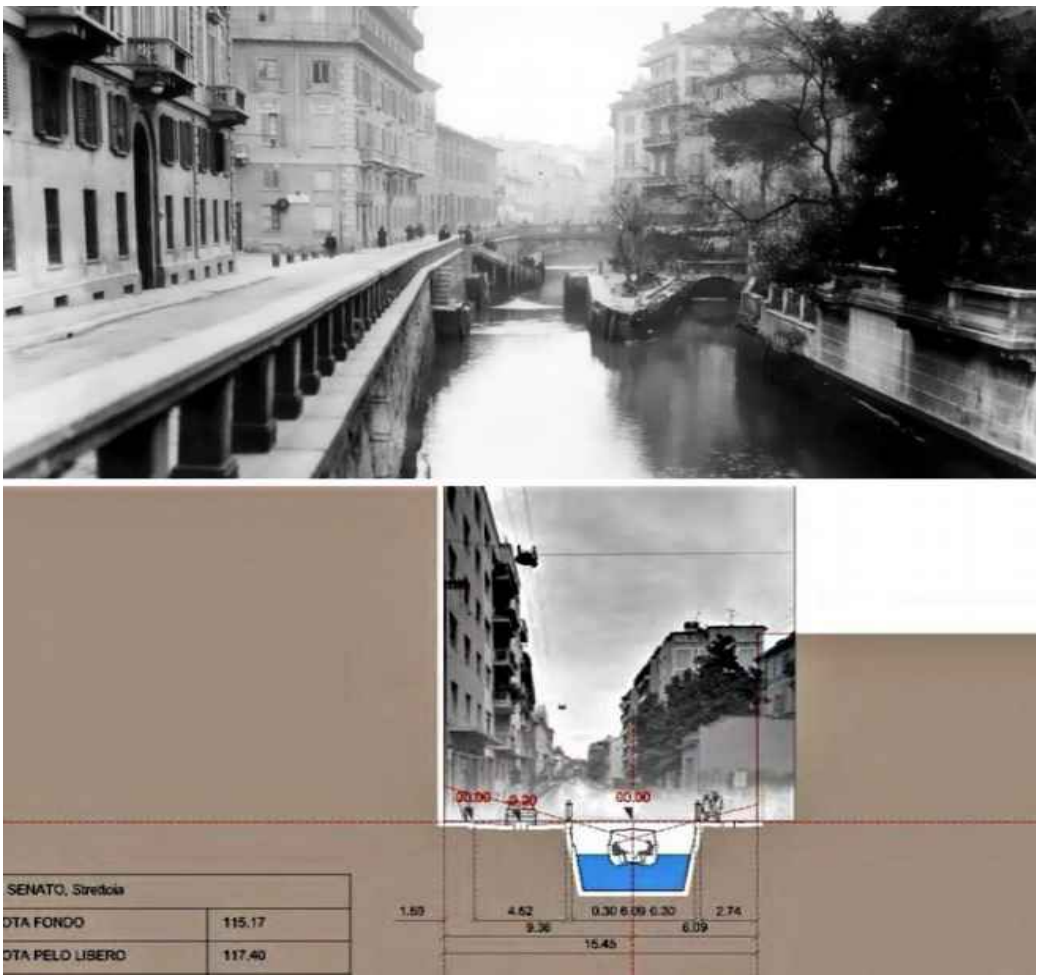


Fig. 6.10 – Rendering of re-opening the Navigli System; source: Sibilla et al. 2017

In this context, we argue that the critical (and often silenced) voices are important and must be taken into considerations. OffTopic Lab[57], an informal group of activists who have been very critical of urban projects since Expo 2015 (Casaglia 2016), remain one of the few critical voices against the project. Their main argument is that increasing the real estate value of homes near the Navigli in the Isola neighbourhood might have the effect of isolating this area from the rest of the city by adding new physical barriers to existing economic ones. The 'vintage' look recreated by uncovering the Navigli in the new Garibaldi-Porta Nuova area could work as a perfect mix to promote further gentrification. Conceived of in this way, the project represents an adjustment of the urban space at the level of design alone, carried out to open the city up to mass tourism and upper-class residents: water would thus be used for aesthetic purposes and not as a common good, despite the fact that financial resources are currently scarce. Finally, they claim that the 406 million euros for the project could be used to recover suburbs and cultivatable areas, restore rivers and carry out depuration, and to reconnect the ecosystems of the city's peripheral areas, reconnecting them in a vast and complex, non-fragmented local system. Currently, this project enjoys widespread support stemming from the informal referendum held in 2011, which granted the project overwhelming consensus[58].

For our research, it is important to note that the Seveso river, and in part its hydraulic (re)solution, is also included in this project: the most significant comments and proposals we have analysed, however, clearly show that this project could never represent a definitive solution. The waters of the Seveso cannot, in fact, be poured into the Naviglio Martesana (or into the canals) because they are still heavily polluted (Prusicki 2017; Sibilla et al. 2017);

57 They launched a website of "research from below" about urban transformation. The research about the Navigli project (http://www.offtopiclab.org/scandaglio/ancora/#/) is impressive in terms of accuracy and data collected (rent prices, for instance).

58 In 2011 an informal referendum was held, and the Navigli project restored almost 95% of the votes. This project promotes the reactivation of the waterways system for about 8 km, connecting the North of the city to the South bordering Milan's central business district (CBD) to the East- Advisory citizen referendum of 12-13 June 2011 provided five questions Of which the fifth was dedicated to the restoration of the Darsena and the reopening of the Navigli system in Milan and more precisely the question was: "Do you want the Municipality of Milan to reset Darsena as a port of the city and ecological area and gradually to reactivate Hydraulic and landscaping system of the Navigli system in Milan on the basis of a specific feasibility project? ". Of the 489,727 voters equal to 49,09% of the right-holders answered yes 94,32% and no 5,68%

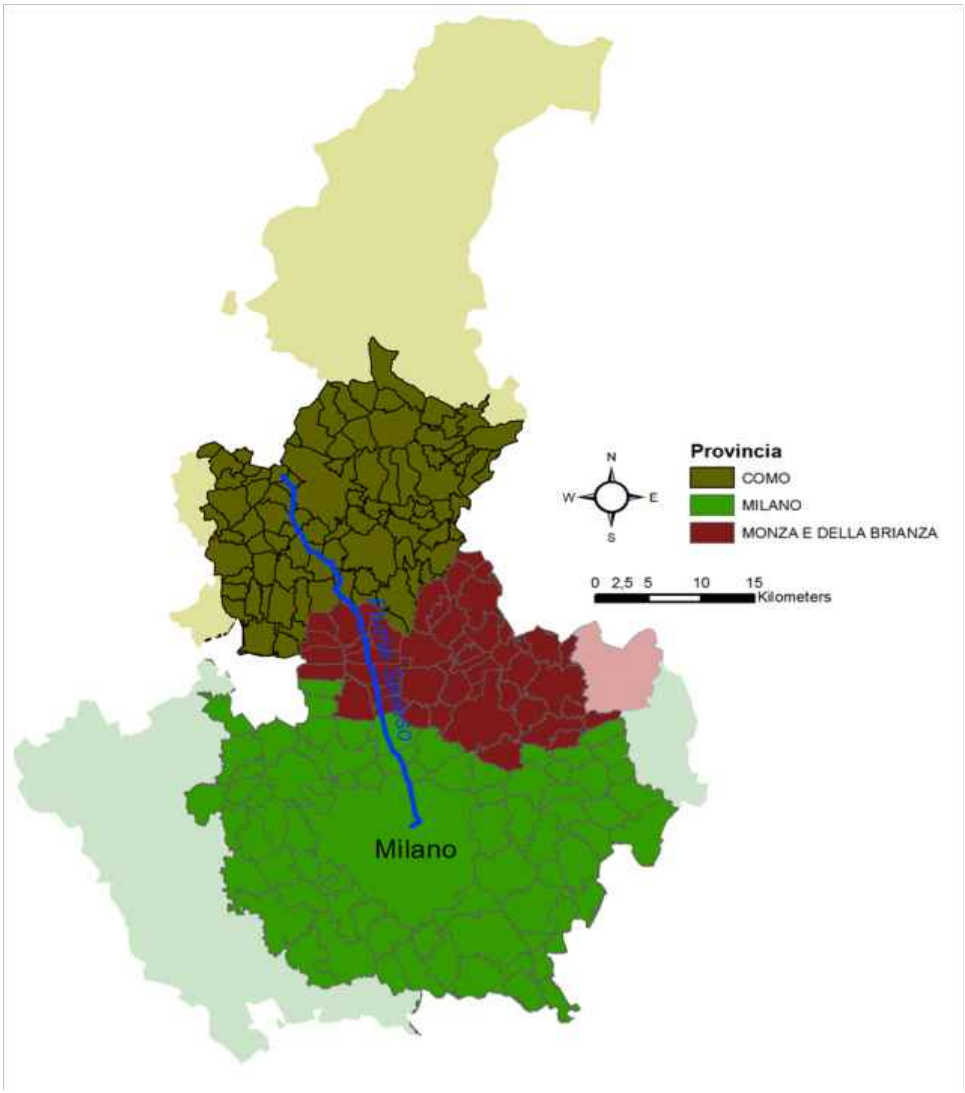
also, very different measures would be required to address the issue of flooding in the northern area of the city (Boatti 2017). This will constitute the focus of the following chapters.

Summing up – The history of Milan is closely connected to water: it has channelled, diverted, buried and rediscovered it according to the needs of different historical epochs. Water management has been developed to such an extent to make way for urbanization, although far away from the main waterways. In first era, the settlement made an overture to its waters: the Romans had already reshaped the Seveso and Olona rivers to make them flow through the city of Milan, mainly to supply water and enable military defences. In the middle ages, in contrast, large-scale hydraulic work was carried out to mobilize external resources (outside of the urban settlement) to fuel the economy of the city. Slowly, however, the reworking of water has begun to represent a source of trouble and destruction: the construction of the Cavo Redefossi to canalize the floodwaters of the Seveso is the material representation of this shift. From the mid-1800s onward, the use of rivers as a drainage system became more important than ever: in this period the urban fabric moved to bury and decontaminate water and create more space for roads and housing. The Universal Exposition of 1906 in Milan worked as a spark to kickstart construction of the Redefossi canal and use the newly viable areas to build luxury hotels for visitors. In 2003, the last project to cover the Seveso river in Niguarda marked the end of the last era; the project to re-open the Navigli system fuels the promise of re-casting water in terms of sustainability, tourism and nostalgia for a bygone past in which Milan shone as a grand hub of water and trade. However, the illusion of a distinction between human and natural worlds and the magical belief that nature can be endlessly exploited and re-fabricated into urbanity is called into question every time a canal floods, waters are polluted or flash rains shut down the city: the urbanisation of nature is, in fact, inherently built on un-balanced socio-natural assemblages and the resulting organization of nature (Arboleda 2015; Foster 1999; Kaika and Swyngedouw 2012; Paolini 2014). There have been frequent conflicts stemming from the shared management of water in the configuration of urbanity,

a process that has always foregrounded certain matters and excluded others, privileging the safety and affluence of the city-centre at the expenses of the rural surroundings. In these territorial politics, diverse and divergent political interests compete and struggle with one another through discourses, norms and form of knowledge that constantly form and re-form new socio-ecological configurations.

7. Inside the Governance of the Seveso River Basin: the territory, the contract

To begin, this chapter aims to describe the territory of the Seveso River Basin from a socio-economic-environmental point of view; secondly, it elucidates the governance arrangements known as "River Contracts" with a focus on Italian cases, describing the Seveso River contract as well as its direct link to European policies and national legislation.



Map 1 - Provinces of the Seveso Valley (Created by the author on the basis of OpenData, Lombardy Region 2013)

The chapter first focuses on describing the territory of the basin from a demographic and economic point of view, including from a more territorial perspective. It then outlines the major environmental issues facing the area and examines how the vicissitudes of the environmental situation are connected to the creation of a river contract. This latter is presented with attention to international environmental policies and their local adoption in Italy and Lombardy more specifically. The chapter plays an important role in understanding the context of the research and the contemporary triggers and conditions which situate this study.

7.1 A territorial analysis

The Seveso river basin (approx.. 2,267 ha) is part of the Lambro-Olona-Seveso system and represents a 2000-year-old historical example of territorial canalization (Borasio and Prusicki 2014). The whole basin is usually divided into four sections, highly diversified: the Como, Brianza, Milan area and Vettabbia subsystems (ERSAF – Regione Lombardia 2011a; 2011b). The first section extends from Cavallasca (Como) to the municipalities of Lentate and Barlassina: it is characterized by extensive wooded and cultivated landscapes, traces of Roman centuriation and historic settlements (villas, farmhouses, agricultural plots) aligned along the Como-Milan axis. The north-Milanese and Brianza subsystem stretches from Lentate to the Niguarda neighbourhood in Milan. In this section, the basin is characterized by high settlement density, high urbanization and hydraulic modification of the river in many places. It only has a few natural shores, and it is highly polluted: its historically valuable aspects are absent and the river area is not used by local residents. The Milanese subsystem is characterized by confluence into and the interruption of the Martesana canal, in the city of Milan; here, the river flows inside artificial surfaces (§6). The last area is the south-east of Milan, which consists of the complex hydrographic network of the Vettabbia river, the Redefossi and related *risorgive* (spring wells). This subsystem is arranged in a first settlement (Abbey of Chiaravalle) and, subsequently, an agricultural area, stretching to the Vettabbia's confluence with the Lambro: this is an agro-ecosystem of

remarkable environmental and landscaping quality; although it is also burdened with infrastructure such as high speed, highway and industrial areas (Sesto Ulteriano).

The municipalities crossed by the Seveso river (or parts of its basin) are located within an administrative area that includes the provinces of Como, Monza and Milan and occupies about 520 square kilometres (about 330 excluding the urban area of Milan)[59]. The graphs and maps above illustrate the current situation.

Municipalities (Seveso Area)	Residents (thousands)	area (km²)	Population density (pop/km²)
Albavilla	6.320	10,55	599,10
Albese con Cassano	4.242	8,14	521,10
Alzate Brianza	5.046	7,66	658,70
Arosio	5.074	2,74	1.851,80
Brenna	2.056	4,86	423,00
Cabiate	7.450	3,22	2.313,70
Cantù (Asnago)	39.272	23,18	1.694,20
Capiago Intimiano	5.559	5,69	977,00
Carimate	4.390	5,21	842,60
Carugo	6.229	4,14	1.504,60
Casnate con Bernate	4.913	5,35	918,30
Cavallasca	2.935	2,68	1.095,10
Cermenate	9.092	8,08	1.125,20
Villa Guardia (Civello)	7.927	7,74	1.024,20
Cucciago	3.421	4,96	689,70
Figino Serenza	5.259	4,95	1.062,40
Fino Mornasco	9.755	7,26	1.343,70
Grandate	2.884	2,75	1.048,70
Inverigo	9.064	9,98	908,20
Lipomo	5.824	2,46	2.367,50
Luisago (Portichetto)	2.720	2,15	1.265,10
Mariano Comense	23.667	13,72	1.725,00
Montano Lucino	4.854	5,18	937,10
Montorfano	2.630	3,53	745,00
Novedrate	2.921	2,83	1.032,20
Orsenigo	2.746	4,46	615,70
San Fermo della Battaglia	4.523	3,13	1.445,00
Senna Comasco	3.173	2,74	1.158,00
Vertemate con Minoprio	4.044	5,77	700,90
Tot. Seveso Como	**197.990**	**175,11**	**1.130,66**
Tot. Provincia Como	**586.795**	**1.288,07**	**460,00**
Barlassina	6.789	2,85	2.382,00
Bovisio-Masciago	16.712	4,92	3.396,70
Cesano Maderno	37.374	11,46	3.261,30
Lentate sul Seveso	15.633	13,99	1.117,40
Limbiate	34.370	12,40	2.771,80
Meda	23.251	8,33	2.791,20
Seveso	22.975	7,35	3.125,90
Varedo	12.919	4,84	2.669,20

59 Including Milan, there are 520,000 people in the area, with a population density ranging from 423 inhabitants per square kilometre in Brenna to around 7,600 in Bresso.

Tot. Seveso Monza Brianza	**170.023**	**66,14**	**2.570,65**
Tot. Res. Provincia Monza Brianza	**840.358**	**405,50**	**2.097,90**
Bresso	25.753	3,38	7.619,20
Cinisello Balsamo	71.840	12,70	5.656,70
Cormano	20.055	4,45	4.506,70
Cusano Milanino	18.759	3,11	6.031,80
Melegnano	17.002	4,92	3.455,70
Milano	1.262.101	182,07	6.932,00
Paderno Dugnano	46.785	14,12	3.313,40
San Donato Milanese	31.196	12,82	2.433,40
San Giuliano Milanese	36.460	30,71	1.187,20
Senago	21.121	8,63	2.447,40
Tot. Seveso Milano	**1.551.072**	**276,91**	**5.601,36**
Tot. Seveso (escl. Milano)	**288.971**	**94,84**	**3.046,93**
Tot. Provincia Milano	**3.035.443**	**1.578,90**	**1.947,60**
Tot. Provincia Milano (escl. Milano)	**1.773.342**	**1.396,83**	**1.269,55**
Totale area Seveso	1.919.085	518,16	**3703,65**
Totale (esclusa Milano)	656.984	336,09	**1954,78**

Tab. 1 - Population Density, Seveso area. Created by the author on the basis of ISTAT 2012 data

Municipalities	**1951**	**1961**	**1971**	**1981**	**1991**	**2001**	**2011**
Albavilla	3.464	3.674	4.357	5.075	5.517	5.938	6.320
Albese con Cassano	2.652	2.834	3.271	3.942	3.933	3.981	4.242
Alzate Brianza	2.223	2.488	2.903	3.497	3.989	4.556	5.046
Arosio	2.195	2.622	3.548	3.662	4.271	4.469	5.074
Brenna	1.144	1.283	1.354	1.474	1.686	1.817	2.056
Cabiate	4.191	4.872	5.627	5.910	6.353	6.769	7.450
Cantù (Asnago)	21.286	26.559	32.488	36.760	36.151	35.153	39.272
Capiago Intimiano	2.367	2.844	3.694	4.262	4.485	4.839	5.559
Carimate	1.900	2.084	2.558	3.125	3.469	3.805	4.390
Carugo	2.753	3.762	4.564	4.593	4.789	5.324	6.229
Casnate con Bernate	1.685	2.095	2.255	3.137	3.857	4.382	4.913
Cavallasca	758	1.053	2.004	2.368	2.520	2.733	2.935
Cermenate	4.362	5.342	6.833	7.516	8.119	8.599	9.092
Villa Guardia (Civello)	3.750	4.264	5.457	5.964	5.952	6.487	7.927
Cucciago	1.485	1.773	2.144	2.273	2.785	3.196	3.421
Figino Serenza	2.416	2.874	3.521	4.068	4.522	4.636	5.259
Fino Mornasco	4.075	5.320	6.943	7.603	7.828	8.229	9.755
Grandate	1.538	1.932	2.661	2.778	2.917	2.901	2.884
Inverigo	5.269	5.917	6.957	7.512	7.733	7.825	9.064
Lipomo	695	924	2.586	5.240	5.784	5.523	5.824
Luisago (Portichetto)	1.265	1.473	1.819	1.920	2.111	2.368	2.720
Mariano Comense	10.211	12.702	15.888	18.411	18.891	20.282	23.667
Montano Lucino	1.991	2.447	3.131	3.511	4.021	4.296	4.854
Montorfano	821	962	1.289	2.083	2.256	2.489	2.630
Novedrate	1.223	1.654	1.786	2.180	2.566	2.889	2.921
Orsenigo	1.146	1.206	1.206	1.824	2.127	2.340	2.746
San Fermo della Battaglia	1.241	1.682	2.969	3.485	3.952	4.189	4.523
Senna Comasco	504	665	967	1.390	1.726	2.766	3.173
Vertemate con Minoprio	1.819	2.176	2.540	3.031	3.406	3.851	4.044
Tot. Comuni Seveso							
Como	90.429	109.483	137.320	158.594	167.716	176.632	197.990
Tot. Res. Prov. Como	361.667	405.975	476.209	511.425	522.147	537.500	586.795
Barlassina	3.162	3.833	5.325	5.625	5.744	5.927	6.789
Bovisio-Masciago	7.115	8.963	11.082	11.089	11.994	13.367	16.712
Cesano Maderno	16.830	25.361	33.024	31.739	31.934	33.094	37.374

Lentate sul Seveso	8.518	10.908	12.376	13.273	14.257	14.366	15.633
Limbiate	9.087	21.595	31.958	32.658	31.873	31.551	34.370
Meda	11.510	14.883	18.245	20.470	20.820	21.266	23.251
Seveso	9.694	13.057	15.801	17.605	17.672	18.728	22.975
Varedo	5.447	8.623	11.373	12.000	12.924	12.642	12.919
Tot. Res. Seveso Monza Brianza	71.363	107.223	139.184	144.459	147.218	150.941	170.023
Tot. Res. Prov. Monza Brianza	395.030	489.305	640.545	699.516	729.347	766.631	840.358
Bresso	4.575	11.655	32.043	32.650	30.119	27.132	25.753
Cinisello Balsamo	15.336	37.699	77.284	80.757	76.262	72.050	71.840
Cormano	6.016	12.616	20.440	19.247	18.860	18.056	20.055
Cusano Milanino	8.621	15.025	20.532	21.742	21.357	19.850	18.759
Melegnano	11.170	13.247	18.965	18.495	16.256	15.761	17.002
Milano	1.274.154	1.582.421	1.732.000	1.604.773	1.369.231	1.256.211	1.262.101
Paderno Dugnano	14.218	31.704	35.172	39.129	43.963	45.444	46.785
San Donato Milanese	2.667	10.296	26.872	31.962	31.331	32.354	31.196
San Giuliano Milanese	8.205	14.999	26.737	30.163	33.106	31.295	36.460
Senago	5.485	11.392	16.844	17.556	18.203	18.899	21.121
Tot. Residenti Seveso Milano	1.350.447	1.741.054	2.006.889	1.896.474	1.658.688	1.537.052	1.551.072
Tot. Residenti Seveso (escl. Milano)	76.293	466.900	732.735	622.320	384.534	262.898	288.971
Tot. Res. Provincia Milano	1.929.687	2.494.598	3.087.296	3.139.490	3.009.338	2.940.579	3.035.443
Tot. Res. Prov. MI (escl. Milano)	655.533	1.220.444	1.813.142	1.865.336	1.735.184	1.666.425	1.773.342

Tab. 2 – Demographic change, Seveso area. Created by the author on the basis of ISTAT 2012 data

Demographic change (fixed base index: pop. '51=100)							
Comuni	**'51**	**'61**	**'71**	**'81**	**'91**	**'01**	**'11**
Albavilla	100,00	106,06	125,78	146,51	159,27	171,42	182,45
Albese con Cassano	100,00	106,86	123,34	148,64	148,30	150,11	159,95
Alzate Brianza	100,00	111,92	130,59	157,31	179,44	204,95	226,99
Arosio	100,00	119,45	161,64	166,83	194,58	203,60	231,16
Brenna	100,00	112,15	118,36	128,85	147,38	158,83	179,72
Cabiate	100,00	116,25	134,26	141,02	151,59	161,51	177,76
Cantù (Asnago)	100,00	124,77	152,63	172,70	169,83	165,15	184,50
Capiago Intimiano	100,00	120,15	156,06	180,06	189,48	204,44	234,85
Carimate	100,00	109,68	134,63	164,47	182,58	200,26	231,05
Carugo	100,00	136,65	165,78	166,84	173,96	193,39	226,26
Casnate con Bernate	100,00	124,33	133,83	186,17	228,90	260,06	291,57
Cavallasca	100,00	138,92	264,38	312,40	332,45	360,55	387,20
Cermenate	100,00	122,47	156,65	172,31	186,13	197,13	208,44
Villa Guardia (Civello)	100,00	113,71	145,52	159,04	158,72	172,99	211,39
Cucciago	100,00	119,39	144,38	153,06	187,54	215,22	230,37
Figino Serenza	100,00	118,96	145,74	168,38	187,17	191,89	217,67
Fino Mornasco	100,00	130,55	170,38	186,58	192,10	201,94	239,39
Grandate	100,00	125,62	173,02	180,62	189,66	188,62	187,52
Inverigo	100,00	112,30	132,04	142,57	146,76	148,51	172,03

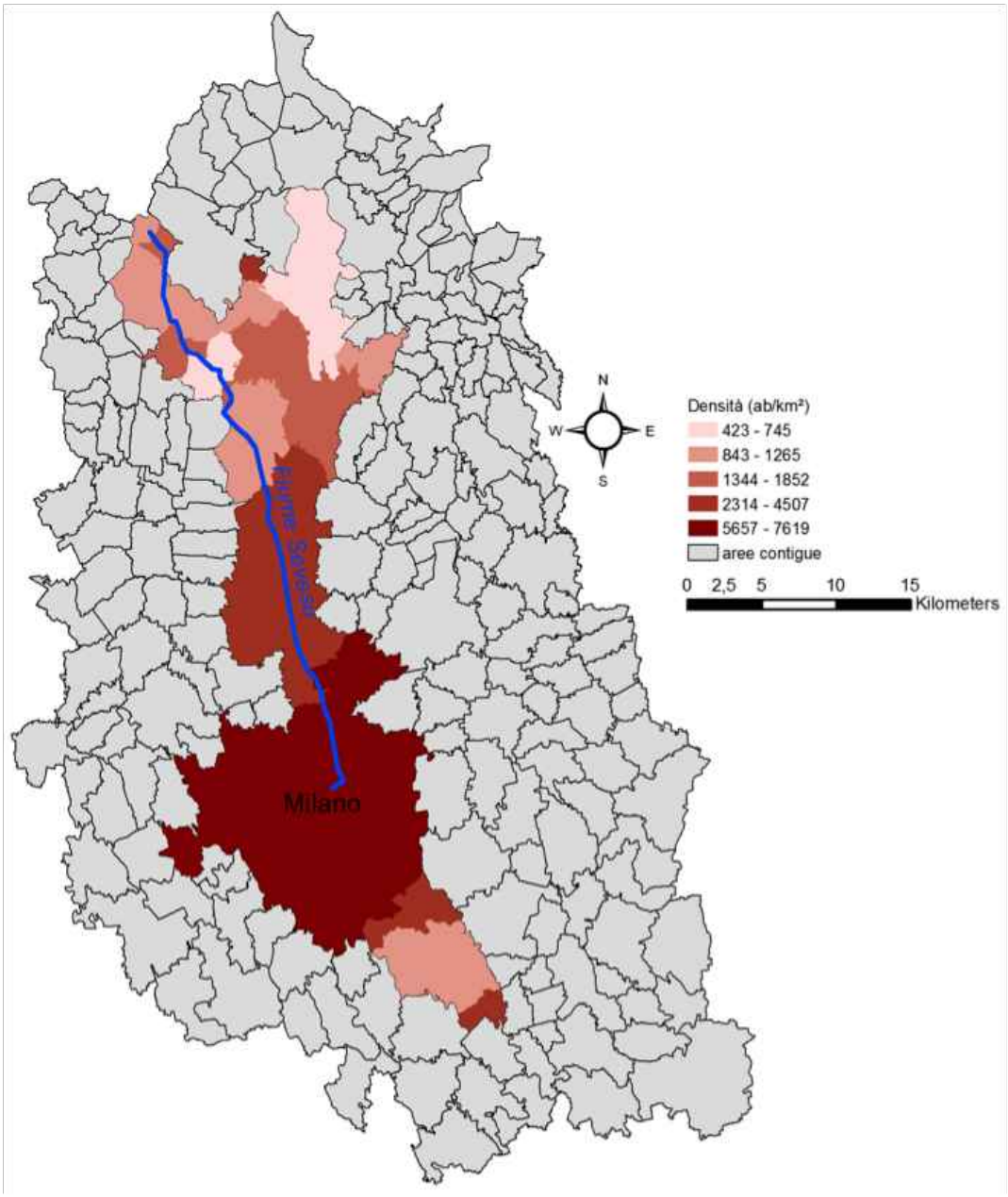
Lipomo	100,00	132,95	372,09	753,96	832,23	794,68	837,99
Luisago (Portichetto)	100,00	116,44	143,79	151,78	166,88	187,19	215,02
Mariano Comense	100,00	124,40	155,60	180,31	185,01	198,63	231,78
Montano Lucino	100,00	122,90	157,26	176,34	201,96	215,77	243,80
Montorfano	100,00	117,17	157,00	253,71	274,79	303,17	320,34
Novedrate	100,00	135,24	146,03	178,25	209,81	236,22	238,84
Orsenigo	100,00	105,24	105,24	159,16	185,60	204,19	239,62
San Fermo della Battaglia	100,00	135,54	239,24	280,82	318,45	337,55	364,46
Senna Comasco	100,00	131,94	191,87	275,79	342,46	548,81	629,56
Vertemate con Minoprio	100,00	119,63	139,64	166,63	187,25	211,71	222,32
Tot. Comuni Seveso Como	100,00	121,07	151,85	175,38	185,47	195,33	218,95
Tot. Prov. Como	100,00	112,25	131,67	141,41	144,37	148,62	162,25
Barlassina	100,00	121,22	168,41	177,89	181,66	187,44	214,71
Bovisio-Masciago	100,00	125,97	155,76	155,85	168,57	187,87	234,88
Cesano Maderno	100,00	150,69	196,22	188,59	189,74	196,64	222,07
Lentate sul Seveso	100,00	128,06	145,29	155,82	167,37	168,65	183,53
Limbiate	100,00	237,65	351,69	359,39	350,75	347,21	378,23
Meda	100,00	129,30	158,51	177,85	180,89	184,76	202,01
Seveso	100,00	134,69	163,00	181,61	182,30	193,19	237,00
Varedo	100,00	158,31	208,79	220,30	237,27	232,09	237,18
Tot. Seveso MB	100,00	150,25	195,04	202,43	206,29	211,51	238,25
Tot. Prov. MB	100,00	123,87	162,15	177,08	184,63	194,07	212,73
Bresso	100,00	254,75	700,39	713,66	658,34	593,05	562,91
Cinisello Balsamo	100,00	245,82	503,94	526,58	497,27	469,81	468,44
Cormano	100,00	209,71	339,76	319,93	313,50	300,13	333,36
Cusano Milanino	100,00	174,28	238,16	252,20	247,73	230,25	217,60
Melegnano	100,00	118,59	169,79	165,58	145,53	141,10	152,21
Milano	100,00	124,19	135,93	125,95	107,46	98,59	99,05
Paderno Dugnano	100,00	222,98	247,38	275,21	309,21	319,62	329,05
San Donato Milanese	100,00	386,05	1.007,57	1.198,43	1.174,77	1.213,12	1.169,70
San Giuliano Milanese	100,00	182,80	325,86	367,62	403,49	381,41	444,36
Senago	100,00	207,69	307,09	320,07	331,87	344,56	385,07
Tot. Seveso Milano	100,00	128,92	148,61	140,43	122,83	113,82	114,86
Tot. Seveso (escl. Milano)	100,00	611,98	960,42	815,70	504,02	344,59	378,76
Tot. Provincia Milano	100,00	129,27	159,99	162,69	155,95	152,39	157,30
Tot. Prov. MI (escl. Milano)	100,00	186,18	276,59	284,55	264,70	254,21	270,52

Tab. 3 – Demographic change of municipalities in Seveso area; pop. 1951=100. Created by the author on the basis of ISTAT 2012 data

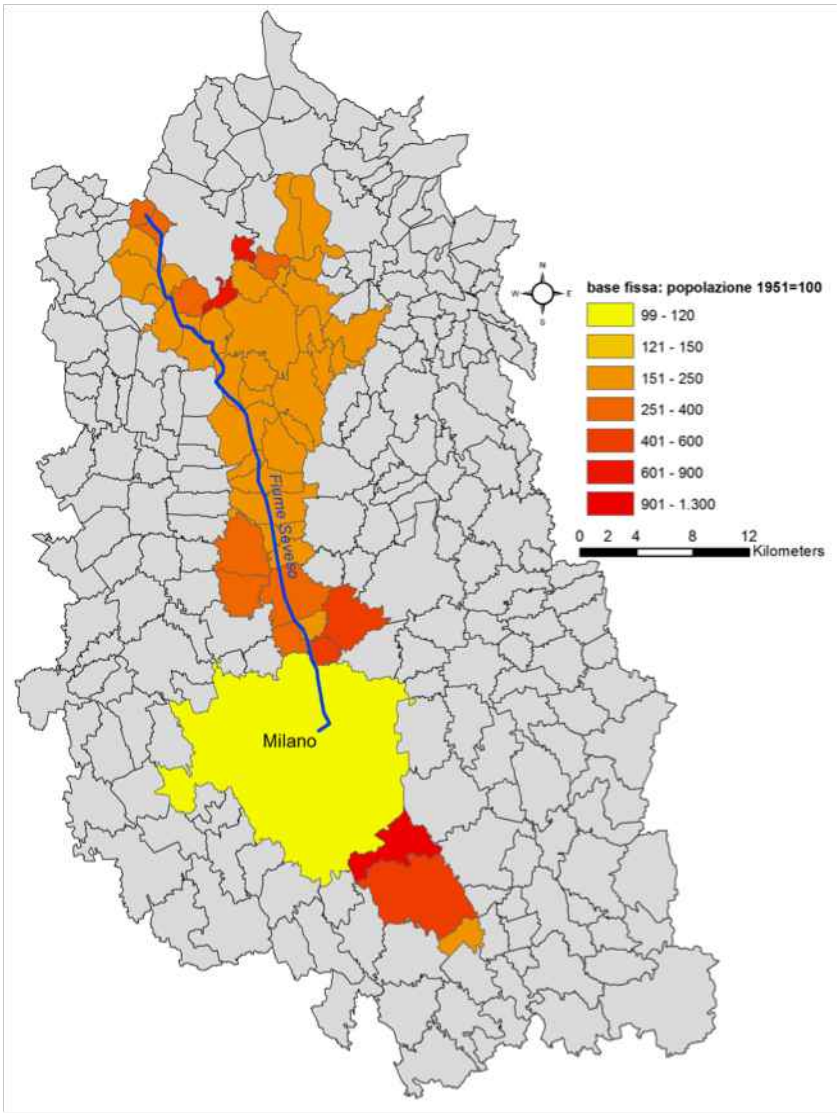
As the data above indicates, the most densely populated areas are in the middle part of the basin, the municipalities of Brianza and the Milanese area, with the latter being one of the most densely-populated areas in Europe (Eurostat 2016)[60]. Analysing historical change in

60 http://ec.europa.eu/eurostat/tgm/mapToolClosed.do?tab=map&init=1&plugin=1&language=en&pcode=tgs00024&toolbox=types

the number of residents in these municipalities (see tables), it can be seen that the total population of the Seveso area grew by 21.2678 units between 1951 and 2011 (excluding the urban area of Milan). Ultimately, the population has shot up from 51 to 1,220 percent in all areas except for the city of Milan, where there has been an overall decrease. The Como area, on the other hand, is far from the others along the Seveso basin, despite the fact that the provincial population density remains above the regional and national average (412 ab/km² and 200 ab/km²). As Perino, Conforti, and Mela (2008) point out, the northern regions of Italy undergone re-urbanization in the last 15 years, meaning urban population growth and sprawl increase, especially in Lombardy. Between the two north-south main centres, Como (85.000 ab) and Milan, the main urban settlements are Cantù (39.,500 ab.), Seregno (44,000 ab.), Desio (40,000 ab.), Cesano Maderno (37,000 ab.), Meda (23,000) and Seveso (22,800 ab.). The municipalities in the north of Milan alone reach a total population of 100,000 ab. (Paderno-Dugnano, Cusano Milanino, Cormano and Bresso).



Map 2- Demographic density in the Seveso Basin (Created by the author on the basis of previous ISTAT data)



Map 3 - Demographic change in the Seveso Basin (Created by the author on the basis of previous ISTAT data)

The most interesting data concerns the metropolitan area of Milan, where demographic growth increased until the 1970s (at which point it reached a peak of more than 1,700,000 inhabitants), then fell beginning in the 1980s to its present 1,260,000 units (i.e. almost the same numbers as those recorded in the 1950s). The "emptying" of the Lombard metropolis from the late 1980s onward has involved migration into to neighbouring municipalities (now included in the Milanese conurbation). The municipalities most

affected by this phenomenon were those in the north and south of Milan, with Bresso and San Donato Milanese representing emblematic cases (+1.170 compared to 1951).

> "The average population density in this area is higher than 1,000 inhabitants/km2 (peak values are more than 7,000 inhabitants/km2 in the Milan urban area and around 1,500–2,000 inhabitants/km2, respectively, in the areas of the provinces of Varese and Como which are mostly drained by the Lambro). These population densities are among the highest in Italy and Europe. Industry is also highly developed in this basin: chemical, textile, paper, pulp and food industries being the most important ones. The basin is characterized by approximately 54 % impermeable surfaces, predominantly associated with the urban fabric, both continuous and discontinuous. Among the permeable surfaces (46 %), agricultural areas predominate; together with wooded areas, such regions cover 36 % of the basin, especially in the Northern portions close to the cities in the province of Monza and Brianza (Azzellino et al., 2013:4).

Moreover, the general infrastructural accessibility of the area is high, and the whole area is crossed by various infrastructureal elements: the Milan-Como highway (ex SS 35) connects Milan to the Como outskirts (Cermenate) and is the main road system along with SS 36 Milano-Lecco. The Lainate-Chiasso highway and new "Pedemontana Lombarda" motorway, which will be outside the province of Milan, will connect the province of Varese to that of Bergamo.

As already mentioned, the entire area has attracted people from the rest of the country, as Milan is known as the economic engine of Italy and is one of the richest areas in Europe (ASR, Lombardia 2015)[61]; this has caused an increase of urban land use on total area from 14 % in 1954 to 53 % in 2000 (Bocchi et al. 2012). The secular history of intense industrialization and high population density have led to a sharp decline in the areas destined for agriculture. The many small and medium-sized businesses make a strong showing in the furniture industry, wood-processing factories and industrial plants as well as the chemical and textile sectors. The furniture sector – which has played a very important role historically[62] – has been declining since 2008; and the number of firms in

61 http://www.asr-lombardia.it/ASR/indicatori/indicatori-di-sintesi/lombardia-e-province/
62 Part of this area is referred to as the 'furniture district'.

the industry had already fallen by 20% in the decade 1987-1997. Many businesses (both small and large) have closed their doors, and those that remain are in serious difficulty[63]. Furniture stores, with about 40,000 employees, are mainly concentrated in Lissone, Meda, and Cantù, in Brianza (Como); Seveso and Seregno continue to constitute production centres as well[64]. Other major industries include CLARIANT (Palazzolo Milanese (MI) - Paderno Dugnano), producing chemical auxiliaries and dyestuffs for the textile industry; FAREN (Varedo (MB)) focused on chemical transformations; BASF (Cesano Maderno (MI)) dealing with chemistry and synthetic materials; Farghin Petrol (Seveso (MB)) dealing with chemistry; Su. For (Cormano (MI)), in fuels; and the large group Bolton (Rio Mare and Palmera) in Cermenate (CO), in the food sector. Although the crisis of the last few years has in some way affected the whole economy of this area, the Seveso basin remains an economic landmark for the entire region and Po Valley as a whole.

From the data shown below regarding average income, it is evident that Milan with its municipalities is the 'richest' province, followed by Monza and Como. Average income ranges from €21,394 in Limbiate (MB) to €35,751 in Milan.

Income based taxation (IRPEF – 2010)							
Provincia	Numero Dichiaranti	Popolazione	%pop	Importo Complessivo	%Totale	Reddito Medio	Media/Pop
Provincia di Milano	1.878.393	3.156.694	59,50%	55.955.119.019	32,80%	29.789	17.726
Provincia di Monza e della Brianza	504.002	849.636	59,30%	13.086.427.563	8,80%	25.965	15.402
Provincia di Como	331.802	594.988	55,80%	8.140.188.144	5,80%	24.533	13.681
Totale	5.731.702			148.009.430.551			

	Provincia di Milano						
Posiz. Prov.	Comune	Dichiaranti	Popolazione	%pop	Importo Complessivo	Reddito Medio	Media Pop.
5	Milano	778.253	1.324.110	58,80%	27.823.047.228	35.751	21.013
6	San Donato Milanese	19.670	32.702	60,10%	684.803.279	34.815	20.941
17	Cusano Milanino	12.037	19.547	61,60%	324.857.013	26.988	16.619
27	Bresso	16.202	26.399	61,40%	421.246.169	26.000	15.957
43	Melegnano	10.693	17.260	62,00%	266.600.568	24.932	15.446
76	Paderno Dugnano	28.341	47.695	59,40%	701.573.128	24.755	14.710
82	Cormano	12.130	20.270	59,80%	293.962.446	24.234	14.502

63 UnionCamere Lombardia – Distretti, http://www.unioncamerelombardia.it/?/distretti-industriali-della-lombardia/osservatorio-economico/distretti

64 The main remaining brands are: *Cappellini* (FRAU) in Carugo (Como); *Giorgetti*, *Cassina Flou* and *Flexiform* in Meda (MB); *Molteni*, in Giussano (MB); *Tecno* in Mariano Comense (CO).

111	San Giuliano Milanese	21.549	36.871	58,40%	512.979.809	23.805	13.913
120	Senago	12.472	21.273	58,60%	285.921.298	22.925	13.441
122	Cinisello Balsamo	43.334	74.150	58,40%	988.246.042	22.805	13.328
	Totale	1.878.393			55.955.119.019		

Confronto dati Provincia di Milano con Regione/Italia

Nome	Dichiaranti	Popolazione	%pop	Importo Complessivo	Reddito Medio	Media/ Pop.
Provincia di Milano	1.878.393	3.156.694	59,50%	55.955.119.019	29.789	17.726
Lombardia	5.731.702	9.917.714	57,80%	148.009.430.551	25.823	14.924

Provincia di Monza e Brianza

Posiz. Prov.	Comune	Dichiaranti	Popolazione	%pop	Importo Complessivo	Reddito Medio	Media/ Pop.
29	Barlassina	3.978	6.887	57,80%	102.786.421	25.839	14.925
32	Varedo	7.915	12.899	61,40%	190.241.240	24.036	14.749
38	Bovisio-Masciago	9.836	16.903	58,20%	245.368.499	24.946	14.516
44	Meda	13.291	23.221	57,20%	332.386.998	25.008	14.314
45	Seveso	13.371	22.877	58,40%	320.047.556	23.936	13.990
47	Lentate sul Seveso	9.318	15.572	59,80%	214.784.589	23.051	13.793
53	Cesano Maderno	21.187	37.291	56,80%	481.885.718	22.744	12.922
55	Limbiate	19.681	35.168	56,00%	421.056.350	21.394	11.973
	Totale	504.002			13.086.427.563		

Confronto dati Provincia di Monza e della Brianza con Regione/Italia

Nome	Dichiaranti	Popolazione	%pop	Importo Complessivo	Reddito Medio	Media/Pop.
Provincia di Monza e della Brianza	504.002	849.636	59,30%	13.086.427.563	25.965	15.402
Lombardia	5.731.702	9.917.714	57,80%	148.009.430.551	25.823	14.924

Provincia di Como

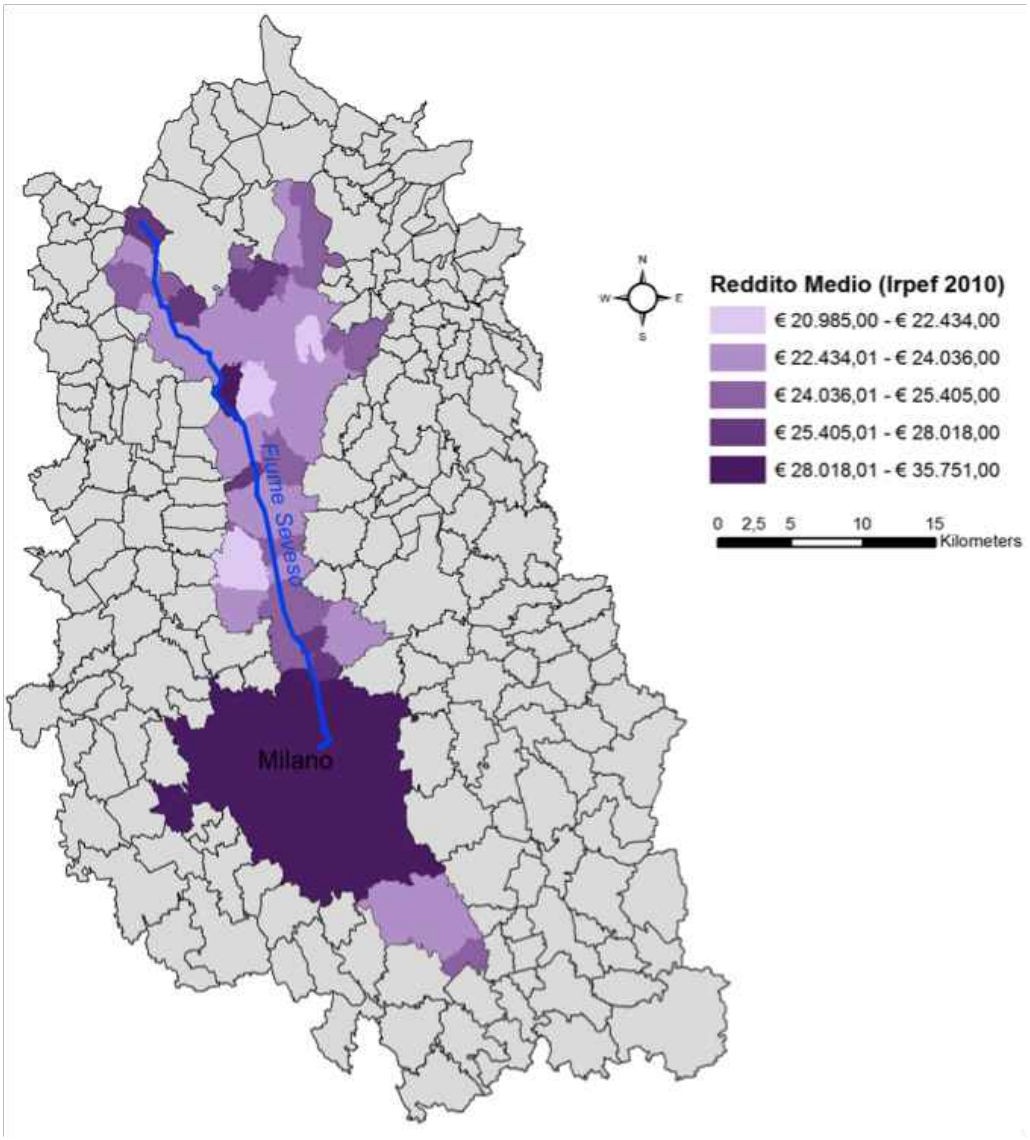
Posizione provincia	Comune	Dichiaranti	Popolazione	%pop	Importo Complessivo	Reddito Medio	Media / Popol.
4	Carimate	2.435	4.320	56,40%	79.967.318	32.841	18.511
9	Montorfano	1.569	2.696	58,20%	43.960.635	28.018	16.306
12	Casnate con Bernate	2.917	4.936	59,10%	78.176.248	26.800	15.838
18	San Fermo della Battaglia	2.549	4.489	56,80%	69.698.781	27.344	15.527
19	Capiago Intimiano	3.193	5.530	57,70%	85.017.720	26.626	15.374
22	Orsenigo	1.633	2.758	59,20%	41.485.862	25.405	15.042
24	Grandate	1.732	2.921	59,30%	43.767.588	25.270	14.984
30	Lipomo	3.490	5.860	59,60%	86.427.778	24.764	14.749
31	Inverigo	5.304	8.981	59,10%	132.160.865	24.917	14.716
35	Albavilla	3.671	6.272	58,50%	90.061.025	24.533	14.359
39	Albese con Cassano	2.512	4.139	60,70%	58.854.404	23.429	14.219
41	Villa Guardia	4.405	7.759	56,80%	109.261.804	24.804	14.082
43	Luisago	1.618	2.702	59,90%	37.862.287	23.401	14.013
44	Cermenate	5.404	9.097	59,40%	127.413.398	23.578	14.006
53	Vertemate con Minoprio	2.387	4.025	59,30%	54.650.418	22.895	13.578
54	Alzate Brianza	2.955	5.103	57,90%	69.007.036	23.353	13.523
55	Montano Lucino	2.677	4.755	56,30%	64.209.978	23.986	13.504
56	Fino Mornasco	5.406	9.614	56,20%	129.408.465	23.938	13.460

57	Cabiate	4.181	7.394	56,50%	99.408.865	23.776	13.445
60	Cantù	22.295	39.540	56,40%	529.344.227	23.743	13.388
64	Brenna	1.176	1.987	59,20%	26.382.052	22.434	13.277
65	Cavallasca	1.515	2.971	51,00%	39.417.204	26.018	13.267
67	Arosio	2.885	4.964	58,10%	65.598.005	22.738	13.215
69	Senna Comasco	1.791	3.211	55,80%	42.281.513	23.608	13.168
71	Cucciago	1.953	3.472	56,30%	45.533.328	23.315	13.114
73	Mariano Comense	13.382	23.890	56,00%	310.757.095	23.222	13.008
78	Carugo	3.477	6.262	55,50%	80.597.929	23.180	12.871
90	Novedrate	1.729	2.932	59,00%	36.283.923	20.985	12.375
91	Figino Serenza	2.929	5.243	55,90%	64.131.392	21.895	12.232
	Totale	331.802			8.140.188.144		

Confronto dati Provincia di Como con Regione/Italia

Nome	Dichiaranti	Popolazione	%pop	Importo Complessivo	Reddito Medio	Media/Pop.
Provincia di Como	331.802	594.988	55,80%	8.140.188.144	24.533	13.681
Lombardia	5.731.702	9.917.714	57,80%	148.009.430.551	25.823	14.924

Tab. 4. Income based taxation (IRPEF – 2010). Source: Istat 2010



Map 4 – Average income [IRPEF]. Created by the author on the basis of Istat data 2010

Environmental concerns – Despite its environmental assets, the basin holds a considerable pollution load due mainly to industrial discharge. The northern area of Milan continues to display the enduring legacy of its industrial past, and this is quite evident when looking at the current state of ecological indicators as well as the many projects seeking to remediate polluted areas. There are about 190 contaminated sites (150 in the city of Milan) that affect all the environmental elements (air, soil, subsoil, surface waters), mainly caused by accidental events, spills and the unloading of waste (Regione Lombardia 2010).

Contamination has also seriously compromised surface waters, mainly due to pesticides, industrial products and pharmaceuticals (Meffe and de Bustamante 2014). Although the Lambro-Olona-Seveso system represents only the 6% of the Po river drainage area[65], is still the most polluted tributary of the Po river; its depurated waste waters constitute about half of the total streamflow (Azzellino et al. 2013:682). The most pressing issues affecting the water system of the Lambro-Seveso-Olona basin as a whole are particularly critical in the Seveso river. Drawing on Masseroni and Cislaghi (2016:2), these conditions can be summarized as:

– Inadequate discharge capacity of watercourses, resulting in the risk of overflow in large urban areas, even when the intensity of precipitation is not significant;

– Poor physical–chemical water quality;

– Poor biological quality of the river environment;

– Poor hydro-morphological quality of watercourses;

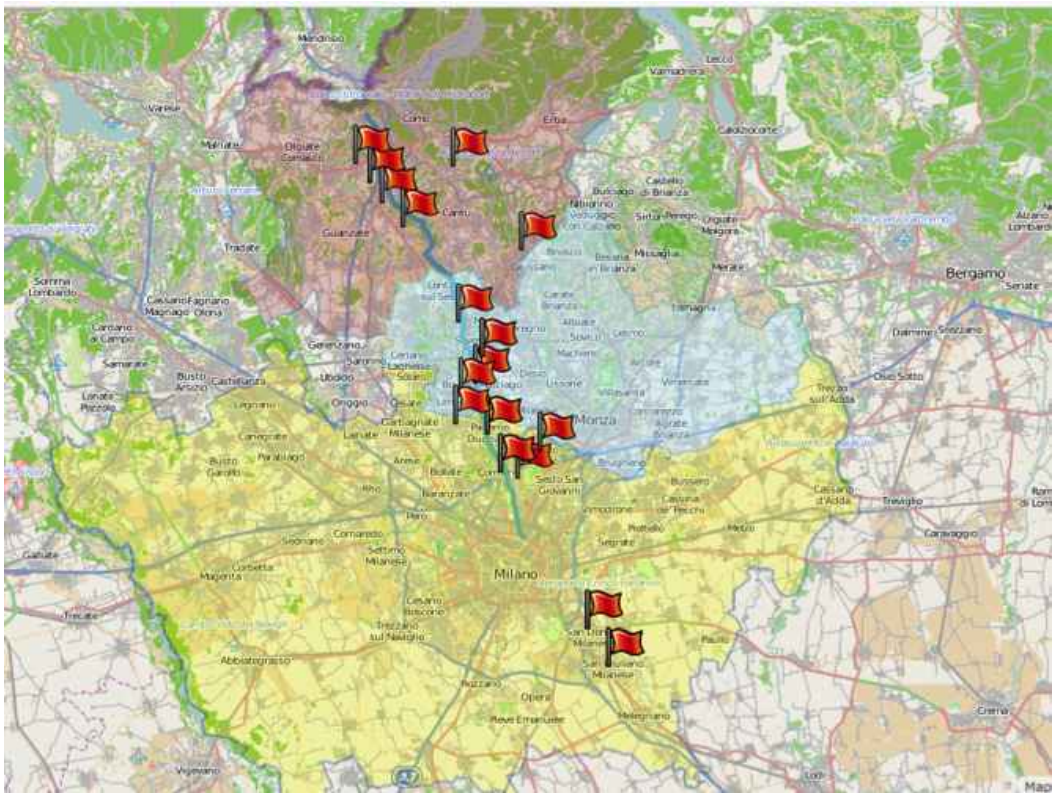
– A lack of aesthetic quality in the landscape; and

– A lack of recreational functionality.

The whole area – which covers a surface area of 2,500 km2 and is inhabited by more than 4 million people – is also well known for its worldwide dioxin disaster, caused by the collapse of an industrial plant in 1976 (Centemeri 2006). Indeed, it is one of the most threatened areas in Lombardy due to urban density and industrial sites[66] which have dramatically reduced agricultural and natural landscape features, as well as the river's natural conditions (Bocchi, La Rosa, and Pileri 2012; Azzellino et al. 2013).

65 This consists of alluvial and fluvial-glacial deposits with river-marsh marine materials that have the main function of serving as a drain mattress.

66 https://www.dati.lombardia.it/Ambiente/Aziende-a-Rischio-di-Incidente-Rilevante/qqdi-mhit/data



Map 5 - Contaminated Sites of the Basin. (Created by the author on the basis of OpenData Lombardia; ArcGIS on line cartography)

Over the years the Seveso river has garnered the nickname the 'black river' due to its ecological state, and it periodically overflows in the neighbourhoods of northern Milan (Niguarda and Isola). Record flooding took place in 2010 (8 times) and 2104 (6 times), causing considerable damage, estimated at around 100 million euros (IlSole24Ore 2014). Soil sealing, linked to the intense development and urbanization process, is responsible for these water overflows. After the XIXth century, the watercourse initially assumed the industrial function of energy supplier and later as receiver of waste waters: even postcards from past epochs show a dark, threatening river that continually floods entire neighbourhoods (Boatti 2003:4). The river nowadays is a waterway full of pollutants from industrial discharge (some of which are not purified or authorized for dispersal), often enclosed between buildings.

> "The significant increase in flow rates and flood volumes due to the impermeable soil and progressive and unrestrained urban development has resulted in decreasing concentration times during the process of rainfall runoff

> formation (…). Currently, the major challenges facing administrators, engineers and land planners are quite significant. They not only concern urgent interventions for mere mitigation of flood effects, such as projecting lamination infrastructure and storm water treatments for newly urbanized areas, roads or railways, but also require conceptualizing a new composition of urban and agricultural land areas for the purposes of hydrogeological balance, redevelopment of the landscape and environment, and containment of degradation" (Masseroni and Cislaghi, 2016:2-4).

Given today's high levels of pollution, the WFD qualities standards (§5) would appear nearly impossible to apply; however, this is exactly why the basin was chosen as one of the pilot areas for implementing the 'River Contract' (Contratto di Fiume) in 2006 (Bocchi, La Rosa, and Pileri 2012).

7.2 River Contracts: international standards and local arrangements

As analysed earlier [§5], the WFD had the ambitious goal of achieving good health status for all waters by 2015. This target was to be met in part through consultation and the active participation of citizens in the choice and coordinated management of measures to be taken. These decisions were to be negotiated among the stakeholders of each river basin/hydrographic district, the unit which was the new 'optimal' geographic scale set by the Directive. This approach underlies the logic that enabled the creation of river contracts in search of effective solutions for remediating river basins.

> "River contracts respond to the need for introducing new forms of governance that are sought by European directives and guidelines for the public administration to implement integrated management of water, land and landscape in a shared and subsidiary manner. River contracts prioritize the participation of basin, regional, provincial and municipal authorities as well as other stakeholders. Collective governance such as this is increasingly associated with successful efforts for sustainable development. Local communities lie at the centre of such governance; they are the main actors in protecting rivers as collective resources, stopping the degradation and disappearance of natural landscapes, maintaining biodiversity and the environment, and achieving more efficient use and sustainable management of these valuable resources" (UNESCO 2015:13-14).

One important feature of RC is that they are voluntary agreements based on broad participation, with the aim of improving ecological and socio-economic regeneration. They were first officially introduced in France in the 1990s and later in Belgium (Vallonie), and by now are internationally widespread. In 2000, for the first time, they were identified at the international level as suitable processes for promoting the sustainable development of territories at the river basin scale, as the 2nd World Water Forum and WFD paved the way for river basin planning through participatory and inclusive approaches.

> "The River Contract model has increasingly been used as a means to restore, improve or conserve a river through a series of actions that are agreed in a broad participatory process involving all basin users, and private and public entities involved in water management. Under the scheme, both public and private sector interests commit themselves to implement a consensus action programme to restore the river and its water resources. The Contract involves defining management objectives and guidelines and developing a plan of action that benefits from the input of local expertise. All participants (including local authorities, public departments and agencies, water users and NGOs) come together in a river committee, which is a meeting place and a forum in which views can be expressed and discussed. The River Contract exists in parallel to established management procedures rather than being proposed as an alternative to these" (EEA 2014:25).

The success of river contracts and their international diffusion is due to its methodology and associated flexibility in the way it develops (Bastiani 2011). The river contract always comes in the form of a program agreement that includes a series of operational acts, agreed on between the resource manager and administration in question (the state, with its local government structures) and citizen representatives with interests in the river (farmers, industrialists, fishermen and environmentalists). The RC adopts "a system of rules where public utility, economic, social, and sustainability criteria work equally in seeking effective solutions for the regeneration of a river basin" (Second World Water Forum 2000). Bastiani (ibid) argues that, from an ethical point of view as well, this approach reinforces the responsibility of those living in the area: if the management of rivers were totally delegated this would become delegated responsibility, with the result that communities would experience it in the form of constraint, a denial of their sense of responsibility. What is required, in a sense, is that they share a set of values (naturalistic, landscaping, socio-

economic, cultural) in a regulatory context that takes into account the interests, views and needs of the contract participants. Environmental sustainability therefore goes hand in hand with the sense of responsibility of the community that inhabits a place: the idea is that river basins can only be recovered by empowering communities. Ultimately, any project for managing water cannot be separated from economic and local policy choices because the protection of water (and soil) is a vital condition and measure of the quality of daily life and development (*ibidem*.). The RC approach is conceived of as an alternative to emergency-like practices: it expresses the need that different territorial functions be considered and coordination and cooperation be ensured among stakeholders, which requires forms of broad participation: the decisions being made thus require the consent of all participants (rather than a majority vote). More importantly, it is interesting to note how these tools have been integrated into other territorial planning instruments, especially in the EU (Scaduto 2016).

From a normative point of view, they represent the evolution of an international, and national (in Italy) regulatory framework that has been consolidated by means of several important EU directives:

-the Water Framework Directive 2000/60 / EC and the 2000 European Landscape Convention;

- Directive 2003/4/EC on public access to environmental information;

- Directive 2003/35/EC on public participation in the elaboration of certain environmental plans and programs;

- Directive 2001/42 /EC on VAS.

In addition, it is interesting to examine how European urban environmental strategies represent the causes of today's water pollution and flooding risk. In this regard, in 1998 the document "Sustainable Urban Development in the European Union: A Framework for Action" contributed to emphasizing the importance of urban planning and the local dimension in achieving a sustainable urban environment[67].

67 The implementation of the two Urban Wastewater Treatment and Nitrates Directives raises issues that concern water purification plants and pollution from agricultural sources. The 1996 Directive on

River Contracts in Italy – Since 2003, it has been increasingly common for RC in Italy to be implemented nationwide, and in 2008 a National Board on River Contracts was established. Lombardy and Piedmont were pioneering regions, implementing a number of river contracts as well as projects for environmental rehabilitation and the improvement of agricultural systems (UNESCO 2015).

> "RC may contribute to developing also in Italy new integrated forms of urban and regional planning and therefore represent an innovative instrument of territorial governance. Indeed they are becoming effective tools for identifying shared strategies, actions and rules for the horizontal and vertical integration of policies, programs, action plans, for the purposes of fostering the participation of local communities and re-qualifying each river basin, even from socio-economic, landscape and environmental standpoints. Another key aspect of the RC paradigm is the voluntary participation of those stakeholders seeking to define and implement integrated and shared local water management actions. In this sense, these contractual agreements may help overcome the traditional mind-set within the specific sector of water and environmental resource management" (Scaduto 2016:7).

The process is developed in stages: the construction and activation of the network, the definition of rules and tools, the construction of a vision and prioritization of shared objectives, the execution of the agreement, the implementation and performance monitoring, and communication and training (ibidem). Bocchi et al (2012) underline that local differences in the process give rise to differentiated strategies and actions, differing

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Integrated Pollution and Prevention Control (IPPC) and the 1998 Drinking Water Directive were approved in the 1990s. A number of recommendations in this regard are also found in the 1999 ESDP (European Spatial Development Perspective – Towards Balanced and Sustainable Development of the Territory of the European Union) adopted by all Member States on a voluntary basis. The "Communication Towards a Thematic Strategy on the Urban Environment" also provides an overview of the European approach in this field. The overall objective is to ensure the sustainable development of the regions in which urban areas are incorporated, "minimizing the negative impacts of urban areas on ecological cycles at all levels, applying the precautionary principle, and improving ecological conditions" (EP 2006). Other policies of note are the Habitats Directive of 1992 and the 2001/42/EC Directive on the so-called VAS, Strategic Environmental Assessment. The "Habitat" Directive is linked to a large part of the biodiversity conservation actions implemented and designed in recent years, from the European Network 'Natura 2000' to local ecological networks. The Sixth Environmental Action Program (Decision 1600/2002/EC) identifies four areas of priority attention: climate change, nature, biodiversity, health and quality of life and the management of natural resources and waste, dealing with emerging environmental issues that also directly affect the basins in question. Lastly, Regulation No. 761/2001 on EMAS voluntary membership in a Community Eco-Management and Audit Scheme allows public administrations to analyse the direct and indirect impact of their activities on the environment, to take into account the positions of key stakeholders and to make public the environmental data of their operations, certified by independent evaluators.

also from region to region: for the first time, this has resulted in the involvement of several public bodies associated with the basin region: the Regional council, Regional Department for Water Management, Regional Department for the Environment, Provincial Councils, Municipalities of the basin, Basin Authority for the Po River, Regional Environmental Agency, Regional Parks, Provincial Administrations for the Water Management, Regional Environmental Protection Agency, environmental groups, and experts from universities. The main idea is that each stakeholder takes part by covering the area of its own competence and power to achieve shared goals in river basin requalification, with different interests taking part in the discussions held by committees. So far the 'actions program' has included a new water management plan; new regulations for the sewerage system; a drains survey by the Regional Environmental Protection Agency; and fluvial re-naturalization projects. Over the years there have been slowdowns and accelerations, and the number of workshops held has proved crucial to improving knowledge about and familiarity with the issue of the ecological network.

Lombardy and the *Contratto di fiume Seveso* – As early as 1988, the Italian Ministry of Environment launched a 5-year de-pollution plan ('Piano quinquennale di disinquinamento')[68] to address the ecological status of the Olona-Lambro-Seveso system, in view of its compromised state. In the following years, the Lombardy Region commissioned a series of investigations to identify factors of degradation and possible future scenarios (Balducci et al. 2001; Scaduto 2016). Between 2000 and 2003, with the impetus from the 2nd World Water Forum and the WFD's new legal frameworks, the Lombardy Region launched the first Italian River Contract for the Olona-Bozzente-Lura subsystem (Lombardy Region 2016). The goal was to produce an example of a river contract in the area of the Lambro-Seveso-Olona basin, fostering new conditions for participation and synergy in the sustainable management of water resources at the catchment-basin level[69].

68 Decreto del Presidente del Consiglio dei Ministri 29 luglio 1988, n. 363 – http://www.gazzettaufficiale.it/atto/serie_generale/caricaDettaglioAtto/originarioatto.dataPubblicazioneGazzetta=1988-08-25&atto.codiceRedazionale=088G0420

69 The RC was signed in February 2003, with the final version signed in 2004.

The concentration of pollution problems, hydraulic risk, ecosystem quality and fruition found in the basin is all but unparalleled among European situations: in view of this fact, planners decided to activate the RC in this site as a priority measure and initial experimentation in activating a large number of subjects (Scaduto, 2016). To develop River Contracts in Lombardy properly, the AQST (Regional Development Framework Agreement- Accordo Quadro Sviluppo Territoriale) was chosen as the most suitable instrument[70].

70 Phases of CDF:

In accordance with the provisions of art. from 5 to 10 of the said Regulation, three phases of the process have been identified:

1. Promotion (Article 5)

Promotion is the responsibility of the Region. The proposal is submitted by the competent assessor and is formalized by the adoption of a specific resolution of G.R. With the same resolution, a Coordination Committee (consisting of all the representatives of the parties to the proposal) is set up along with a Technical Committee, whose composition is defined by the resolution itself, so that the participating institutions and territories are in equilibrium.

2. Approval and signing (Article 6)

The AQST-River Agreement Scheme, which is prepared by the Technical Committee and on which the Coordination Committee expresses a preliminary agreement, is approved by the relevant bodies of the affiliated entities and subsequently signed by its legal representatives. The regional approval decision identifies the councillor who will be tasked with coordinating regional activity and the other regional councillors involved in AQST signing.

The Director General of the Department responsible for co-ordination assumes the role of Responsible Authority of the AQST (Article 7).

3. Implementation, monitoring and remodelling (Article 9) The government and auditing of the progress of the overall process of carrying out the actions established by ASTC are the responsibility of the Party in charge, assisted by the Technical Committee. The Coordination Committee is responsible for verifying the implementation of the AQST periodically (every year or semester), deciding on the integration or remodelling of the AQST's general content and / or individual actions. It is decided that the integration or remodelling of individual sectors or areas of intervention foreseen by the ASTC that does not alter the defined objectives or overall allocation of resources may be authorized by the Party in charge of Coordination, after having consulted with the Technical Committee.

In summary, the AQST-River Agreement establishes the following bodies and subjects that interact with various functions and levels of responsibility in the preparation, management and implementation of the negotiation process:

(a) The Coordination Committee, consisting of the Chairman of the Regional Council or the Deputy Chairperson, who presides over it, and the Statutory Auditors, Presidents and Legal Representatives of the Subscribers or their delegates. Coordinating Committee members are lawfully involved in the regional committees responsible for water management, soil protection, urban planning, civil protection, parks and environmental resources, public works and agriculture, as identified by the resolution of the Regional Council promotion and subsequent approval of AQST, and the Appointed Subject.

b) The Appointed Subject

AQST is responsible for the General Director of D.G. Water Resources and Public Utilities of the Lombardy Region.

c) The Technical Committee, composed of technical representatives of the signing parties, coordinates the implementation of actions and supports the Party in charge in carrying out its tasks. The Technical Committee may, for the performance of its tasks, request the collaboration of the technical and administrative structures of the subscribers. The Technical Committee also uses technical-scientific and

The most important commitments of the RC are:

-to connect the residual open spaces in a green network in order to create a N-S ecological corridor as a structural element of an ecological basin network; to promote ecological, enhancement, the mitigation of hydraulic risk; the re-naturalisation of nearby riverbeds; and the sharing of information and promotion of water culture.

The contract was signed December 2006[71] and promoted and directed by the Lombardy Region along with ERSAF (Regional Agency for Agricultural and Forestry Services). The signatories were:

– 46 municipalities of the basin

– 3 provinces (Como, Monza – Brianza and Milan)

– 6 Parks

– ATO, the Local Water Board authority

– AIPO, the Interregional PO river Agency

– The Po Basin Authority

– The School Office of Lombardy

– ARPA, Regional Environmental Protection Agency.

organizational support provided by ARPA Lombardia.

d) The subjects responsible for the implementation of the individual interventions or actions provided by the ASTC. AQST Actuators are, each in relation to the responsibilities assigned to them, the subjects specifically identified in each Action Scheduler.

The AQST-River Agreement is structured on the basis of and develops the following topics:

a) Motivations and objectives of the "River Agreement"

b) Scope (territorial and main themes)

c) Defining the negotiated programming tool and expressing willingness to join

d) AQST bodies and structures

e) Indication of the stages of the process and of the working method

f) Mode of verification, integration and remodelling of the agreement and individual initiatives

g) Action Program, consisting of descriptive descriptions of each action with indications of the person in charge and any other participant involved, of the policy / action / intervention to be implemented, of its consistency with the AQST's aims and with the scenario defined as strategic, timing of implementation, the necessary and available resources, the normative tools to be activated, and the expected critical issues. The card also indicates whether a special negotiated programming tool is necessary to implement policy / action / intervention.

71 http://www.contrattidifiume.it/it/azioni/seveso/

The Action Plan (*Piano d'Azione*) outlines the following goals: to identify pollutants and improve waters; definition, to co-design the re-qualification of river beds and hydraulic risk protection; to improve the sharing of information about the basin; to raise awareness, educate and promote cultural initiatives on water. Examples of its actions included a new water management plan, new regulations for the sewerage system, a drains survey carried out by the Regional Environmental Protection Agency, and fluvial re-naturalization projects (Regione Lombardia 2017). The Seveso CDF was developed to overcome sectoral approaches, which usually end up exacerbating issues in water management, thus aiming to obtain a more comprehensive and holistic view of the basin as a whole. To this end focus groups and thematic workshops, along with meetings involving institutions and experts, were held with the goal of discussing and highlighting positions, expectations and commitments as well as identifying a form of governance in the process of re-qualification. Meetings have followed a fairly standard format: starting with a concrete project in progress or on the water course, discussing its relevance and replicability at other points along the river, taking the lead to put Seveso's problems on the table and discuss them according to different points of view. In this process certain aspects proved significant, namely the different phases of constructing and activating the network, defining rules and tools, building a vision and prioritizing shared objectives, executing the agreement, implementing and conducting performance monitoring, communication and training.

Bocchi et al (ibidem) underline that this process generated the involvement of several public bodies in the basin region for the first time ever: the main idea is that each stakeholder takes part focusing on its own area of competence and power to achieve a common goal in river basin requalification, with different interests participating in the discussions held by committees. In this scenario, local differences in the process shape differentiated strategies and actions. During the years there have been slowdowns and accelerations and the number of workshops was crucial to improving knowledge about and familiarity with the issue of the ecological network. Also, due to political changes in many of the municipalities in the middle of the process, "better results were obtained if delegates from participating institutions did not change during the different workshops, allowing them to gain familiarity with the issues, approaches adopted and terms used" (ibidem:525).

After 2012, conflicts arose over the construction of 4 flooding detention basins (DB) which were scheduled to be built to reduce hydraulic risk in the metropolitan area of Milan. This will be discussed in the following chapters.

Table 1 Summary of involved stakeholders, workshops and presentations for the Seveso river contract

Stakeholders	Number
Region departments	2
Provinces	2
Municipalities	46
Basin authority	1
Environmental protection agency of Lombardy	1
Administrations for the water management	3
Regional parks	4
Local parks	2
University	1
Others	2
Workshops and presentations	**Number**
Technical workshops	3
Average number of participants to technical workshops	23
Public presentations	2
Average number of participants to public presentations	45

Fig. 7.2 Stakeholders of CDF – from Bocchi et al. (2012)

8. From participatory governance to local environmental conflicts

This chapter aims to present the voices, perceptions and assessments surrounding the Seveso CDF. The first part (8.1) outlines data related to local stakeholders, in which we mainly sought to grasp the innovative features of RC, exploring the weaknesses and failures of the process while also considering potential improvements for future arrangements. The second part (8.2) investigates the motivations behind and causes of the recent conflicts over the detention basins (DB) in the basin. We gathered data from two moments: a first set in 2013 and a second and more substantial collection in 2016.

8.1 Perceptions and considerations around the Seveso CDF

One of the coordinators and founders of the Italian Network of Contratti di Fiume argued that the first examples taking place in Lombardy since 2004-2006 have been absolutely innovative: since 2007, the Italian network has been treating these projects as a model. He stresses that, despite the incredible number of norms and quantity of technical knowledge we have on river-related issues, especially flooding, there are many difficulties at the national level.

> "All this system is ineffective… Because there is a lack of governance in the management of these phenomena, that is, they have never invested in governance in Italy. If 10% of GDP was given to the governance processes… instead of investing in emergency, as usual… it would seem logical, as a good family father, but it is not applied at any level. There is no idea of prevention. It is not a matter for environmentalists, it also concerns the economy of this country... floods damage is estimated to be around the 0.7% of the national GDP in Italy, ok? The real problem that the CDFs are trying to solve is just to intervene in governance processes. The CDFs work according to this scheme: 'What are the problems of a territory?' – then they do something I call 'participative diagnostics'. The idea is to put together effective governance processes, making the planning and programming of individual bodies effective. It's not just a thing from below: it's a thing from the bottom that cuts across all the planning tools. If the path is resource-project-territory, the CDFs say 'what are the problems of the territory, what projects can we do, look for resources': that is exactly the opposite of the current path" (Int.200716).

As this interview indicates, the need to develop instruments that could cut across different areas in territorial planning through virtuous mechanisms of governance represents an important issue in Italy. RC seemed to have boosted innovation in this direction, becoming a benchmark tool in national environmental legislation as well[72].

At the AdbPo – the Agency which coordinates the entire system of Po Basin watercourses – one of the directors on risk prevention and water management remembers how the process took off.

> "CDFs were born in a context of great difficulty: before there was the Accordo di Programma of Milan that had started from far away and had already created a small and very efficient governance system. Thus, within the CDF, the problems of the defence of floods were mainly handled through a very narrow vision. All the other actors were missing. By its very nature, the Accordo di Programma could not be adapted to other issues. The CDF has more extensive governance, deals with many more issues – water quality, environment, water resource management, valorization, and a number of themes that promote the effective implementation of the plan. Because there is still an osmosis: so there is continuous sharing of issues with reciprocal advantage, because the CDF is a seat where the municipalities sit and so..." (Int.290616).

Concerning CDFs in Lombardy, two head managers of RL were interviewed to obtain an in-depth understanding of the local processes that took place.

> "The CDF has highlighted an important thing, i.e. that the government of a catchment basin is not separate but intimately connected to the territory's government. So, the theme of soil consumption is one of the components that serves to improve the hydrological conditions of a basin, that is clear. And it is one of the issues that the CDF has shown. The regional law on local water retention, with the hydraulic invariance principle and sustainable urban drainage, have been produced in the same spirit as CDF.
>
> The fact that it is voluntary makes the administrators interested in participating: it created great wealth, makes possible dialogue between various worlds, and the problems of a basin and the very different viewpoints of the stakeholders; but.... it is voluntary! So there are administrations that are not participating, or institutions that initially participate when there is a protocol with the goal to improve, but then when it comes to having a real vision for the future, through politics .. someone starts to pull back. This has more to do

72 http://www.camera.it/leg17/522?tema=collegato_ambientale#6003

with a cultural thing, something the CDF alone cannot solve. The CDF has the ambition to successfully integrate all the activities of regional and local policies and to orient them all towards a vision for the river basin with all the aim of improving the conditions of the watercourse, improving upgrading, to increase biodiversity and ecological things, security, everyone should work towards this goal ... however, the first thing that stakeholders should do to address the themes of a basin is share a whole set of basin as they would like it ... to be able to design, to redesign the overall layout and to achieve a fair balance between territorial, forestry, environmental, security … The problem is that, if I sign a contract with general declarations, but then I have to find a compromise ... This is the hardest point to handle and obviously should be a precondition for starting, before signing the contract we should put the view that I want to accomplish on the desk. These things were done in the last CDF in Lambro, to share the vision together, so we've had many fewer problems for detention basins, because there was a path made beforehand. This is also an important aspect for the Seveso: look, the Region has developed these things over time, from 2006 to 2010...there were the first major floods in Seveso, and we noticed that the security theme was underestimated… after the floods in 2010, the Region asked AdbPO for an overall review of the hydraulic safety project and several things have changed...The CDF is a dynamic tool that is updated and evolves over time, when there is new knowledge you have to put it on the table and understand how to update the contract's actions.

Well, the difficulties we had… there is always difficulty in communicating things correctly, even in the territory, to correctly translate information, so it becomes more and more difficult to talk...

if the mayor of a municipality decides to make river retraining interventions and is more sensitive to rounding up or new urbanization... the resources will be put somewhere else. This kind of the weak side of the matter.

Perhaps in these CDF there is a lack of AdB, the authority planning the hydraulic and hydrogeological layout of the basins [in Northern Italy]. Maybe, especially in decision-making at the basin level, there are formal involvement tools that are not really effective... this is a mechanism that from a certain point of view cuts outside the individual citizen: if he is not organized or is part of an association it's hard to ... to do that - but this is because there is no specific legislation in Italy on this, but here we are .... everyone is involved when there is an environmental impact assessment process, but the planning decisions have already been made...it depends on the territorial level they are proposed at. What the mayors probably want is to be involved in the earlier phases of planning...on one hand they want to be involved and on the other they are absent!" (Int.150516).

The other interviewees reported extensive experience regarding the topic, as one person involved from the beginning in the design of CDFs explained:

> "Let's say this: in recent years we have definitely stripped the CDF of the ambiguity of being a partnership table for local development, or... it was a mixed thing. We have conceived of it more and more as a tool for the implementation of the WFD for the realization of all that was necessary (politics, culture...) to recover river basins in Lombardy. So, it has become more central in implementing the Po management plan" (Int.170616)

Other issues related to the process were reported, such as a lack of funding and staff.

> "It would take so much staff or money to pay for external media that do the job of animation/coordination. But you cannot do that: there are 10 of us and we do virtually everything, from water service to CDF. The work of animation and promotion is a fundamental one, since taking care of the process brings more results than financing works. I am convinced, here they do not understand it. But it is a job that requires human resources, not just sending emails, publishing things: the human resource that it takes and explains working together at a table [is more important].

The issue of certain stakeholders – such as the private sector, for instance – being represented is also a very pressing one, as many private companies have their headquarters along the Seveso basin.

> "Yes, they are definitely missing. A mystery…. in CDF you do not see them. They do not participate, they try to invite them: municipalities or associations go and talk to them but they do not participate. We always call the trade associations but they do not make it: they are not convinced... The CDF is voluntary in nature…
>
> *Also, what would be the advantage in participating?*
>
> I do not know.. honestly... there must be some company that certifies environmental [responsibility]... but let's say that there has been no overture from that world. They present themselves as antagonists
>
> *Do the meetings directly involve citizens?*
>
> Their representatives, and then in the area we call on them – the municipalities, the environmental associations that do so much from in this sense. (…) But the media only focus on negative news... There are also many positive examples. It is not only anti-citizen committees…

Most importantly, the problem of scale in relation to governance and planning – municipalities and regional government legislation – is also a main concern in this case.

> "Sometimes their desires do not match with the goals of the CDF: they want to build, urbanize.... And also the fact that politicians change every five years: their time ends and you have to start from scratch – and you deal with the one that does not even know what a CDF is. That's why we would need an army... This is something that has never been understood: to build realistic policies, when it comes to territorial management, you have to go through the municipalities because you cannot operate top-down. If you want to change how the territory is managed, it must be done in a way that makes changes every day… so it has to change the head of the mayor, companies, technicians"(Int.170616).

In the lower part of the basin, right outside the walls of Milan, the institutions' perceptions have been characterized by a lack of involvement and knowledge about the process. The contract was perceived as a type of intervention promoted by the Parco Nord (the local urban Park) to remediate the river in the area. As a matter of fact, expectations for the future involved more substantial knowledge production among all the actors along the river ("what are the others doing?"), and more involvement by local environmental groups in the process (Int.101013). The local 'Ecomuseum'[73] was not even aware of the existence of the CDF at the time of our interview, reflecting the feeling that it was mainly an institutional "tool" (Int.311013). The Parco Nord spokesman saw the CDF as an opportunity to view river basin problems systematically, considering that partial and localized solutions do not produce benefits for the entire waterway.

> "There is still much to be done. You could start from the very word 'contract' and rediscover its meaning: each stakeholder voluntarily took on the commitments by signing the agreement: it would be necessary and useful to retrieve and review these commitments, if necessary, by directing action to greater clarity and concreteness. As part of the RC, the Park is certainly available to play a role as a general reference point for the municipalities in its jurisdiction and, more generally, for the territory immediately north of Milan" (Int. 041013).

73 The "Ecomuseo Urbano Metropolitano Milano Nord" (EUMM) enhances the cultural, material and immaterial heritage of Northern Milan with the involvement of local communities. In particular, it builds research paths, collective narratives and promotes the active protection of the territory" – https://www.eumm-nord.it/site/

In the central part of the basin (Cesano Maderno and municipality of Seveso), in contrast, the feeling was that the process was proceeding by fits and starts, since at certain moments there had been no meetings for 18 months. Intermittence in meetings and the funding of the projects did not lead to any tangible results, either.

> "We always acted in a collaborative way, but administrative continuity did not work. Meetings should be held preferably at a provincial level to solve this type of issue, and should create integrated, practical, operational projects..." (Int.05a1113).

> "Basically there has been a lack of coordination among municipalities; lack of enough resources in the long term; not enough collaborative approach among actors. Also, there has been little communication between the political and technical spheres of the CDF, with the result that politicians often did not report the (technical) directions that emerged in the meetings and then generated misunderstandings" (Int.16a1013).

The spokesperson of a local environmental organization in the area (Cesano Maderno) which sit at the CDF table but is not a signatory of the contract explained:

> "We were very excited at the beginning, but then everything ran aground. The CDF does not work because the institutions do not really care about either the Seveso or the CDF. The real problem is that it does not express specific actions, it is a hodgepodge in which there is a little bit of everything" (Int. 16B1013).

By 2013 the municipality of Senago had already taken a stand against Regione Lombardia projects to reduce hydraulic risk by constructing detention basins. The municipal administration perceived the contract as a total failure. Although they were not part of the CDF, this impression was generated through "contact with other local politicians". In their words, no main result had been achieved – such as improving water quality, collecting waste waters and establishing a common leadership for the project (Int.16C1013). The fact that they are not a signatory of the contract is crucial in understanding whether or not the municipality had been included in the governance of the river Seveso from the beginning. Our data indicate three contrasting views on this question: some interviewees said that Senago had already been invited to participate in the RC table in 2006-2007; others, especially people from Senago, stated that they were only consulted after it had been

decided that their territory would be 'sacrificed' to build the ponds; another version of events is that they have never been invited to sit at the CDF table at all.

Perceptions in the northernmost part of the valley (Como area) clearly illustrate the partial involvement surrounding the main river issues (water quality and flooding). The main representative of the northern municipalities (Cavallasca, Montano Lucino, Villa Guardia, Grandate, Casnate con Bernate), a water technical expert, has participated in almost all of the meetings and reported various considerations.

> "The CDF was seen by the municipalities as an opportunity to do construction work (embankments, drainage improvements... little things.). Some people now fear that it will become a tool to put constraints on their PRGs (Local Land Use Plan). The most important issue is the flow rate, while there is no big problem in terms of the quality of water. … It may be useful to make the CDF the means of conveying financing information, even if the office that follows the CDF does not have the funds, it can indicate where to find them; it should be… something which gives you the added benefit of being inside, but at the moment it is not" (Int.05e1113).

Wastewater treatment plants in Carimate (Co) and Como are not part of the CDF. They do participate in initiatives that might achieve better outcomes for the territory, as they are involved in taking care of the river, explicitly considering it a priority (Int.05b1113), but they express a need for more direction and influence, in order to grant too much power to municipalities (Int.05C1113). At CAP Milano – the top public company focused on water service management in the communities of the Seveso Basin[74] – we interviewed an informant who had worked for more than 40 years in the water depuration sector. CAP is not a signatory of the CDF, but it has participated quite often in the technical tables of the meetings.

> "The approaches that I have been able to follow in recent years seemed good to me, maybe there was no longer concrete involvement in the operational

74 CAP was founded in 1928 as a consortium for drinking water for the Municipalities of the Seveso basin. "Today, in terms of its assets, the CAP Group is the biggest monoutility company in Italy and we can certainly say that it has successfully accomplished its mission. Over time it has extended its sphere of action: today the CAP Group, a public corporation owned by the local authorities, is the leading water service management company in the communities of the Provinces of Milan, Monza and Brianza, Pavia, Varese, and Como. It guarantees the integrated water service to a customer base of 2 million inhabitants, manages a legacy of networks and plants, plans and makes investments, and carries out ordinary and extraordinary maintenance operations". http://www.gruppocap.it/en/cap-group/about-us/history

> reality of responding and achieving results. Once the primary objectives are set out based on the problems of the territory, [they] should be accompanied by a series of operational and concrete actions, implementing tools that can lead to positive results, working in anticipation of the municipalities that bring you the proposal. If this does not happen, the effect that could originate from this thrust tends to dampen and also produce disappointment" (Int.05D1113).

In contrast, the Milanese section of ARPA – the Regional Environmental Protection Agency – participates regularly in CDF meetings. In the Seveso river, they are responsible for managing and monitoring the quality of the water (they have 4 inspection stations: Fino Mornasco, Vertemate, Lentate and Bresso). The head office believes in the CDF as a technical instrument for spreading information about the river among the municipalities, but not to be used to overcome regulatory problems (Int.311013). Legambiente Milano – the biggest Italian environmental association – has also participated from the beginning of the CDF, although it was not an official signatory. They considered it

> "a place where one can bring river issues to the attention of a cross-cutting body of institutions and administrations. However, the weakness of the instrument is that it is a voluntary process: as long as the water theme is not present in political agendas with an interest at least equal to that given to the air, it will be very difficult to effectively carry out the CDF. The CDF is therefore a tool for making a system of clear political will and commitments with a strong direction to be carried out by the Lombardy Region" (Int.31B1013).

Another actor is the Consorzio di Bonifica Est Ticino Villoresi, a reclamation consortium[75] hat is an association of public entities, part of the Lombard regional system, responsible for the hydraulic canal system and irrigation of this area. They are not part of the CDF and expressed some disappointment in it by virtue of the fact that they consider the Regione Lombardia unable to manage rivers, not having enough know-how and competence in this area (Int.05E1113).

75 In managing surface water, they also exploit the water and network for energy, landscaping, tourism and environmental purposes: http://www.etvilloresi.it/portal-villoresi/page148a.do?link=oln643a.redirect&seu311a.oid.set=1

Fig. 8.1 – The Seveso river between Palazzolo and Varedo

We also collected information from the municipal office involved in the RC and water sector. The key interviewee of the 'Water and territorial protection' unit of the municipality of Milan is in charge of a multitude of issues related to waterways in the Milan area; this includes the RC, although no actual 'CDF office' exists (Int.130117)[76]. The water sector and its management is a very complex frame at local as well as national scales. In the city of Milan, the water sector has been reorganized since 2003, with the drainage system and waterways becoming a separate area of water works management. This means that, when the first RCs were planned (2004-2006), the various documents and know-how on water issues had already been reassigned, once again, to different offices and city council departments. The integrated water system and the sewage system were separated from municipalities, being managed by ATOs and integrated water service providers from that

76 This area and the unit have undergone many changes throughout the years, and indeed it seems the turnover in the environmental sector is currently quite high: the average time in a professional position is between 4 and 3 years.

point onward. For the city of Milan, this provider is 'MetropolitanaMilanese' (MM), a municipal company. Prior to this subdivision, the city of Milan had two sectors: aqueduct and sewers/watercourses. With this subdivision, two whole sectors and their documentation were transferred to MM, and the city office consequently lost staff, know-how and documents to MM. Since 2003, while the main hydraulic network has been overseen by RL, the municipality has become responsible for small watercourses i.e. the secondary hydrographic network [RIM – *reticolo idrografico minore*]

> "The municipality of Milan started dealing with this system in 2003, with everything that was connected. With the troubles in the Milanese hydrographic network (…), CDFs were also conceived of as an urban tool for managing waters...in order to improve watercourses... this was a really strong tool. The weaknesses, however... I find myself like a camp doctor during the First World War: the resources are much fewer than we would need. The office and Regione Lombardia are on two different levels.
>
> Also, at meetings you only see those who have projects going on, otherwise you do not see them. In 2015-2016, the Region attempted to involve the other municipalities more effectively by moving the CDF meetings where the municipalities are. (…) The solution to re-qualify the Seveso is more tied up with the uncovering of the Navigli...the uncovering of the Navigli eliminates a number of problems, but it does not change the flow rate... there is so much to do in the north of Milan: reducing soil consumption, work against soil sealing... the only way is an integrated system, but this does not depend on Milan. We always attend and Parco Nord is also a very involved actor ...the others come if they have projects or they want to propose something" (Int.130117).

When we conducted further interviews with Parco Nord staff (the same spokesperson) in 2016, new insights emerged.

> "We are signatories of the contract: prior to 2006 we were involved in the re-landscaping process anyway. The CDF made this 'methodology' of managing the river official, because it tries to make systemic a whole series of actions that had been done a little randomly, also attracting funding streams. We tried to combine naturalistic engineering with park actions … working on riverbanks, for example.
>
> Well, the successes involved focusing attention on the Seveso. The contract is a general commitment of the signatories to no longer see the river as the back of the cities but rather as a front of the cities... a very compromised front, particularly in our area, because it is highly urbanized...we have made it through

> two bike lanes (…). The weaknesses are ... there has been a lot of willingness to put together the communities that look at the Seveso, but not the same energy spent on the detention basins, in which municipalities have no word basically because there is a diktat that says 'the DBs have to be built, and will be built in this way...'. We did a census of one-by-one drainage by delivering the photo to the municipalities and those who had placed them in the river without authorization and then... nothing happened! There was autonomy for the municipalities in terms of water quality and the same has not been done for the DBs, which were the key element of the project. Involvement is not something we missed: the problem is the role. The problem is *how* I call you. Because, after all, I call you to sign a contract but not really to engage in politics. A contract I sign without commitment is a weak contract, a fake one. I also believe that RC as an instrument engages the mayors as actors in this process, but it still had to do it either through incentives or through obligations... to make them do politics. What is really lacking is a territorial level, which is a fundamental process for interpreting the territory. Because, if I call you to sign the [river] contract but do not engage you politically.... and then, a contract without a political commitment is a weak contract, almost fake. I believe that even there, the CDF tool engages the mayors as actors in this process, but it still had to [do this] either through incentives or through obligations to make it a policy. What is really lacking is a higher territorial level" (Int.230516).

The municipalities, as the main actors in/'beneficiaries' of the CDF, had different reactions to these first ten years of contract. In Lentate sul Seveso (Como), the municipality located in the upper part of the river shaft, the construction of one of the four DB has been approved. A municipal manager and ex-officer of the Lombardy Region explained to us the choice to fully engage in the process of the CDF from the beginning and to endorse the decision to host a DB in their territory.

> "These are EU-designed projects with the participation of local communities in the front row. On the website there is a part dedicated to friends of the contract and it shows groups of the territory that are involved in the projects. They have faced a major part in terms of raising the awareness of local communities. In Cesano M. there is Fiume Vivo that did an initiative with schools, in Lentate La Puska organized workshops for secondary schools on the river, including a practical component of water analysis, operational. The objectives were to bring people to the river and to put the school along the river, or days dedicated to cleaning the local area: we try to organize interesting activities. There were so many initiatives!
>
> Having the chance to co-ordinate for water course planning is very important: all components, strategies to identify the forms of funding that a municipal

> administration alone will never do... – maybe only Milan, but municipalities along the way are not Milan, they do not have the technical capabilities to design projects, so... the river contract works in this direction. (…). The Lombardy Region started off well and then had moments of impasse – when managers changed... - but overall there is a group of very capable people...and a dedicated staff in the operational arm, ERSAF. The communities in the area have realized that they could not go anywhere on their own. Certainly the success you have depends on the economic resources that must be made available to implement the projects: this is the hardest part, I think. (…) The biggest advantage was to get FAS[77] funds with the CDF: those were extremely helpful. RL in redistributing the quotas also used these water protection interventions. These funds like others are spent over a period of time and the rendering is the classical one undergoing controls.
>
> *Private people do not participate, however, there is no mutual interest it seems...*
>
> The only private companies that participate are land reclamation authorities or purification companies. (…). Everything else needs to be invented. But I guess the problem is not so much the laundry shop that has a discharge permit, but you know, we have Bolton in Cermenate (Como), it's a good company, they discharge into the Seveso using a treatment plan, but I get the impression that sometimes something does not get treated...well. Let's say they let it go... [so if they participated] maybe they would become more environmentally sensitive" (Int.220616)

In the municipality of Bovisio-Masciago, they appreciated the common goal of 'imagining a common future for the territory', beginning from the recognition of being traversed by the same river. In their words, however, there are evident limits, especially related to the limited degree of participation, in particular around the issue of the DBs.

> "With good results, it has allowed the dialogue between various administrations to work together in protecting the territory by designing or co-designing. It is no coincidence that the November flood was less intense - I must say that the CDF meetings helped... The promise is to come up with useful indications to be included in the Urban Plan (PGT) to better safeguard what lies around the river... norms on the delocalisation of industries, the drowning and relocation of houses ... One of the big flaws is that there is not much coordination, there are multiple tables going forward simultaneously and too many unrelated projects... no central direction capable of coordinating other projects related to the CDF. Then the issue of the Dbs did not work at all: that element was presented as a marginal issue when it is actually a central theme that must be related to the CDF. Also, because the CDF could provide

77 http://www.dps.tesoro.it/FAS/fas_cosa.asp

> an opportunity to take a more environmental and non-engineering look at these areas. And also there was not much involvement of the people ... But many of the choices are for the private [sector]... so, either you can get involved and disseminate these good practices at the regional level with the commitment of the region in the various territories, or this whole thing might never go beyond paper; also considering that punishment cannot work at all" (Int. 22b0616)

In Varedo, the most significant interest in participating in the meetings had to do with the question (fear?) of hosting a DB. At present, projects related to water retention in the roofs of houses are being developed together with the neighbouring municipality of Paderno.

> "Some time ago, we delegated Paderno to participate in the CDF meetings ...in part for the opportunity to take advantage of any possible inter-communal projects ... it was a decision made by the former municipal administration. In the last 5 years I have never attended the meetings ... someone has gone from Paderno or they have sent someone else. We have been collaborating with Paderno, with good results: we have never been able to do a project together with Cesano or Bovisio, however. But we are now doing a project on hydraulic invariance that indirectly links to the CDF. We got funding from the RL for real estate and municipal property areas, to collect water from school buildings, parking lots, etc... I know it is only a drop in the ocean, but..." (Int. 210616).

In Senago, where local authorities never signed the CDF, the city council is still in a state of conflict with the RL.

> "If we had signed the CDF we would have had a different awareness of this issue and made it understandable for the people. An awareness that has probably taken us years to grow. True, then there must be someone who decides, but if you have a participatory encounter... if we had started down this path in the late 1990s between institutions ...and not between servants of the glebe and feudal people, probably we would not have Senago against RL and the Italian state - which I find an ugly thing to say… and maybe we would really have had a participatory path in which Senago's citizens could have said something as well: why not? Now, all of a sudden, we find ourselves against AdB, AIPO and RL without any kind of dialogue with the territory. And this is the point of greatest conflict.
>
> *So you did not know until ...2008. Since 2009, you have been asked to be part of the CDF but you have refused …*

> We refused for a simple reason: it was advanced between 2009-2010 and was discussed by the municipal council. The councillor said that he did not personally want to be part of the CDF because Senago had already voiced its opposition since Senago does not find itself along the Seveso river. Why should it have helped solve the problems of other areas? Above all, agreeing to be part of the CDF, we would have made upfront decisions. Because, if the CDF is tied up and identified with only 52 km of that creek, then they can have it for themselves. But if we insert [the CDF] into a broader system of protection of the basin... then you cannot call it a CDF: let's give a name to this set of municipalities, a subject that it is more representative of the whole context. I participated in the work of the CDF as an auditor and … the problem has been tackled only in terms of hydraulic safety. Recently and thanks to us, the RL has launched a discourse on water quality" (Int.090916).

Since Bresso is now involved in the issue of hosting one of the DB, the city council there has a critical opinion of the CDF.

> "Over the last 3 years, the Seveso emergency has been discussed, only with respect to the floods in Milan and regarding the AIPO project for the DBs. … We were involved because it is a common neighbourhood, we must be involved, we are part of the park community. The CDF was developed assuming that the Seveso gradually needs to be re-landscaped, we need funds – from the region, municipalities ... from anyone - to re-qualify [it]. But it involves cleaning the shore, the riverbeds. But if you do not stop the discharges upstream… because we do not have polluting companies… I think that is a problem for which the region is responsible, not the municipalities (Int. 090616).

We also got the impression that the city council was not very present at official meetings.

The other group of key informants we interviewed is made up of the technicians, experts and ex-heads of water management offices who participated in re-constructing an account of the Seveso's issues and the CDF approaches to be used in solving them.

> "The overall setting is valid: the best logic is sharing, is not it? The big problem - from what I have seen - is that it did not work on important issues. The idea was, for example, to come out with a regulatory framework for all the municipalities along the river ... so the same criteria [would be] valid for everyone, or setting limits, with goals. I mean, they also carried out good interventions ... but the impression I have is that they have made very local, aesthetic interventions... but not substantive ones. The main problems are related to water quality and flood management. These two aspects need co-ordination from an entity that frames the overall logic. These two new

> regulations on soil consumption and hydraulic invariance: were they made thanks to the CDF? Maybe, I do not know: surely with respect to the past there has been a small revolution regarding rivers and water" (Int. 280416).

An expert who also worked on the first plans for the basins during the 1990s made the following statement:

> "Certainly on the cultural and regulatory level [CDFs were important]: a series of regulatory adaptations related to both spatial and landscape planning have been incorporated and developed. This also had a trickle-down effect, improving conditions together with investments made in purification, etc. Of course its nature is one of engagement and not imposition from above - which has never worked as a model. There were operational difficulties, because in the small municipalities there were no technicians with training in this area, or technicians who came to the meetings and then delegated to someone else, others took it as a purely bureaucratic matter, some administrations have signed but then did not even understand what they signed ... so it seems to me that the point of the question was this: that is, a tool with strong potential when a commitment is made by someone - and when they realized that the benefits were not so obvious they were not interested in the matter. Why do I have to constrain a riverbed in my territory when the problem is caused by urbanization in another place? The ground-breaking tools of the territory ... And so when it comes to taking money on a cycle track, I'm all happy, when it comes to constraining a piece of land and preventing urbanization or certain uses, it conflicts with local entities that are part of the contradictions I mentioned before - interests then prevail at the local level and so there is a lot at play. So there is a double logic: a high register that worked that develops its dynamics and then the daily practice of managing this with a very long chain of responsibilities. So the contract should have tried to establish this procedure, perhaps in the form of compensation (economic or otherwise). You are available in terms of land that is used for the benefit of others and so I reward you somehow. But this mechanism was not easy to organize" (Int.200117).

Two of the technicians involved in the CDF and in planning the DB expressed an important point of view about the tool:

> "The instrument is unique. We had a great deal of success with the water treatment. In 2015 a large part of the purification and collection work was completed with 100 million euros, so not much less than the amount that will be used for the DBs. We were fined because we did not respect quality standards in time: it is calculated that [we will achieve] good quality in 2027… so there is still time ... quality: it is currently poor.

> Participation? No co-designing is involved, no. Only with local authorities. Private people are not expected to participate in the sense that they have rules and they have to comply with the ones that are enough. They must not exceed drain limits" (int.250716).

According to the second one,

> "These are slow processes: being such an enlarged and participatory issue, it takes a lot of effort to become concrete. And also because, when it comes to the concrete, oppositions arise.
>
> One of the great benefits of this joint vision of the river lies in this: river reorganization interventions must be multidisciplinary – we are strongly encouraged by the European community.
>
> One of the disadvantages of the CDF is that, having enlarged the discourse so much, the implementing authority is also that way ... fragmented. There is no longer a single vision – instead, the river needs it to be ... We would always prefer that the rivers have a centralized competence, but the implementation of interventions is, however, subdivided between various institutions. Now it seems to me that there is some kind of centralization recovery – with RL – [it] tends to give implementing powers to somewhat bigger institutions, e.g. AIPO.
>
> Therefore, municipalities are only able to decide relatively little...that is, they take part in the decision – rightly so, because these projects are on municipal territory – but it is not said that they have to agree. For example, in the case of Senago, the municipality of Senago continues to oppose them violently, even though work is almost starting already. So they approve it, even if... someone does not agree. So the municipalities can sometimes say no. But often they end up saying yes." (Int.130516)

In 2016/2017 Legambiente Milano reported some improvements in the process, within the limitations experienced by stakeholders.

> "There are events open to everyone... the issue is that, to make them useful, you try to restrict it to representatives so that they can deal with all the projects... if they were open to many people it would lose some effectiveness. There is an attempt to recreate relationships of trust and it has been and made a difference in some cases. We have seen many positive things ... already the fact of meeting and saying 'ah, we're doing this...' and another one who says 'us, too'... they start talking and doing something unique, with two functions. The CDF is very useful, also for networking: getting to know someone who is doing a certain thing and needing to contact him, knowing that he will answer you without referring you to someone else, is crucial. Also, the idea of directing

> the design with specific optics ... if large structural funds could already be hijacked for these projects, which would mean speeding up the whole thing. This small mechanism could improve even other projects at a higher level: because it is not emergency response (as usual) but planned in advance! For once, this thing has been reversed and [it is] one thing we hope will be an effect of the CDF.
>
> [you have greater consensus] if you are involved in advance: participation before the official presentation of the projects.
>
> Maybe they have not focused very much on environmental awareness and education. At a slightly lower level ... well, they are improving, the tables are open. We have to start somewhere and they are starting from official contacts (water managers, optimum areas)
>
> The problem is a lack of clear responsibilities. Water is one of the most complex topics. The regulations did not help, each trying to cultivate their own interests (the municipalities) and therefore not wanting a higher body to act on them; on the other hand, regional and national agencies do not have the right structures to operate. All this has created chaos" (Int.161216).

A former ARPA technician and environmental activist from Meda made interesting points about the CDF.

> "There have been more successes and innovations on water purification than the hydraulic part: now, they talk a little more, know better each other and so it is possible to think that some interventions are better calibrated. The CDF has granted a more collaborative conscience and logic. There was already waste management at the consortium level: we should do [this] even at the hydraulic level...to share the drains of the waters in the basin. The positive spirit of the CDF has been information sharing, which always leads to better or shared choices, and this is by definition the best… The ultimate goal was to identify an integrated water management system along the basin: this clashed with the fact that all the subjects who had expertise in the individual works planned their projects and did not interface with each other. [But] We are struggling to see the direct effects of CDF because in fact it's all delegated, and the administrations are by no means actively participating, except perhaps as a reaction to the problems of establishing some projects that are not shared..." (Int. 270616).

"Projects" here refers to the detention basins, which were not among the initiatives to be implemented as part of the CDF but represent a source of conflict.

In this context, the environmentalist groups active in Senago saw themselves as missing participants in the CDF, as a way to discuss – at least in principle – the issue of DBs.

> "[The river contract] is at an institutional level: when you have administrations who want to expand the level of participation outside institutional ones, then you can have the chance to [participate]... for example, the mayor of Senago has formed a workgroup made of not only municipal councillors but also local environmental groups. The CDF is from 2006 ... but Senago has never been invited because it is not along the river. When it was decided that the DBs would be built, we talked to the technician in charge (2002-2003) but … do you know what they did? They opened the map and the only point which was not built was Senago. They looked at the maps and following the river... 'where is that space? In the town of Senago!'
>
> *So you are saying they did not involve you in the CDF from the beginning, only when they were starting to make the basins?*
>
> Not even in the CDF. We found out about it in May 2009 at a meeting whose agenda focused on a road under construction: at that conference, someone came out and said 'do you know that there are also the detention basins on the table?'" (Int. 170516).

Similar reactions were collected in Bresso, when talking to the organization 'Amici Parco Nord'.

> "We have not been involved: there are other bodies involved, the municipality but ... not us. we did not attend... we were not asked to attend. Well, if we had been involved – it may sound like an illusion – but perhaps this solution of the DBs could have been criticized at the beginning, when it's easier to change. Certainly if we had been involved we would have voiced our opinion immediately. We would have admitted our scepticism about this solution. But simply because it is unsuitable for the territory, as well as being truly a last resort. Why accumulate millions of cubic feet of dirty water, even sewage, and keep it for a few days, near homes or inside parks?" (Int.300416).

To a certain extent, it seems that disaffection with the CDF was mainly related to a lack of participation among stakeholders who were not ultimately consulted regarding territorial decisions. The construction of the DB represents the main root cause of conflicts in Bresso and Senago, mainly in view of health-related issues stemming from water quality and the consequent soiling of green areas.

Fig.8.2 – Waters of the Seveso river mix with the Ticino; source: online

8.2 The conflict over detention basins

Back in 1938 the Water Coordinator Committee (*Comitato Coordinatore delle Acque*) had already recorded more than 250 floods in the area of Milan between 1925 and 1935. Increasing urbanization has since worsened the situation, and today the area has reached an average of 3 floods per year (Mille, Paoletti, and Croci 2015:2). The constant soiling of the area – as already shown –led to the construction of various floodways during the 1960s, 1970s and 1980s to curb this phenomenon. The last and most detailed research on the hydraulic situation of the area was conducted as part of the "Accordo di Programma per la salvaguardia idraulica della città di Milano" in 1999 (among the RL, Province, Milan city council, AdbPo, and AIPO). After serious flooding in May and November 2002 (CNR 2004)[78], the AdBPo (2004) issued a study[79] to draft a hydrological plan for the basin with

78 http://www.irpi.to.cnr.it/documenti/volume20022004.pdf
79 www.adbpo.it/on-multi/ADBPO/Home/Pianificazione/Studidisupportoallapianificazione/Studidocumentitecnici/docum

100 years of return time (Mille et al., ibid); this was renewed in 2009 due to "new knowledge about critical issues taking place" (AdbPo 2009:1)[80]. Later, in 2011, AIPO conducted a study aimed at investigating the hydraulic issues of the river in more depth. All of these initiatives suggested, among the measures to be taken, the construction of new kilometres of floodways and more than 30 detentions basins along the river (Mille et al, ibidem). The studies identified three mains issues:

– lack of an adequate urban drainage system, which are usually planned in view of a 5-10 year timeframe and therefore end up being insufficient;

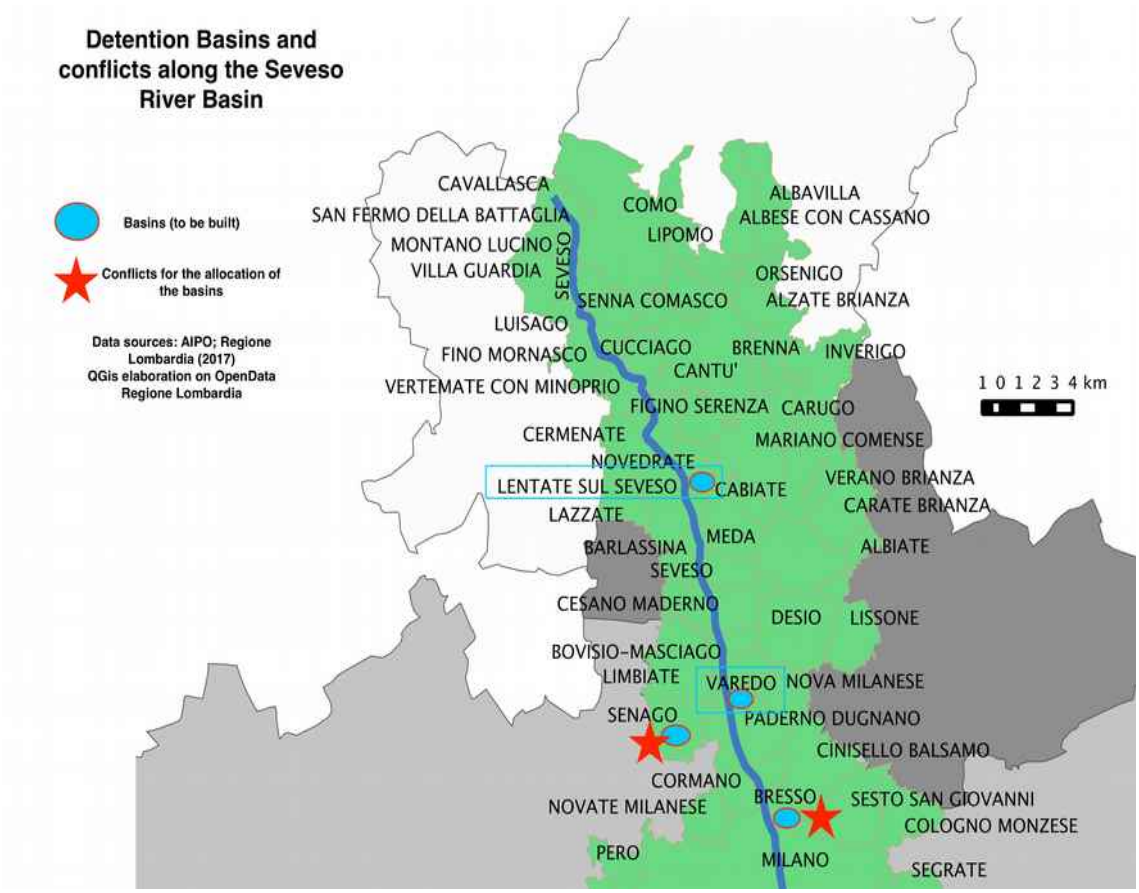
– lack of floodable lands to be used for the construction of the DB;

– insufficient sections of the river in proximity to the city of Milan and the relative need for a spillway before Niguarda. As mentioned earlier, since mid-2000 AdbPo had reported that it would be impossible for any watercourse to accommodate further water intake, due in part to the fact that heavily polluted rivers– such as the Seveso and Olona – would threaten the quality of other rivers – such as the Ticino – and hinder WFD ecological goals. The solution to the problem so far has been to plan detention basins along the river. As the research (including interviews) has shown, after the 1999 plan further urbanization of the basin prevented any type of alternative resolution with the result that the DB ended up representing not the best solution, but *the only* suitable option. After 2010, as a result of extraordinary flood events, the Lombardy Region, City of Milan and Po Basin Agency (AdBPo) accelerated projects to solve 'emergency' flooding in Milan, mainly by constructing 4 DBs in the lower part of the basin: Lentate sul Seveso, Varedo-Paderno, Senago and Milano/Bresso. The first one is to be built in arable land in a low density area; the second area hosts a former industrial complex (SNIA), currently closed down and requiring remediation; the last two areas are an open field near Senago, part of 'Parco delle Groane' (Regional Park), and a lot inside a 'Parco Nord' (also a Regional Park) in a high populated area. The idea is that these basins will host 4.5 MCM (million cubic meters) of

ento5539.html

80 https://www.google.it/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&cad=rja&uact=8&ved=0ahUKEwiy5a_Bn9LWAhUMDcAKHV67BxkQFggrMAE&url=http%3A%2F%2Fwww.adbpo.it%2Fon-multi%2FADBPO%2FHome%2FLavoro%2Fdocumento13121.html&usg=AOvVaw05QGNtaKvHmrMCa-FyjqRb

water; and the total cost at this point is estimated at around 100-120 million euros. The main triggers for conflicts stem from the location of the DB, which will be constructed in green areas (parks, arable lands). Most of the communities protesting have proposed that the water and river(s) first be cleaned to ensure better river flow; secondly, they object to the fact that major political parties and economic actors gave permission to build along the rivers in past years, hence causing a rise in flood levels. We now explore the motivations behind this conflictual situation through the perceptions, documents and policies we analysed.



Map. 8.1 – Detention Basins and conflicts along the Seveso River Basin; elaboration of the author

The case of Senago – Senago, a municipality of 21,000 inhabitants (18 km northwest of Milan), was chosen for the construction of a DB because it still has large unbuilt areas

(agricultural lands), unlike the rest of the area north of Milan. Also, since the North Western Drainage Channel (CSNO, §6) crosses this area, locating the DB here could better facilitate the collection of spilloff from the river.

The first clashes between the Region and the Municipality of Senago erupted as soon as the DB projects became official. There are two main reasons for the conflict: the fact that the Senago municipal area does not belong to the Seveso water basin and the compromised quality of the river's waters, perceived as a potential risk for the pollution of local aquifers. As one of the manager of RL for the hydraulic plan told us, after 2010 there had been a boost in collecting new data for the basin hydrological plan due to new critical issues. The main action was to include Senago in the project, since the best solution from a technical standpoint would be to build the basins in that area.

> "Discussions continued throughout 2011 and part of 2012...and the municipality is not part of the CDF. Since then, a conflictual relationship has arisen: we have repeatedly expressed our willingness to meet with the municipality, to explain the difficulty of the matter, and the projects that constituted priorities should be kept together as indicated by the ADB. We had identified in that area a quarry that could not be laminated, there were activities in progress and the quarry could not be displaced because it involved additional challenges, but I will tell you informally that we have identified in common a green field area because the CSNO passed by and the municipality told us 'please do not build them. Those are the only protected areas, do it exactly on the site where it is now designed'. We engaged in dialogue throughout the 2012, but the municipality put together an internal work group and never invited us to explain our reasons. However, he repeatedly asked us to talk about the technical level and every time we found ourselves technically explaining, numbers, issues... But then at some point the municipality's group began to stonewall then at that point we each went our own way ... so we went on with the designs, approved them, they took actions against us, we are handling these actions…the construction work is beginning" (Int.150616).

An exponent of the municipal council in office at the time who has always taken a stand against the construction of the DBs, told us:

> "We have no historical-cultural-environmental relationship with the river, but we must endure the choices of others in the Regional council. Senago is the only place with large available areas left in the north of Milan, for this reason they want to build the DBs there. [But] 42% of our territory is part of Groane Park (i.e. protected): basins cannot be built here...By closing off illegal drainage,

> the hydraulic problem would be solved, because the flow of the river [would be] reduced. These type of interventions will become obsolete in 10 years without solving the basic problem (water purification)" (Int.161013)

In the city of Senago, all the political parties have joined forces in opposing the construction of the basins. The main data in terms of arguments from activists were collected from the group 'Senago Sostenibile', whose members described themselves as an "apolitical assembly of disparate people gathered together around the issues of sustainability and local environmental concerns".

> "We have had this channel for 40 years, it cuts our territory in half: so basically we have had the river in the back of our house for 30 years. When someone says 'you didn't show solidarity...'. Well, we have been showing solidarity for 30 years! Senago was plugged into the Seveso basin sub-system because there was the CSNO channel. Otherwise we would have nothing to do with it!
>
> We never said 'it's best that the DB be built somewhere else... We have challenged the criterion of a 'large work', ineffective and inefficient, with enormous costs and that does not solve the problem.
>
> And also, if the aquifer grows, they will have problems. [If the waters were clean] they could actually make gorgeous, floodplains along the river (…). So we support them [people in Bresso/Niguarda] in the sense that there are unresolved issues that should be solved first: water pollution...that's the point! You cannot postpone it until 2027[81]. You cannot decide to make an open landfill! Are we joking?! This is not a trivial question... because health problems will hit our children when they are 20 years old. We went to Niguarda and people tell us that we are right ... they're told that this solution would solve the problem. You cannot say these things ...there is a political and objective responsibility.
>
> Those in Parco Nord had been assured that they would not put the DBs there, since the trees have taken 20 years to grow. In fact, we understand them very well ... but it could not be otherwise, if the flood is there... where do you put it? Objectively, the two scenarios are different… it's not that we are saying 'it's your problem'… There were also studies we saw about widening the underground passage in Milan to solve the [hydraulic] problem: they wanted to make a 3m- diameter flood spill. It cost 70 million, and they had already

81 The WFD defines "heavily modified waters", including, for example, water bodies such as regulated rivers, dams, and artificial canals, where lower standards apply and the aim is reduced from achieving good ecological status to "good ecological potential". For these rivers, the achievement of the 2015 water policy goals have been delayed to 2027 or even lowered to a less stringent objective in view of natural conditions, technical feasibility, or disproportionate costs.

allocated the money but then spent them buying A2A's holdings…I do not know, but I mean, the problem of flooding in Milan will be solved by removing the cap! If the river is 5 m wide and then arrives in Milan and becomes 2m… in fact, when they cleaned up the riverbed there was already a change, no more flooding" (Int.170516)

Fig. 8.3 – Protest sign posted by the Senago city council. "Does the Seveso flood? The basins are not going to save Milan", 2016

In a recent debate titled "A pact for the Seveso River"[82] the mayor of Senago (not re-elected for 2017-2022) clearly asserted that

> "In terms of decision-making, the municipality of Senago was excluded. We began to hear about this issue at the end of 2008... We are strongly against it, [we have been] from the beginning. Now the Italian Water Court has fined us with 4 lines where they say WE (!) have not been able to prove any environmental damage…[it is not up to us to prove it, but them]. Using the hydraulic invariance principle the DBs would not be necessary. Our only error has been to protect the territory – here we have urbanization rates beyond any

82 https://www.youtube.com/watch?v=9D0c0m3Rr1Q

> logic... and now we must resolve an emergency which has been caused over the years by others. Senago should not become a pilot project, other territories in Lombardy are paying this price, everyone has to deal with their own ruined territories. Senago will not stop, we will continue to fight against this project and we'll take action in the court of cassation, because we believe that there is environmental damage in this case. We are only part of the system with our streams ... but to see our territory sacrificed in the name of the collectivity without having to program anything, it leaves a bitter taste in your mouth. Today, I will not sign this pact because it is not traversed by Seveso, we have already planned a lot of urban planning premiums such as roof rafts for reuse or condominium irrigation...".

During our personal interview, instead, he pointed out how

> "... the best solution would be to make smaller and more flexible basins with a smaller environmental impact. I understand that such big DB are much more manageable from an operational point of view ... but small invasions would have provided more results. I'm not a hydraulic engineer, but with the Italian Water Court we argued 40 scientific pages, from hydraulic issues to air quality. These big basins do nothing but widen the polluted basin if no other interventions are going to be made. What is needed is sewer drainage, regional regulations for water separation, and reuse; using green parking lots because we cemented over too much..." (Int. 090916)

The majority of our interviewees reported some sort of understanding (if not actual solidarity) with the protesters, but justified the hydraulic works as a solution coming from higher up that needed to be implemented. In some cases, the choices made by the RL – the main actor in charge of these projects – were criticized for being imposed from the top down; in other cases, as mentioned, they were considered a good compromise for the safety of the majority. This is clearly illustrated by the accounts of certain interviewees.

> "It's not that they decided to build them there because someone does not like Senago: unfortunately for them, the CSNO [water spill channel] stopped there and since they can no longer continue, it is the only way to set up the system, which is thus considered a priority... beyond that, I do not want to pass judgement on other assessments" (Int.280416)

> "Well, I know the process a little: they started from a hydraulic engineering solution and then, somehow, they tried to find a solution. Actually, it would be better to think before doing them. The opposition in that case was very rational as far as I know. They said 'you do the DBs but have not cleaned the

water first, so we are going to have that water next to our houses. Was this right? Let's say they identified real, rational problems..." (Int.200716).

"You know, it has been imposed to some extent... [but] These basins should be built anyway. And again, the mayors are understandably scared ...[sighs] They should find some counterparts, for these populations who have suffered this damage, to give a park in exchange, something that... ehm.... makes them calm and [makes them feel] that something has been gained. Because [they can say] 'who cares if Milan goes under water? take out a piece of territory that becomes a big puddle!', because it will ...the basins have this problem when they are empty there with no water and no one keeps them in order, they become a dunghill..." (Int.270416)

One of the technicians at AIPO told us that

"Senago is the worst case because the detention basin has no effect on them. From the hydraulic point of view they are not on the Seveso, it has no hydraulic effects. We tried to explain, but they said no. How would you like it big, small, green, red? They just say 'I do not want it!' and then what kind of dialogue is that? It's impossible. In Bresso they have heard citizens' opinions, there are 15mln for the basins and 15mln for compensation. It costs so much money because there is so much compensation. It will start shortly. (Int.250716).

A second RL manager in charge of the environment/water sector makes it clear that:

"I understand that Senago says 'I do not have anything to do with the Seveso and I have to take care of this big intervention'. Fom that point of view it is just right; but Milan is Milan: there is no free space! So where free spaces were identified, also morphologically, they were the ones chosen. Their hostility arises from this issue and is therefore understandable. But the issue of dirty/clean water... let's say that it is used a lot, and in public debates not all, only a few people, are experts and so we say these opinions are not objective. A river in flood is not a sewer, on the contrary... even the sewers, when it rains, flow with cleaner water. So let's say it's a fake problem. And the water quality is already improving… things will improve, no one has a magic wand. I think a part of the responsibility lies with the way the projects started because...at some point in the beginning they came to present the project when the project had already been done and so of course that's the best way to tell you 'I do not like it', right? Sometimes the project was also questionable from our point of view so we admitted 'okay, it's a little crappy'. Let's say that we hope that in the long run we will learn and in the end things will get better" (Int.170616).

The following is from an engineer who participated in many CDF meetings and also dealt directly with the municipality of Senago during the presentation of the project and associated discussions.

> "I do not agree, the mayor [of Senago] knows this very well: we always found ourselves on opposite sides of the table. They have commendably saved territory and now we are going to occupy part of it – which is in Groane park, it is the territory of the park...so why do they continue to consider it a sacrifice? When, on the other hand, they could consider it – if they agreed on shared management – as a land advantage? Why can't the people of Senago go for walks there? And if there are any problems, you overcome these problems. They talked about a liquid dump, but why do we need to talk about a liquid dump? Such things are done all over the world... so let's say [we] are sorry about these positions ...because they are perhaps only ideological" (Int.130516)

An interviewee from Legambiente presented a different opinion, however:

> "The study that has been seems already very directed at solutions... but since it is a feasibility study, it was worth showing different possibilities – even the extreme ones – to be taken into consideration, with an estimate of the costs, maybe only to make it clear that they were impossible. This has affected the community: they said 'yes this is a confirmation that they will be located in Senago because you already know that there is free space'. And then this influenced the subsequent designs. Surely, sometimes there is a lack of communication with the administrations, which of course also have voters and have a grip on matters..." (Int.161216)

At this point it remained unclear from these accounts how events have proceeded in the meantime, and so we gathered different opinions about the possible arrangement of the basins. The engineer in charge of the construction told us that:

> "When we set up the Senago project, we presented 11 or 12 different solutions for that area, with different configurations. They said that they did not even want to look at those alternatives, because they were against them in principle, so did not want to go into details. All right then, but they have not taken part in the choice, they removed themselves from participation and then the final choice was made with the RL, AIPO, the province, other institutions [without them]" (Int.130516)[83].

83 On October 28, 2016 construction work started in Senago: it was then (temporarily) stopped on December 27 because of an anonymous attack in the construction site.

The case of Niguarda/Bresso – Bresso is a municipality just outside Milan with about 26,000 inhabitants and a territory which is mainly urbanized, with the exception of the Parco Nord area. For the last ten years this green area has represented a basis for claiming identity (so much so that the logo of the town reads "City of Parco Nord"), in one of the most urbanized areas in Europe. In the Niguarda neighbourhood of Milan, one of the two areas subject to heavy flooding after every big rainstorm, the local representative expressed frustration about the protests.

> "I understand that the neighbouring towns which will host the basins have some perplexities, but...these basins have to start because we are always constantly at risk of flooding! Beyond the fact that it is unjust that these neighbourhoods be flooded, it is also a burden... that is, every flood is an economic expense because in any case you have to expect reimbursements, so it is always a risk..." (Int.290416).

Fig. 8.4 – The Seveso River 'entering' in Milan; source: Wikimedia

This view reflects that of a wider group of residents who are very frustrated with the flooding events[84], as most of the ground floor buildings are flooded and the Civil

84 A Facebook group (Comitato Stop Esonda Seveso) related to this issue is also very active on the web.

Protection Agency patrols the streets to monitor traffic jams. It also constitutes a substantial economic loss, since mud must be collected and the streets cleaned after every storm.

On the other side of Via Ornato, next to the Bruzzano graveyard, the area of Parco Nord designed to host the DB can be considered an enclave under the jurisdiction of Milan in the municipality of Bresso. Here, the people living in the apartment complex of Via Papa Giovanni are severely opposed to the project. The main reasons have to do with the elimination of about 4 hectares of park and also the quality of the water that would be stored just a few meters from neighbouring houses. We collected an important statement from the *Comitato Acque Pulite* ('Committee for Clean Waters').

> "The group was founded a couple of years ago and I joined them with this job of studying things, signatures collection, studying laws – like the new law on Hydraulic Invariance or the one on soil consumption... So now we are trying to raise awareness, because... we argue that there are so many methods that can be applied to the already cemented [areas], which would of course multiply the volume of water that can be collected, even just what is proposed by this law is enough. Obviously then, there is a general paralysis … we already know that it will not happen.
>
> Many people and families moved to the neighbourhood because of the park. Because the air quality has changed, and it's mostly changed from the acoustic point of view: we do not hear that big street anymore. We also have some advantages during summer heat waves: it is a green lung, a means for relaxation, and also has the function of aggregating people, like elders with animals and children... and there is the bicycle path, people running. It is definitely not a very anthropized area because there are no services such as a picnic area or playground, but it is very much felt and used: no Sunday congestion, rather a continuous, everyday use.
>
> The river has always been polluted: there is little to say! We have always had a smell and froth. So we've always had a perception of a very polluted river. When you go near the grille at the mouth, you see the foam that emerges... that is a reality. People who live in those houses are always talking about chemical smells, the river changing colour according to the days of the week. Nonetheless the RL has often told us 'No but the waters are not polluted' or 'they are polluted but there is no danger in terms of health' without any scientific evidence. Then they say 'you have to prove that the waters are polluted and are dangerous to health'. But according to the precautionary

principle – reported by the Constitutional Court – it is they who should prove that the waters are clean, we do not have to prove anything. Even the risk we perceive ...the perceived danger and... the potential damage does not have to be necessarily proven, it is enough that it is potential. This is what the precautionary principle says, an action that could give rise to damage must not be carried out, because of its potential to harm. It is not a group of citizens who must demonstrate to the institutions that a thing is not risky, it is the institution that must ensure and make sure that it cannot cause damage and only subsequently put it into effect. So this is another inaccuracy, we say.

After the flood wave the basin stays full for 6 days because the emptying times are very long. So the here is a problem of volatile substances that are irritating and some [which are] even carcinogenic, also with long-term effects. But it does not end there: once the basin is emptied, between emptying and maintenance we do not know how much time will pass or even know who will do it and who will fund it because between municipalities and the region there has always been a tossing back and forth of responsibilities. Maintenance money has been allocated, but it is really not much. We know that the maintenance of such a facility requires specialized trucks: they speak of the AMSA vehicles that cannot absolutely do that: in the Senago study, it is written they can only be removed when they are dry and reach a 30cm thickness. (…) If we have to wait to reach 30cm what are we breathing from those sediments evaporating? At the same time, washing them and vaporizing those micro-particles is also dangerous. So there is a huge critical concern about maintenance that no one has had the decency to consider.

If you see internet pictures of the projects: they present them as a beautiful park ... but in fact we have seen the project which is really ridiculous because it is a 11m-deep chasm ... The absurd thing is that obviously when you fill it up when the whole area is closed it can no longer be used by anyone

If the park (Parco Nord) said it would not do such a thing on its territory perhaps... unfortunately they did not play this card, the resolution of controversy is a recent thing...in public work for the national interest the park's opinion is binding. So in the end... just at the very end, when the desired compensation did not arrive, they changed their mind; the city council of Bresso also became contrary…

The RL also puts you in a state of opposition with people from Niguarda, Isola…

I'll tell you: now it has become a political battle. A year ago when we went to the various meetings we carried out very strong attacks but now people there have changed their minds: they are very puzzled because they have never seen the city council doing much … they have been left alone; they are all very suspicious. And then I noticed that the destruction of the park is something

that worries everyone a bit: I mean, they are all park-users. So the only chance we have is to follow Senago and do everything they did" (Int.050516)

The group 'Amici Parco Nord' has a similar perspective on this issue.

"The problem is that the water is dirty and despite their talk of a few years ago, with SalvaItalia [Decree 'Save Italy'], about how they would proceed with cleaning and creating the basins ...is not true! Not even a word of this stuff is true. As part of the state financing for the construction of the basins there is not even a cent for water cleaning; nothing…

The problem is that there was no comparison of the solutions. It's okay to decide to close this plague … All right, but after that we are talked with the citizens and instead the citizens ...There is a good side saying 'shit, we cannot... we have to solve the problem' and there is a bad side where you do not discuss with anyone else the solutions you are looking at

We are not saying that the world has to be remade in a week. But let's start right away. And with a plan. Let's start well. Let's start by calling on science, techniques, the other examples that are already out there... Milan should afford it... Our categorical imperative is that Milan should not be flooded. Ok? We agree on this; if you tell us that it's absolutely inevitable as an emergency measure to made the basins now...we can even believe it. However, we must immediately make a plan that puts the basins out of the way, because we have built another system – more civil, more democratic... stage after the stage we have built the right answer, the definitive answer.

Hyper urbanization is also responsible…

That's why the basins are not good ... If we were in the early 60s and 70s there would have been space... but it would have had a completely different impact. Now that it is all saturated, and the few areas left are parks… Do we cement the parks? Are we crazy? However…They all tell us 'yes, you are right!' Even the designers say it; the councillors tell us yes. But at the same time they don't do a damn thing! It is not that they said, 'we have a goal, like in 15-20 years the basins will be closed" No! They have thought about this solution – which in the end is not a solution. Because a solution is a definitive solution and this is not a definitive solution. But the problem is… in reality no one has shown it to us and we do not have the technical skills to prove it because we would like someone to tell us that is the definitive and effective one and you should bring me a plan that outlines how, besides this stuff, you are also studying other alternatives … like cisterns to collect water, rain gardens... which exist. But if you are not studying anything else and you are only studying this, it means you are not going to do it … so there is no alternative, in short, right? That is...just this! (Int.300416)

One of the members expressed an interesting position during the public debate:

> "The Parco Nord is the real thing working against the suburbs: it is the answer to urban degradation. If we think instead that it is just a void, we have not understood the essentials. Old hydraulic solutions involve sacrificing PN; new hydraulics provide clean water, identify different solutions. (...) This new word is [hydraulic] invariance, taking charge of the management of meteoric water: it is a resource and we should protect it. … Unfortunately, today, when rainwater touches the ground it becomes waste. Okay, it's a cultural change that is needed … but we have to make a choice. Today...one must have a project, a study, and resources, a project that includes stages and time: otherwise we have no confidence [in it]" (Patto per il Seveso, February 2nd)[85]

Fig. 8.5 – Protest against "dirty waters in the Park"; source: IlGiorno, Online

At Parco Nord – as confirmed by environmentalist groups – the initial idea was to cooperate with institutions in order to find an equivalent area to host the basins. In the end their position changed, however:

> "In the end the DB will be made... let's see how. And the Seveso, its quality needs to be decontaminated, let's see how we can do it. There was no determination to say that the issue of the Seveso was improvement of water quality, despite the sanctions we have suffered. The first time we went to M.

85 https://www.youtube.com/watch?v=9D0c0m3Rr1Q

> [town planning councillor] we said 'look, we're there. Next to this I want to pursue the issue of quality. Because if a river that is still clean, with fish, floods, then that is different..."

Members of Legambiente also stress the importance of water quality as a main trigger for the protests:

> "They had to give positive signals about the future of the waters of the Seveso. Because we are going to build the basins, and yet we had to reason earlier about what kind of water quality would enter these tanks. [They could have said] 'We will build them when we are able to achieve sufficient quality, from then on we will begin to do something'. It is clear that it is difficult, however, the EXPO could be an opportunity... to tell the whole world 'From 2010 to 2015 we will invest resources and we will improve the Seveso basin.' It could have been a challenge. I do not know if you could do it but they did not even try"

In contrast, technicians at both Senago and Bresso/Niguarda were certain that the issue of health related to the water was not significant; on the contrary, they felt that these basins should be seen as the improvement of a green area.

> "Those basins will contain water – let's call it dirty water – for a day or two and then it goes off and the area returns to being a green area. This water removed from the stream is temporary... it will always be AIPO at the end of each flood who makes sure everything is done properly; because otherwise these substances accumulate, these sediments that… But the intention is to give the population a green area. It is a green area which also has a very important hydraulic task. That is, today this hydraulic problem exists, so it needs to be resolved and can only be solved in these left-over areas, because we cannot demolish houses"

At the Milan city council informants explained how, unlike Senago, the basins of Bresso/Milan will be built in a more eco-compatible way.

> "The basin at Parco Nord is going to have a different waterproofing system: it is designed to be a permanent lake filled with groundwater. The subfloor is not lawn but reinforced concrete. That may sound like a blasphemy, but in reality it allows us to do a simple thing: you do not have a green whole you cannot use, rather we introduce a different ecological system in the park - hopefully colonized by cranes, recreating another environment in the park. During the floods we are sure the water of the Seveso will not come into contact with the

groundwater because reinforced concrete is a guarantee... Also: the maintenance to clean this basin is much faster because having the concrete ground, I can use street sweepers for two days at most; in the other tanks, the mud is deposited. Precisely because we are in a very urbanized area the whole design costs more, and a quick and efficient cleaning is guaranteed. Now, you see the NIMBY syndrome...".

Fig.8.6 – Detention Basin under construction; source: Online

We observed a very different perception on the part of residents, officials and stakeholders regarding the potential features and effects of the hydraulic constructions. As for participatory inclusion in the RC, decisions about the construction of the DB have been partially blurred in relation to the foci of the CDF; also, conflict has been triggered by the fact that local stakeholders and residents near the DB areas have not been involved, and therefore feel left out of decision-making processes. This perpetuates the contradiction in which regional planners portray the DB as the only suitable and sustainable solution (continuing to seal soil) while at the same time not making any move to stop soil sealing by expanding roads systems.

9. Discussion

This chapter is aimed at discussing the causes and triggers behind the conflicts and unsustainable territorial configuration of the Seveso river basin. This analysis is carried out by interpreting the data and narratives we collected through our theoretical lenses. We mainly deploy the following arguments, which constitute the theoretical framework of this entire section:

- environmental change as urban change, or the "urbanization of nature" (Heynen, Kaika, and Swyngedouw 2006; Kaika and Swyngedouw 2012), as a metabolic machine that exploits nature to create economic wealth;
- the 'sustaining the unsustainable' narrative as today's socio-cultural model (Blühdorn 2007), based on the continuation of contemporary socio-ecological configurations despite the ecological crisis, a model enacted in part through post-political practices of participation, arenas which tend to exclude dissenting voices from the decision-making process;
- the political nature of the environment and its implications for planning and policies.

9.1 Urbanization as socio-ecological change

Employing an UPE theoretical lens, we argue that facing urban problems means facing environmental problems (and vice-versa), meaning that environmental change and urban change are fundamentally interconnected processes. Urban expansion is, in fact, the main driver of increasing resource appropriation (e.g. the production of concrete, asphalt, glass, and electronics): urban development thus puts more and more strain on limited resources and causes related conflicts (Paolini, 2014; Torres et al. 2017). As a matter of fact "most processes of transformation of nature are intimately linked to the process of the urbanization of nature" (Heynen, Kaika, and Swyngedouw 2006:33). Such an approach is also rooted in the acknowledgement that society adapts to the environment, modifying it and being recursively affected by it (Norgaard 1994; Foster 1999). Applying a political ecology perspective means foregrounding the political nature of the urbanizing process,

underlying who, how and why certain configurations and metabolic vehicles are maintained (or changed) and for what purposes.

As shown earlier in this study (see §6), the configuration of the Seveso river inside the city of Milan is the result of hundreds of years of societal adaptation in using water (wells, drains, canals) and being affected by it in turn (floods, pollution). "The process reveals an inherently conflict-ridden nature of the process of socio-environmental change and teases out the inevitable conflicts (or the displacements thereof) that infuse socio-environmental change" (Swyngedouw, 2009:57). The resulting effect is to de-localize environmental issues outside of the city, shifting them to other actors and places, which also creates a parasite relationship between the city and its rural surroundings (Carrosio 2013; Paolini 2014; Kelly-Reif and Wing 2016). Therefore, just like with capitalism (Harvey 2013)[86], we can argue that urbanization never solves its own socio-ecological *crises*, they are simply relocated geographically. As a matter of fact, the illusion of being distinct from the natural world and faith in the unlimited exploitation and re-fabrication of nature into urbanity is called into question every time a canal floods, waters become polluted and flash rains block the city: the urbanisation of nature is, in fact, inherently built on unbalanced socio-natural assemblages and the associated organization of nature (Arboleda 2015; Foster 1999; Kaika and Swyngedouw 2012)[87]. To draw on Marx:

86 http://www.truth-out.org/opinion/item/15414-capitalism-never-solves-its-crisis-problems-it-moves-them-around-geographically

87 As Paolini (2014) shows in the case of Florence: "Strong oppositions to territorial planning and the establishment of an over-municipal governance level were fueled by a factor often ignored by political-economic historiography: the scarcity of natural resources indispensable to urban and industrial development. Already in the 1960s, the consequences of the rapid industrialization and the urbanization process were evident: cities, in order to make their development sustainable, needed ever increasing amounts of natural resources. The growth of urban areas was based on a development model rooted in a social pact for which firms, job givers (and hence welfare), received in return tacit consent for the natural resources available, which in this way were internalized into production cycles, ending up becoming a kind of raw material to be used freely in order to fuel industrial growth. The problem posed by this model lies in the fact that (…) cities did not have the necessary natural resources and were forced to face a shortage. To overcome resource shortages, major urban centers found themselves forced to find them where they still existed, frequently in areas outside their administrative jurisdiction. This resulted in a twofold consequence: on the one hand, conflicts over natural management emerged with increasing frequency; On the other hand, smaller agglomerations and resource-intensive territories underwent negative externalities (ie the costs imposed by an external agent) caused by city-based decisions with shortage problems. Actions to overcome scarcity generated unidirectional externalities (for the benefit of the only external agent: for example, the construction of a dam whose benefits go to the downstream user without paying a cost to compensate for environmental changes and its diseconomies) and inter-

> "Capitalist production, by collecting the population in great centres, and causing an ever-increasing preponderance of town population, on the one hand concentrates the historical motive power of society; on the other hand, it disturbs the circulation of matter between man and the soil, i.e., prevents the return to the soil of its elements consumed by man in the form of food and clothing; it therefore violates the conditions necessary to lasting fertility of the soil" (Marx 2008 [1867])[88].

In other words, our contemporary urban space is the result – or spatial manifestation – of a capitalistic way of organizing nature (Moore 2015), in which unbalanced socio-natural assemblages produce the unbalanced historical-spatial form that is the contemporary city.

A political ecology of land take – As we extensively illustrated above, urbanization, land take and soil sealing in the Seveso river basin represent the major causes of flooding and water pollution. These processes were triggered in the mid-1950s when Lombardy acted as a locomotive driving Italy's economic growth. As a result of this mechanism, industrialization and housing became the major causes of socio-ecological change in a context of economic growth, a process which lasted to the present and indeed has picked up after the 2000s. In a very clear account, Pileri (2009) illustrates how planning fees were used throughout the last century and up to the beginning of the 2000s to ensure public services as common goods (public buildings and infrastructure, renovations), in an informal pact between the public and private sectors. However, as early as the beginning of the 2000s public debt and structural reforms (promoted by the centre-right government, in the name of 'freedom') had already detached budget planning funds from public works; from that point on, funds could be spent on anything (services, staff, the supply of services). In this way, "soil became money" (*ibidem*:91), triggering a gigantic metabolic machine which has exploited nature to accumulate capital through urbanization. Recent data on this issue show that Italy – and Lombardy in particular – is one of the most highly urbanized areas in the EU (EEA 2011; ISPRA 2015) as part of a process that has become all but unstoppable. This is also due to the fact that, with the global economic crisis (2008-

temporal (whose effects extend over time)".

88 Capital, Vol. I; Section 10 – Modern Industry and Agriculture Large-scale Industry and Agriculture; https://www.marxists.org/archive/marx/works/1867-c1/ch15.htm#S10

2010), municipalities facing economic scarcity 'sold land' for cash, and example of the way "local, regional, and national socio-natures are combined with engineering narratives, economic discourses and practices, land speculation, geo-political tensions, and global money flows" (Heynen, Kaika, and Swyngedouw 2006:35). The economic levers of urbanization provoked major ecological change, as confirmed by key informants from the Milan City Council, Parco Nord officials and expert hydraulic engineers.

> "This is all that was built between 2000 and 2007: a massacre. If you want to tell me that planning fees are an incentive for building even in protected areas, I say yes, perhaps... not so much in the municipality of Milan but certainly in the municipalities outside Milan, along the river... these were the only resources that municipalities had. With cuts in public funding, this link between building activity... They tried to overload themselves with additional functions that produced the need for new services, but in the end it was a kind of vicious cycle that partly continues to exist. Now there is the construction crisis and it does not work so well – there has been a growing awareness and a building crisis that has blocked this sprawl"(Int.070616)

> "...1998 here it was green...they keep on building squares and squares: madness! Because they built squares and roundabouts, you increase soil sealing and waterproofing and ... continue to spend, because when you have maintenance costs...who pays them if not the municipality? So I think leaving the town planning in the hands of mayors is just a mistake" (Int.230516)

> "There are municipalities that have built houses in Seveso, culverting it, even on the sides, entire streets, despite the Merli law, the Royal Decree... they have built anyway! Municipalities ignored river problems, exploiting every cm^2 to urbanize. This is the result: the river is unmanageable. Those homes have regular building permits and they cannot be demolished. It was never possible to move houses or that sort of thing, only if they get tired of floods, but if it does not flood there, the effect falls on others"(Int.250716)

Land take was also the reason why the first AdBPo plan to use more waterways to drain away water, such as by extending the CSNO, was never implemented:

> "Basically, the first plan was overtaken by the fact that the continuous waterproofing of the soil was taking place... because of continuous urban expansion (between 1999 and 2009). Every time we picked an area, usually the municipalities proposed alternative ones, so it became difficult..." (Int.280416)

> "In 2009 when Senago's DB was funded we realized that we had to re-plan everything: in six years they had urbanized the other areas [that had been] chosen. RL made the mistake of not constraining the areas identified; an error that has not been repeated in 2011 because we constrained the areas chosen within the regional territorial plan: Lentate, Paderno-Varedo…those are locked down now" (Int.250716)

Despite this fact, the engineers and technicians we talked to justify this situation as a common cause involving shared responsibility, somehow *naturalizing* the type of territorial development that has taken place to date.

> "It is a problem created by everyone, I would say, by all of us... fellow citizens who live in urban areas" (Int.130516);

> "Certainly it is scary urbanization. It is not that you can go back: we have no time machine to go back to the past by removing urbanization" (Int.250716).

A new regional law on the principle of hydraulic invariance by the Lombardy Region (March 2016)[89], recently established that "any new urbanization must limit rain runoff through local infiltration or lamination measures to avoid the necessity of adjustments to urban drainage networks downstream. Municipal urban planning tools must therefore provide for the protection of hydraulic networks without adjusting or reconstructing the existing networks during new construction" (Masseroni and Cislaghi 2016:9-10).

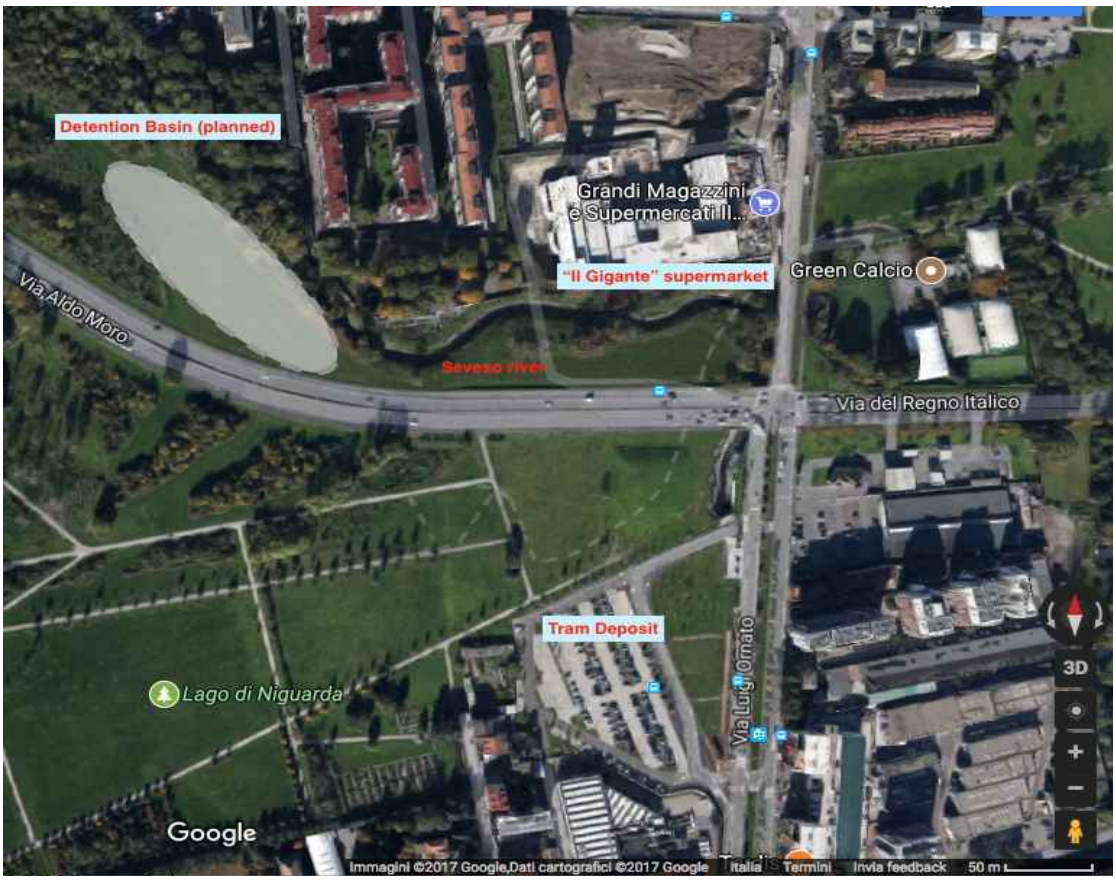
> "They make me smile, the people who talk about hydraulic invariance as the only solution... that is utopia! We have to start now: 4.5 million cubic meters in the basins to store water. Hydraulic invariance does not give me this chance. It gives me the chance to not worsen the future situation. But, for past urbanization? It fails..." (Int.250716).

> Today it is still possible for us to sell land and urbanize, but that has to be made zero-impact through the hydraulic invariance principle" – (Int.130516)

This shows that a very close relationship continues to exist between soil sealing and economic growth, with the result that stopping soil consumption would mean, in a sense, curbing the economy.

89 http://normelombardia.consiglio.regione.lombardia.it/normelombardia/Accessibile/main.aspx?view=showpart&idparte=lr002016031500004ar0007a

Most of the protests by environmental groups focus on the land lost to the construction of the basins; they consider this trade off a contradiction in terms, hard to justify as a mere technical solution. Furthermore, other solutions have been discarded while giving space to other urban projects, for various political and economic purposes. In this regard, in fact, it is common knowledge that the area between Bresso and Milan has been used to build a new commercial centre and parking facility (for trams), only a few metres from the site set aside for building the DB, the Parco Nord area (see map below).



Map 9.1 – Planned area for the detention basin in Parco Nord, Milano/Bresso; created by the author on the basis of Google cartography

Our interviewees at Legambiente confirmed that construction of the tram parking facility constituted a "wasted chance to solve – at least partially – the water drainage of the river" (Int. Leg). At the same time, the opening of the shopping-centre "Il Gigante" has been celebrated as an example of restoring an ex-industrial area in the name of ecological

sustainability[90]. This same rhetoric has recently been used for the opening of the biggest national shopping centre in Arese and the announcement of the biggest shopping centre in Europe to be built in Cinisello Balsamo, a municipality next to Bresso. Many argue that the best ecological 'compensation' would have been to restore the natural functions of the soil, avoiding any kind of consumption[91]. At the same time, "the impossibility of a gradual increase in soil consumption prevents the construction of lamination reservoirs" (Masseroni and Cislaghi 2016:9-10); this confirms the perception of activists in Bresso, who argue that

> "...a detention basin is also an impermeable area that collects a certain volume of water, it destroys filtering soil that has the function of water purification, absorption and therefore, one day a few years from now, we will have to make a basin...for the basin! It's absurd" (Int.050516)

Some technicians likewise argue that:

> "if Bresso and Cinisello did not exist, the Seveso would not flood!" (Int.280416).

> "Even if you could remove all the upstream area of Bresso, what is now urbanized in Milan would send Niguarda underwater. It's the bottleneck... so at the present it's almost impossible to solve this problem" (Int.27b0616).

Despite the recent boost in legislation provided by the Lombardy Region in relation to soil-consumption policies, there has been a great deal of criticism, since municipalities are still directly responsible for land planning and water proofing issues (Legambiente & WWF 2017[92]; IlSole24ore 2017[93]). Even this new regulation aimed at stopping soil sealing actually includes economic provision, thus offering a 'back door' through economic compensation. In the words of Bresso's city council,

90 https://www.ilgigante.net/area_stampa/dettaglio_comunicati_stampa.aspx?id=565

91 In fact, soil has an impact on a vital set of ecosystem services – climate regulation, protection from erosion, water infiltration, improved air quality – already providing ecological sustainability. The loss of these services creates an "ecological debt" which continues to grow each year (ISPRA 2017).

92 https://www.legambiente.it/sites/default/files/docs/osservazioni_legambiente_al_regolamento_sullinvarianza_idraulica.pdf

93 http://www.ediliziaeterritorio.ilsole24ore.com/print/AEkOCdbB/0

> "...letter g [of the regulation] says 'monetization as an alternative to the realization of new buildings'; but then municipalities – which are thirsty for resources – are fooled by this monetization, [because] a building built with invariable principles costs 15-20% more, so they will monetize and pay…. I mean, you [should] start a serious policy that will have return times of 10-15-20 years but create a reversal in the trend, otherwise..." (Int.090616)

Again, it is the economic engine underlying this process that determines how different municipalities have been involved in this approach, as confirmed by our informant at RL.

> "that area is a disaster! It is full of shopping centres, supermarkets and they continue to proliferate! (…) Municipalities are the first to want them. Local government is ambivalent and indifferent to the political side that manages it, I can confirm this (Int.170616)

In 2015 an important dossier showed that more than 37 unpermitted construction projects had been identified along the river, from isolated buildings to entire neighbourhoods, factories, and warehouses, often built so close they are nearly in the river itself. These are joined by over 400 instances of unauthorized discharge (Corriere della Sera 29/10/2015)[94]. As these cases reveal, "Urbanizing nature, though generally portrayed as a technological-engineering problem is, in fact, as much part of the politics of life as any other social process" (Heynen ibid:35-36).

9.2 Sustaining the unsustainable?

As discussed in the previous sections, soil and land represent a fundamental resource for many human functions. Recent research shows that land is currently under enormous pressure, as competing demands for its goods and services are increasing in virtually every country (UNCCD 2017)[95]. Land loss is triggering climate change (Crowther et al. 2016) in that "land use and land cover change has resulted in substantial losses of carbon from soils globally" (Sanderman, Hengl, and Fiske 2017:9575). This is occurring in a moment in which "Earth is experiencing a huge episode of population declines and extirpations, which will have negative cascading consequences on ecosystem functioning and services vital to

94 http://milano.corriere.it/notizie/cronaca/15_ottobre_28/fogne-case-abusive-emergenza-seveso-vittima-inondazioni-9d6bad24-7d43-11e5-b7c2-dc3f32997c8b.shtml

95 http://www2.unccd.int/actions/global-land-outlook-glo

sustaining civilization" (Ceballos, Ehrlich, and Dirzo 2017:1). Reports of environmental crisis – with news about floods, droughts, forest fires, famines, shrinking ice caps and climate change – are becoming more and more common in the media as well. Even though substantial measures have been taken through more sustainable, eco-friendly practices to avert environmental crises, the ecological conundrum still seems to be a serious menace to human life. The effect of this phenomenon has been to normalize the environmental crisis, a move that has been theorized to represent part of a 'post-ecologist' era: the eco-politics of this era have been named the 'politics of unsustainability' (Baker 2007; Blühdorn 2007, 2013, 2014, 2017; Blühdorn and Welsh 2007; Durant 2015; Læssøe 2007). "The politics of unsustainability is unfolding amidst the simultaneity of, on the one hand, a general acceptance that the achievement of sustainability requires radical change in the most basic principles of late-modern societies and, on the other hand, an equally general consensus about the non-negotiability of democratic consumer capitalism – irrespective of mounting evidence of its unsustainability" (Blühdorn and Welsh 2007:198). Moreover, from a political perspective,

> "[the] policy approaches that national governments dare to present to their electorates are firmly based on the expectation that established norms, values, and patterns of societal development will be maintained rather than radically changed. Their eco-political measures never touch upon the core values and principles of capitalist consumer democracies. Irrespective of all national sustainability strategies and global climate change, structural planning and development continue to be governed largely by the principle of predict and provide (e.g., mobility, consumer goods, housing, energy, tourism), and all policy making remains firmly oriented towards short-term economic growth. (…) Although mega-consumerism has long been identified as a key dimension of the ecological problem, government leaders are bending over backwards to artificially stimulate consumer demand (…). it has become generally acknowledged that the consumer lifestyles that advanced modern societies and the global middle class are resolutely claiming for themselves are incompatible with any standard of sustainability and that it is physically impossible to extend these lifestyles to all members of particular polities, let alone humanity at large, these unspoken questions have, explicitly or not, become the core concern and distinctive feature of contemporary eco-politics" (Blühdorn 2011:41).

In other words, this framework explains the simultaneous and contradictory situation in which the urgent ecological crisis we are currently facing is met with a clear unwillingness

and inability to radically change our policies as societies. The case analysed in Lombardy can be situated as an example of enacting politics of unsustainability, moving from "trying to avert ecological crises, to managing their implications and consequences" (Bluehdorn & Welsh, 2007:191).

Unsustainable socio-environments – As data from ISPRA (2016) recently confirmed, the Padano-Venetian plain suffers from a widespread diffusion of contamination: pesticides are present in 63.9% of surface water and 31.7% of groundwater. More than 200 different substances were found, a significantly higher number than in previous years. The concentrations are generally measured as fractions of μg/L (parts per billion), but the harmful effects of the substances can also occur at very low concentrations. The overall findings indicate a widespread diffusion of contamination through which humans are often exposed to mixtures of chemicals the composition of which is not known beforehand, and for which evaluation schemes based on single substances are not adequate (ISPRA 2016). Our interviews with experts in the water sector (Int.120516) confirmed this situation.

> "The problem with many new substances is that, once they're put in, they become dangerous at very low concentrations and removing such small concentrations is much more difficult than removing high ones. In all purification projects, the problem is to effectively remove what is present at low concentrations. (…). They are difficult to determine – they are new – and their analysis requires specific expertise and very expensive equipment and unfortunately there is still no tool like pushing a button and getting the answer... That is, the sample techniques work only if you are looking for something specific. This inevitably implies that certain substances are not always found if you do not even know what to look for; so, often there are molecules but not their the products of their transformation.
>
> *So if one wants to see all the components of water…*
>
> You cannot. You must aim to look for something...this is the first problem. For known things it is easy, for not so much known substances it is not so easy. Moreover, there is also a problem of analytically determining low concentrations. Thus, for low concentrations of certain hazardous substances it becomes, on one hand, a problem of analytical determination and, on the other hand, a problem of removal: we do not how to remove them from the water and then where to put them…

Also, socio-political efforts to address the issue appear to be tied to a cultural acceptance of the impasse we – as a society – find ourselves stuck in.

> "You see, if you stick your nose in these issues you understand that things are not very (simple)...and unfortunately we are not in a socio-economic-environmental situation to make optimal and decisive choices: we are looking for compromises. (…)Things go hand in hand because the better off we are, the more we want, and the more we are consumerist, the more we waste resources, the more [we waste] goods... it's a closed circle, in the end. This entails an increasingly intensive exploitation of resources, more and more energy needed and more and more wasting everything...(...)
>
> Even water should never be thought of as something that is here and here it remains…When they say 'Milan is full of water', it is an absolutely stupid statement, because it is only a local vision. But, if we want to look at the environment with a more comprehensive eye… It is the same discourse that you find for hydroelectric energy: it is beautiful! It's clean, it's renewable, and so on. But hydroelectric energy means taking water from the rivers, and right now we have a European directive that says that by 2015 all the waterways should be in good condition: but how do we do that if we do not even have the watercourses because we no longer have the water?!"

Hydrologists at RL confirm that:

> "Regional regulations should impose a 1:6 drain discharge, i.e. a particle of purified water for 6 particles of natural water that must be found in the water. It is not like that: when it's okay they drain 1:1... and for some periods there's almost no water. So, paradoxically, purifiers discharge polluted water into the river" (Int.150616)

Another expert from the Milan City Council also confirmed that:

> "pollutants do not disappear, they go somewhere…also due to a series of unauthorized discharges: I should review the whole sewage system and we are talking about billions of euros; which does not mean that you do not have to do it, but the timing is definitely different… To have good ecological water quality you need more than a year or 5 years... you have to make sure the water flows well because there are deposits..." (Int.130117)

Again, the expert heard (Int.120516) made clear that, by 2015,

> "water quality [in the river] could not be sufficiently achieved because there are so many human settlements as to overcome the self-cleansing capacity of the water streams, even with purged sewers.

> (…) It is true that you can produce drinking water out of dirty water... but at what cost? And who pays it? So it's not a problem that one can solve… unless you blow up the entire territory or… there's no way out"

The words of the interviewees echo the study by Carrosio on water pollution in Milan (2013): the controversial issue of pollutants in sewage sludge attests to the fact that excesses in the urban metabolic fabric cannot be re-spatialized without causing socio-ecological injustice; furthermore, economic activities based on the production of environmental externalities are still problematic in contemporary socio-ecological relationships (Newig and Fritsch 2009).

The water manager at RL, talking about Lombard industrialists, explained to us that

> "They present themselves as antagonists. (…) They consider the cost of environmental protection – after the labour costs – the other absolutely unsustainable cost for the economy. It is absolutely true that when the economic crisis occurred, water quality improved. (…) All of our work is on recovery, then, since [water] is the last variable considered by the development of the other policies: [water] paid the entire price" (Int.170616)

This once again raises the fundamentally contradictory situation of economic/ecological antagonism. As expressed by one of the experts working to remediate the Seveso Basin,

> "Society develops [contradictions] in its economic development and [these] are obvious: at times, when you have certain interests, they become very strong. It seems to me that there has been a gradual neglect in building scenarios on larger scales, more based on utopian visions to create virtuous attitudes. Now it seems to me that, since we left the workgroup, we have returned to a more operative vision that aims more at achieving small steps; but I do not know if they are really useful" (Int.200117).

This deadlock stems from a conception of environmental problems based mainly on cost-benefit analysis in which disproportionate costs can justify – for example – an exceptional dispensation to not achieve certain objectives (Antunes et al. 2009:935). We argue that this this type of analysis fails to take into account the fact that some costs and benefits may count more than others, such as for example public health (Boyce 2007). This is quite evident in the protests related to the DB: as reported by the groups we spoke with, water quality is perceived to be a potential risk for health. They often invoke the precautionary

principle to assert their right to avoid the risk of harm in the absence of scientific evidence that the water is indeed polluted. At the Milan city council, even though technicians are aware of the critical issues with the water, the approach to this norm is somehow conceived of in an 'opposite' manner.

> "...to confirm that the water is not clean, you have to show me that on objective data... I do not know if an epidemiological study has been conducted showing that populations living along the Seveso have an increased percentage of cancer or other pathology. So, the water is not good but…an epidemiological study would reveal nothing more than normal pollution in a densely urbanized metropolitan area, without causing panic, fears or phobias. … They would have this water in the basin [which] ok, it's not drinkable, but it is not carcinogenic, like the water from other parks': dogs use it, the coypus are perfectly fine!" (Int.130117)

The anti-basin groups in Bresso have presented a parliamentary question to the EU[96]: to date (October 2017) the issue has yet to be discussed.

As mentioned above, the WFD states that artificial or heavily modified water bodies such as the Seveso River are to achieve at least 'good ecological potential' (i.e. as close as possible to good status). The 2015 water policy goals may be delayed until 2027 or even lowered to a less stringent objective in view of certain natural conditions, technical feasibility, or disproportionate costs (Boeuf and Fritsch 2016). In addressing this point, our interviewee said that:

> "We are in a situation where all our rivers will probably be included among the so-called 'heavily modified water bodies' because the situation and multiple pressures are such that it makes it very difficult to resolve...it is very difficult to deal with this because in Italy urbanization is longstanding and land use has been done – unconsciously, without fraud – so that …a purifying project would involve blowing everything up and doing everything from scratch. And that is not conceivable. That is, we have practical obstacles that are actually real; but you can do local stuff, small interventions like permeable car parks, roof top gardens ..." (Int.120516)

This statement reveals that no major change is planned to challenge ecological issues, not even within EU policies. The mandatory imperative to achieve clean environments (in this

96 http://www.europarl.europa.eu/sides/getDoc.do?type=WQ&reference=E-2016-003743&language=ES

case water) loses force when facing the prospect of radical socio-ecological re-configurations.

9.3 'Participating for what?': participatory governance as organized exclusion

Many scholars as well as EU policies argue that participatory inclusion has the potential to improve ecological outcomes, enhancing responsibility and fostering ethical engagement in local environments (Antunes et al. 2009; EEA 2014; Evers et al. 2016; Newig et al. 2014; Pellizzoni 2001; Rauschmayer, Paavola, and Wittmer 2009; Scolobig, Pellizzoni, and Bianchizza 2016; Tippett et al. 2005; Wright and Fritsch 2011). Despite this potentiality, many studies have shown that, more often than not, local peoples become passive beneficiaries of project and activities and projects fail to involve people in decision-making processes, thus giving rise to conflicts. Such forms of participation seem to fail to address fundamental power imbalances and, in some cases, may even exacerbate them (Meynen & Doornbos 2004; Swyngedouw 2005; Penning-Rowsell & Johnson, 2015). Some scholars argue, in fact, that these forms of 'democratic governance' work to de-politicize the root causes of ecological change and degradation, neutralizing their political nature through techno-managerial means. From this perspective, participatory governance is seen as an expression of the process of post-politicization (or post-democratization) currently affecting western societies (Crouch 2004, 2016; Marchart 2007; Swyngedouw 2009, 2011). Indeed, critical scholars have argued that such participatory arrangements are actually an expression of today's post-political era.

> "This post-political constitution, which we have elsewhere defined as embodying new forms of autocratic governance-beyond-the-state (Swyngedouw, 2005), reconfigures the act of governing to a stakeholder-based arrangement of governance in which the traditional state forms (national, regional or local government) partake together with experts, non-governmental organizations and other 'responsible' partners (see Crouch, 2004) in the pursuit of environmentally sustainable socio-ecological practices. Not only is the political arena evacuated of radical dissent, critique and fundamental conflict, but the parameters of democratic governing itself are being shifted,

> announcing new forms of governmentality, in which traditional disciplinary society is transfigured into a society of control through disembedded networks of governance. These new forms of 'governance', operative at a range of articulated spatial scales, are expressive of the postpolitical configuration (Mouffe, 2005: 103; Swyngedouw, 2007b; 2008)" (Swyngedouw 2009:608).

Among these critical voices, some argue that democratic participation may be twisted to become a tool for 'sustaining the unsustainable'. The assumption is that such arrangements do not function at a structural level to change the real causes of unsustainable configurations; rather, they mainly work to reassure and simulate, rendering citizens resilient in relation to ecological *unsustainability* (Bluehdorn 2011, 2014). "These inclusive forms of stakeholder governance are a powerful tool for reducing opposition and social conflict, and they generate a form of democratic legitimacy for policies which allow some sections of society to sustain their non negotiable norms and forms of self-realisation but implement significant restrictions to others" (Blühdorn 2014:161). Contrary to the assumptions of Political Ecology, this "post-ecologist governmentality transforms democracy into a means for the privileged to wrench resources from social groups whose interests are less effectively organised and articulated" (*ibidem*). Through this research we collected important points of view which show the complexity of participatory inclusion. In Bresso, the 'Comitato Acque Pulite', told us that:

> "People don't feel supported and perceive that they have no influence because they're never consulted. We need to see more interventions that bring enduring change in the long run and leave a better world for everyone, instead of always seeking to improve the present but not caring about future, irreversible consequences" (Int.050516)

There were some similarities between this perspective and that voiced in Senago, where the 'Senago Sostenibile' group made a wider comment on this topic:

> "...all plan these three things: participation, sustainability, citizens' interests! It seems to us that participation is simply smoke and mirrors...project illustration, communication … simply a matter of information. (…) It becomes 'I invited you, but we have already decided… I present things to you and you have to accept them'. They did a project titled 'lamination basins in Senago': what do you want to do with a project called that? The basins in Senago! (…)

> For us, the discerning element is how to participate in the formation of decisions for different choices, whether it is the bus line, the basins or other issues" (Int.170516)

As illustrated by the words of the technicians, it seems that in most of the cases the participatory act is expressed through technical choices or comments, in this case related to the technicalities of the basins' construction:

> "The basins we built in Nerviano were co-designed. So for a dozen evenings, the citizens went to this boardroom equipped with the projects, and each person could write something to suggest with his own sheet" (Int.290616)

> "We examined all the possible areas in which to locate the basins … we presented 11 or 12 different solutions in that area. We explained, they said no. 'How do you like it? big, small, green, red?' They do not want it and then there is no dialogue! Senago said that it did not even want to look at those alternatives because they were [oriented] in the opposite direction so they did not want to get into the details, but of course they did not participate in the choice, they removed themselves from participation" (Int.130516)

After the meeting *Patto per il Seveso* we also collected these statements – in a private email – from the Comitato Acque Pulite

> ----People directly involved in the project have not been questioned in any of the stages of the plan and all the protests presented and well-documented in the comments on the final project have not been taken into account by the institutions involved (…). Citizens who have appealed against a project devastating the environment and severely damaging an entire neighbourhood should have been consulted. Why is there no discussion about the inadmissible contradiction between the project's risks and the inadequacy of the project, and the fact that most of the people involved in this project think of it as unavoidable?----[Date:22/02/17, 20:57; To: <f.diquarto@campus.unimib.it>]

In this sense, "there is only debate over the technologies of management, the arrangements of policing and the configuration of those who already have a stake, whose voice is already recognized as legitimate" (Swyngedouw 2009:610). In some cases, informants told us that "too much participation or too much emotional involvement make the political part hostage to those participating" (Int.22b0616). Therefore, it seems that participation is usually incapable of re-discussing future choices for territorial development; as Pellizzoni suggests (2001, 2012), there is no evidence that more participation results in better

outcomes with, only (probably) more legitimacy in a context characterized by widespread mistrust of institutions. As shown, less powerful actors are co-opted into accepting the 'majority rule' as part of governance arrangement in which local stakeholders (those allowed to participate) are essentially nothing more than the proponents of pre-written policies (Anderson et al. 2016). Little space is made available for local people to talk about the structural conditions that are the root causes of environmental degradation (Richardson 2015).

On a wider scale, as we observed in February 2017 during the event 'Patto per il Seveso'[97], what happened in this process is that most of the municipalities felt they had no power over decision-making processes, as the city of Milan plays the main role in territorial governance as a whole (Milano Città Metropolitana).

> "It is so obvious that, over the years, choices have become more and more centralized, as the lower levels count less and less… But we believe in the idea that local communities have at least once more wildcard than others do... we need to solve this issue here" (Int.170516)

The centralization of choices, in this case related to building a basin in Parco Nord, is still viewed as a cause of major conflict between the periphery and the city, as made public in an announcement on the social media page of Amici Parco Nord[98]:

> ---Milan believes that it can exercise its dominion, but it is unable to obtain any consensus. Meanwhile, what our Metropolitan City reveals today is the highest point of misunderstanding and contrast between the "city" on the one hand and the "metropolitan area" on the other, between the "centre" and the "suburbs"---(27/6/2017)

This proves that the entire system of territorial governance has been affected by the phenomenon of 'jumping scales', that is, "how different groups seek to influence and control the different territorial levels of organization and the relationships between them" (Del Moral and Do Ó 2014:334). As stated by Po Agency managers,

97 http://www.bresso.net/flex/cm/pages/ServeBLOB.php/L/IT/IDPagina/3282
98 https://www.facebook.com/756934954381224/photos/pcb.1536339379774107/1536338106440901/?type=3&theater

> "we are like politicians, not in electoral terms, but we constantly have different interests to mediate, sometimes we do things much more politically than politicians" (Int.261017).

This confirms that environmental governance is inherently politicized; its management scale is not neutral and indeed re-scaling issues stem from social-political processes (rather than physical-natural reality). In other words, power relations and political geometries are responsible for territorial configurations, socio-ecological interventions and water management.

9.4 Depoliticized environments

> "Any concept fully endorsed by all parties must surely be bypassing the heart of the conflict (Campbell 1996:301)

The space of the *political* as the space for contestation and disagreement, is considered a pivotal feature of democracy: "democratic politics rests on the possibility of any issue being opened to question, whilst at the same time not demanding that every issue be constantly open to question. The opening up of this space need not occur though strategy, and the practice of government might actively close down this political space" (Donaldson et al. 2013:604). In this sense, a lack of discussion or conflicting points of view on societal configurations means that an argument has been depoliticized. Regarding environmental issues, these types of consensual approaches are the result of a post-political condition (Swyngedouw 2009) which works to disavow radical challenges such as the reconfiguration of today's socio-economic and productive paradigm (Blühdorn 2014). "The post-political condition is one in which a consensus has been built around the inevitability of neoliberal capitalism as economic system, parliamentary democracy as the political ideal, humanitarianism and inclusive cosmopolitanism as a moral foundation" (Swyngedouw 2011:609). In eco-political discourses, scholars have shown that there is a widespread "call for all-round cooperation and the rejection of conflict"; hence "depoliticisation occurs when the exercise of hegemonic power and the antagonisms that result from it are covered up". Ultimately, "(re)politicisation is about openly declaring and disclosing friend/enemy

distinctions: only when conflict is acknowledged and given a place can it be fought in a more or less orderly way" (Kenis and Lievens 2014:532-535).

This sort of general consensus over a common ecological goal was clearly expressed as a goal by representatives of the national CDF board:

> "There are no conflicting interests when there are common interests. I mean: you have to distinguish between interests and positions. The interest of an entrepreneur is to make money, and he can do so in an illegal or legal way, but it is all the context that may indicate that this position, this interest in circulating the economy, can go well with it; but polluting is not good. So the position is that that individual businessmen are wrong, not the fact that he is an entrepreneur. So, in my opinion, you have to work on achieving concurrence among the interests and not the positions" (Int.200716)

Drawing on Marchart (2007), processes of depoliticization should be understood as a 'movement from a sphere to another', i.e. a relocation of arguments from the political sphere to the economic/technical (or religious/moral) one, with the aim of avoiding any conflict. This neutralization is illusory, however, since all it does is displace (in time or space) the political antagonism that constitutes the basis of democratic politics (Mouffe 2005). The political (*Le Politique*) therefore represents the site for discussing what it means 'to be in common', being open to definition as a never-ending process that openly includes conflict and division as grounding elements of society (Lefort 1986; Marchart 2007; Nancy 1991). As a matter of fact, environmental activists involved in Bresso (APN) and managers at AdbPo, albeit from different points of view, both underline this paradox and how it affect(ed) river management processes

> "Good democracy provides cooperation, confrontation, discussion, common research, involvement, empowerment, even conflict, of course. Why not? But a conflict that tends to resolve, [one that is] productive. But a conflict that comes later is a conflict involving clashes, one which does not resolve anything. It is a dialectics without synthesis" (Int.300416)

> "Conflict in my opinion is unavoidable, so the earlier you manage it, the more it can become productive: managing a conflict after a project has been approved is impossible! Because it becomes a source of litigation, very heavy stuff... In major public works these episodes of 'nimbyism' are more or less intense, but they are always present: the conflict must be managed, however, according to codified participatory forms, like the CDF, and must have the

> widest involvement of all stakeholders. We have to listen to those who oppose it, who represent other cultures, right? I cannot think of making an environmentally sustainable project because I have planted tulips, I have to hear from those who care about the environment, ecosystem services...very complex issues. It's not a problem of final embellishment: it has to respond to multiple goals in order to work. We have said this [about the basins]: they must protect from floods, without creating environmental problems, and they must be a pleasant place to do recreational activities, they give me an ecosystemic service and must give me economic opportunities, (why not?). One has to wonder what is the place where all these things can take place. Because there are many steps … In a major public construction project there is an evaluation of environmental impact, but public participation is a voluntary thing" (Int.290616).

The place where such engagement should take place, we argue, is indeed the political arena.

Emergency basins – A common tendency we found in our data is the short-sightedness in local and national political planning, a point made by almost all our informants. This short-sightedness often has to do with the large scale and emergency discourses that justify the costs, haste and modalities of such interventions. State politics also use large-scale interventions to build legitimation and garner electoral approval, thereby producing maladaptive outcomes or 'nimbyist' reactions most of the time (D'Alisa and Kallis 2016; Osti 2017). Our data proves that this occurred in the Seveso basin in the last 50 years as well.

> "I have a problem here, a small problem, I can move it downstream, maybe with a spillway channel – to the Ticino river, for instance... But down there the problem has doubled. Or I can also transfer it to a future time: they used to say, 'there is no money now but in 20 and 30 years we'll fix it!'. This tactic went on in northern Milan from about 1930 to 1999: 70 years. This 'postponing politics': CSNO, CSNE... just put some water and send it downstream, since water was still manageable. And then in 1999 we realized that there was no more territory: spaces were gone, they were reduced, cut out by houses. Whoever sees the river says 'not in my house!' It smells, it has terrible gasses of aerosols, water with pollutants... it's not … a nice river. And then we had this fight we tried to mediate with great efficiency with the Seveso *Contratto di Fiume*" – (Int.290616)

> "We are used to thinking according to electoral timing. But planning must be done for 20-30 years, otherwise it does not achieve anything. Today we go by emergencies. There's a narrowing vision...it's all about politics, immediate consensus and then immediate exploitation of (economic) resources, whilst one should plan for a long periods of time and outside the forecasts of survey-polls and taking responsibility for it being contested" – (Int.280416)

> "Building these ponds means taking power from mayors' hands. If you, mayor, wanted to build something on that land, now you won't be able to anymore... and next year they will not vote for you anymore: you see? what lies underneath does not bring votes..." – (Int.120516)

The 'SbloccaItalia' decree [*Unlock Italy*] (2012-2014) accelerated the process of addressing hydraulic issues (and thus funding the DB), framing Milan and Lombardy as priority areas by virtue of their significant economic role. In conjunction with political alignment among centre-left parties at both national and local levels[99], more than 110 million (around half of the national budget for hydraulic safeguards) was invested in the Seveso (DPC 2017): this represented a new and significant step, as in the past critical flooding events in other Italian areas (Genoa, Alessandria) had diverted funds from Lombardy. In June 2016, however, the mayor of Milan Pisapia came under the magnifying glass (along with governors of Regione Lombardia Maroni and former governor Formigoni): a judiciary inquiry revealed that, of 1500 drains flowing into the river, only 85 were authorized and that insufficient efforts had been made to avoid the major flooding that occurred in 2014[100]. This heated media attention gave a boost to efforts to solve the hydraulic issues. Given the status of emergency, the entire bureaucratic process surrounding the construction of these basins appears to have become much more fluid: a state of emergency, in fact, dictates urgent and immediate action that suspends the usual slow, painful democratic processes and intermediation. Setting up a more technologically long-term, modern project would mean not only much longer timeframes but also questioning the way in which such issues are handled. Thus, "whether local flood risk management moves from 'hotter' moments of more intense, active controversy to 'cooler' moments of consensus and *routinization* depends in part on the production and deployment of particular forms of knowledge"

99 'Partito Democratico' with Renzi-Gentiloni (2014-) and the Pisapia administration in Milan (2011-2016); the Region though, has been under the centre-right/Lega control for the last 20 years.

100 http://milano.corriere.it/notizie/cronaca/16_giugno_28/a-milano-esondazioni-evitabili-3b6109ce-3cee-11e6-922f-98d199acd386.shtml

(Holifield 2015:296). As a matter of fact, basins – that is to say, flooding – became a priority while water quality continued to represent a secondary issue.

> "It was an electoral argument; they have had more than 5 years to accomplish this project, since 2010... there was also a boost from the EXPO in 2015, but then nothing happened" (Int.170516).

We interpreted this point through a visible/invisible dichotomy, drawing on Osti (2017) to argue that the basins have the potential to offer a great deal of visibility, a sign of political commitment visually manifested in the materiality of the basin; this has also the power to ensure an electoral return in term of votes. Water quality improvements, in contrast, would have much less visual impact (and thus electoral return), as confirmed by our previous interviewee's observation that "what goes underground does not bring votes" (Int.120516).

In 2005, the AdBPo established the impossibility of doubling the range of the CSNO in view of the widespread pollution in the overall hydrographic system that prevents any watercourse in the area from accommodating further water intake: thanks to this extension, hydraulic risk was transferred to other areas of the river basin and ponds were thus constructed to retain water (RL, 2017)[101]. When we asked why water purification could not be considered a priority as well, the answers were misleading. From interviews with water management officials, the priority seems to be first building the basins and then cleaning the water, despite the economic sanctions that will be applied by the EU and the fact that floods have been affecting Milan for the last 500 years (see §6). Also, it is not certain how much pollution can be considered 'safe' before beginning to cause health risks. The Po Agency claims that each local area should take responsibility for its own floods, which might be caused by its own excesses of urbanization. This proved to be a very misleading framing, however, as in the case of both Senago and Bresso excessive urbanization is the result of broader territorial configurations in the area as a whole.

> "I do not understand why they do not want to be in solidarity with Milan: everyone in the periphery works in Milan! (…).

101 http://www.fiumisicuri.regione.lombardia.it/cs/Satellite?c=Page&childpagename=DG_Territorio%2FMILayout&cid=1213751281032&p=1213751281032&pagename=DG_TERRWrapper

> Well, it is also true that if Milan had spent the money to acquire the land and move their houses, it would pay less than the cost of every flood recovery in Niguarda/Isola…" (Int.261017)

A profitable strategy for solving the river's issues (both hydraulic and qualitative), in the words of technicians, would consist in sanctioning unauthorized discharges into the river (violations which are now well-known) and raising the prices the public company charges for water in order to subsidize purification systems. This entails a two-fold problem. First, no one wants to take responsibility for sanctioning illegal discharges: it seems that all the actors are waiting for the magistrates to pass a 'neutral' judgement before taking any action in this direction. Second, making water more expensive would represent a political choice with self-inflicted negative effects in electoral terms, at both municipal and regional levels. Almost all interviewees agreed on the fact that water quality has improved in the last years, in part (or mainly) due to the economic crisis, industrial de-localization and industrial reconversion. At the same time, however, they also agree that pollution is not easily manageable, since relocating and cleansing polluted matter is problematic and watercourses take many years to clean themselves within riverbeds as well:

> "It's not like you can move pollution: you never completely solve it; you cannot take small steps... I mean, there will be a shock or something that will then make us change [our] choices and models" (Int.261017)

This opens up a range of scenarios for structural change in the socio-ecological organization of the area.

Conclusions for the section – Reconstructing the story of the Seveso River, its 'contract' and related conflicts through our chosen analytical lenses has meant foregrounding the socio-environmental triggers and political choices that influenced and shaped the current configuration of the basin. The history of Milan is closely connected to water: it has channelled, diverted, buried and rediscovered it according to the needs of different historical epochs. Water management has developed largely to make urbanization possible, even far from the main watercourses[102]. Since the

102 Milan is indeed one of the few large European city not built in the river banks or along the seacoast

Romans and later Middle Ages, the waters of the Seveso river have been used and reallocated for the needs of urban dwellers. Its history of use and flooding are directly connected to the creation and expansion of hydraulic channels (the Redefossi and Martesana) and, therefore, with the process of 'taming' it. The urbanization and industrialization of the basin have meant further change in land take and the rise of hydraulic issues; fast-growing populations and planning fees have caused soil sealing as well as worsening water quality (especially in the lower part of the basin). In a sense, natural crises have provided justification for further development, as proven by the case of the detention basins scheduled to be built in the last green areas. Political neglect and irresponsibility in facing these issue has also ignored the fact that those who urbanized the most in the past are not 'paying' for today's land loss (see also Cinisello and the mall built most recently) in the basins. From 2014 onward, public funds have been allocated to provide hydraulic solutions for the basins thanks to a very peculiar moment of co-participation between local and national government: these funds are provided to 'safeguard' a wealthy part of the country. The 'Contratto di Fiume' deployed since 2006 to improve the area in keeping with new European qualitative and hydraulic norms has mainly been used among institutional actors and has led to improvements in water quality and planning governance. Nevertheless, we can argue that most of the time this type of public involvement is aimed at managing 'exploited nature', i.e. ecologically degraded areas which need to be decontaminated or aesthetically improved. Stakeholders are often included only after it is clear that resources cannot be further exploited (not creating profits) and spaces must be recovered from previous processes of socio-economic use. As with similar arrangements in Europe (Guerrin 2014), the project did not sufficiently empower local actors to reinforce the legitimacy of Regione Lomabardia and enable local acceptance, in part because the meetings were organized in institutional settings and focused on technical aims involving engineers and local institutions. In the case of the Seveso basin, private actors seem to have rights over resources (water and land) while the state has mainly duties, such as the duty to remediate/decontaminate the river (Mattei 2016). Furthermore, the CDF's nature has

to do with consulting about 'water' (the river), overlooking 'land' (through which water flows) and related issues, i.e. urbanization and the competitive acquisition of land, which are in fact the main drivers of environmental problems. In other words, this feature has the effect of relocating (and, hence, blurring) the focus from land to water, thus representing a major limit of this type of tool.

III – Final Remarks

10. European socio-environments: water, planning and no limits on growth

> "The representation of nature as external to the social has important depoliticising effects, since it makes the political nature of certain events and processes invisible and therefore uncontestable. (…) Environmental questions are not only easily depoliticised (…) but could also become the terrain of politicisation *par excellence*. Because everyone can appropriate these questions and give them a specific content, a genuinely political space of plurality can appear, where conflict, contingency, and power can become visible and contestable as such" (Kenis and Lievens 2014:538;545)

Through this research we have sought to contribute new insights to the field of participatory governance in environmental issues, exploring how the governance of nature has been shaped and disentangled in the complex relationship between local governments and civil society.

Here, we conceived of the society-nature relationship as a recursive socio-physical transformative process through which nature (in this case water) and society affect and shape each other over space and time (Linton and Budds 2014). This means that water internalizes social relations (transcending the dualistic view of water and society as separate entities) and incorporates social and power relations. Managing water, therefore, shapes the way society is organized and – at the same time – society in turn affects hydrological landscapes in a recursive and cyclical manner. We have stressed the importance of showing how hydrological events disrupt such relations and (potentially) generate new junctures in the organization and configuration of humans and non-human entities. Water and its governance reflects social relations and power constellations: the management of water is politically relevant, reflecting views and imaginaries of how nature should be, internalizing social relations and social power and thus exercising political effects. For this reason, multi-scalar water governance in the EU produces a series of both enabling and disabling social and environmental conditions at different geographical scales. Taking a broader view, we focused on the European context, comparing how different member states have adopted a common environmental legislation framework to date. We can identify three main outcomes:

- European environmental governance has had an enormous impact on the reorganization of territorial configuration in water management, including by articulating fundamental ecological targets. Nevertheless, the implementation of a common European Framework Directive on Water (WFD) from 2000 onward has resulted in a fragmentation of management activities and a lack of integrated planning policies, thus generating asymmetry between European laws on water management and land/urban planning (as also proved to be the case in the Seveso basin). For the most part, water and land planning issues are not tackled as a common inter-related matter: in other words, the WFD dictates limits on ecological targets but does not sanction the 'engines' of environmental degradation, thus basically leaving member states free to engage in internal territorial governance. In conclusion, water management continues to be a highly politicized matter, as it is heavily dependent on the political will of the national and international authorities in charge.
- Public participation can work efficiently in focussing renewed attention on water (and environmental) themes, especially by enhancing more horizontal synergies between institutional actors in multi-layered territorial issues and serving as a catalyst to stimulate information about, dissemination of and interest in river issues (as seen in this case). At the same time, however, more often than not, local stakeholders from civic society are left out of decision-making processes, especially the ones most closely related to local issues. Even when PP is presented as fully open to civil society, it does not create much interest and motivation among citizens since it usually remains confined to volunteering and activism and does not guarantee political power or influence over the processes that cause the 'urbanization of nature' on a broader political scale.
- The conflicts surrounding water show how such struggles are situated within a broader political–ecological framework of 'sustainable economic growth', that is to say, the dominant paradigm endorsed by national and international actors and embedded in European policies. The European (post) industrial society has fully

> adopted a strategy of co-opting any radical socio-ecological alternative, endorsing the paradigm of 'ecological modernisation' (§4) as a way to continue pursuing environmental *unsustainability*. This strategy appears to be deployed to simulate serious concern for ecology, relying on green technology and economic growth within a neo-liberal, consumer, free-market economy that supports industrial competitiveness and thus maintains society as we know it unchanged.

Going back to our research questions (§2), the main findings related to these are:

Nature/Environment discourses and narratives

Current paradigms about nature and the environmental discourses shaping policies and legislation are mainly framed around the concept of nature and society as different and independent entities in which humans and water proceed down parallel but separate tracks. This vision has the effect of separating societies from their natural constituency (for instance, measuring only the thresholds beyond which humans can impact the environment), conceiving of the natural realm in terms of what can be extracted from it. Moreover, most sustainability discourse and policy revolves around the notion of an ecological ideal that can be achieved through technology, i.e. by minimizing environmental externalities, thus leaving untouched the economic system underlying today's societal lifestyles. This paradigm is fully embraced and nurtured by policies that reveal the way that states regularly fail in relation to environmental issues because they are concerned above all with maintaining economic growth, the source of their legitimacy (Parker and Larsen 2009[103]). Over the years, sustainable development discourse has gained ground as a way of reconciling economic growth and ecological sustainability, overlooking power imbalances in local territories: indeed, these forms of inequality are very often masked by technical discourses. Many scholars agree, in fact, that if we do not address existing imbalances of power in the access to and use of natural resources, a number of 'taken-for-granted' concepts will perpetuate and sustain the present situation.

103 https://wellsharp.wordpress.com/2009/09/22/ecological-citizenship-the-basis-of-a-sustainable-society/

Participation and the environment

Nature is only brought into the sphere of environmental management in the aftermath of political decisions over local areas, a fact which also explains why there is so much contestation over environmental issues[104]. As a matter of fact, citizens are often only included in decontamination-restoration/"re-greening" projects. The environment appears to be treated as a public good when it must undergo processes of decontamination: in this case, PP processes are launched and recognized as a valuable management strategy On the other hand, when competitive acquisition and resource exploitation are at stake, the realm of nature becomes a good or commodity, and mechanisms for normalizing capitalistic process (as a natural socio-economic force) are taken for granted and 'naturalized'. Conflicting (and mutually exclusive) visions of this relationship (continue to) pit those who see nature in an economic light – as a commodity – against those who see it as a public good, in the context of its being used for society as a whole. Therefore, participation is only meaningful if we consider *who* participates, *when* (at what stage of the decision-making process) and *about what*, whether in relation to merely technical matters or, instead, to discuss broader territorial arrangements based on sustainable environments in keeping with shared ideas of what territorial configurations and lifestyles are to be endorsed.

Power, conflicts and ecology

The root causes of environmental conflict lie in constellations of power embodying opposing interests. Within these power dynamics, national and global economic influences, discourses and ideologies on nature and the environment work as a catalyst to override local issues, just as supranational political economic regimes also limit national policies. The solutions planners propose often consist of temporary, technical interventions foregrounding economic interests, in which short-term interests prevail over long-terms ones. These take the form of depoliticizing discourses that overlook conflicting interests

104 Only in Italy we identified more than 50 environmental groups against territorial development projects. Among them: No vasche, No Tem (Tangenziale Esterna Milano), no roma-latina, no TAP (Trans Adiatic Pipeline), no tav firenze, No Inceneritori Terni, No Muos, No Tav, No Aeroporto Sesto Fiorentino, No Cave Piumazzo, No inceneritore, No impianto di smaltimento Teano, No petrolio Valle di Diano, No biogas Anzio.

and power imbalances over local environments as well as decision-making and implementation processes. Also, conflict-resolution initiatives are focused on tackling the direct causes of conflict and often generate quick-fix solutions rather than long-term ones. Conflicts and their solutions are addressed in a participatory or technocratic way rather than through normal political processes. In many cases, measures to prevent conflict are based on strengthening governance, such as through capacity building, institutional regulation or public-private partnerships (Bieckmann and Hollander 2014). Local contestation and conflicts reveal and emphasize the contradictory tendencies which lie underneath contemporary socio-ecological relations, imaginaries and discourses (such as preaching the restoration of river water while at the same time establishing no pollution plans or limits on urbanization). Processes of metabolic change are never socially or ecologically neutral (Heynen, Kaika, and Swyngedouw 2006): indeed, favouring economic issues over environmental ones can result in detrimental effects for certain communities. The lack of supra-national legislation in the EU hampers environmental restructuring aimed at more sustainable and democratic territorial configurations

Specificities of our case study – In the case of the Seveso basin, we were able to identify several significant tendencies: a process of blurring nature (Kaika 2005) for the main purpose of furthering urbanization and blurring responsibilities over the *governance of nature* to avoid any radical re-structuring of existing socio-spatial configurations. The Region and city of Milan have mainly worked to protect the city-centre at the expense of peripheral areas, re-locating river floods outside the city: this has raised new issues about core-periphery governance issues in the Milan metropolitan area (*Città Metropolitana*). Based on the research conducted, we also argue that the participatory process surrounding the CDF was poor; the conflicting, incoherent and non-inclusive territorial planning characterizing the last 20 years has made communities highly distrustful of institution. On one side, this process has given rise to nimbyist arguments against the construction of the DB as a way of protesting for the 'right to decide' in their own local area. At the same time, this contestation has produced a vibrant and proactive (albeit not coherent) group of local

citizens who mobilized around the environmental issues of the river basin, stimulating renewed interest in the territorial organization taking place and (schizophrenic) environmental policies being issued in Lombardy. There have been efforts to build consensus about DB construction based on a discourse of territorial solidarity and 'sacrifice' for the good of the City (i.e. Milan) in its role as the socio-economic core of the region. As discussed above (§9), emergency narratives and political synergies with the central state were used in a specific moment to accelerate the hydraulic work, reinforcing established power relations. Ultimately, to avoid a sterile labelling of the CDF as more or less post-political, we argue that participation can effectively open up spaces for new socio-ecological scenarios (as explored by activists) when it is not limited by the fenced-in (and neutralized) settings of top-down governance arrangements, settings that aim to avoid any potential conflict over re-discussing territorial development, that is, re-politicizing socio-ecological sustainability. Environmentalists' claims mainly belong to a discourse related to (environmental) justice and equality, which would require enormous structural changes in social organization to be addressed seriously and definitely (Kelly-Reif and Wing 2016:350), thus also directly affecting activists' and local citizens' needs and expectations. Such structural changes, achieved by slowing down economic processes to produce more ecologically sane and just social conditions (Asara et al. 2015; Demaria and Kothari 2017), would represent, in our view, a potential way of re-politicizing ecological issues to pursue more sustainable and democratic territorial configurations.

Further developments – Contemporary European environmental governance is mainly focused on traditional water-management practices that overlook the complexity of the conditions at play in ecosystems. Moving beyond water-centric perspectives (de Loe¨ and Patterson 2017) to a more interdisciplinary and holistic view of environmental issues can foster the emergence of new regulations and legally-binding documents in which information is co-created by all the relevant actors at the local level (especially those who are going to be affected the most). In fact, systemic thinking (Voulvoulis, Arpon, and Giakoumis 2017) should provide the backbone for a new perspective involving 'systemic

legislation' in which supra-national directives are based on interdisciplinarity and structural changes: ultimately, it seems that "reconciling the two pillars of good ecological status and public participation requires a structural change" (Ioris 2008:356). Regulating the environment through mono-practices that deal with different issues one at a time is a strategy doomed to failure, as only the opposite approach has proved successful in resolving systemic connections. Indeed, the move to see and 'connect the dots' between water management, planning policies and limits to economic and urban growth represents a political choice. This of course only makes sense if we consider that (economic) growth and ecology are contradictory, or that there are physical limits on growth (see Smith et al. 2014): this would require a shift in the prevailing logic and functions of the state, a shift away from 'safety first' and growth" (D'Alisa and Kallis 2016:241). In contemporary socio-ecological configurations, the various drivers of environmental use and degradation are difficult to identify in terms of their exact cause–effect relationships, in part because global economic developments interact so closely with local political and societal trends (EEA 2017). Furthermore, it is crucial to understand why PP is currently being implemented at all (European) scales more and more frequently, behind the usual democratic procedures. Our main claim in view of the findings presented here is that there are few debates around access to, transformations in and the regulation of nature in contemporary socio-ecological relations between the state and civil society. Indeed, it seems that ecology, apart from market-oriented consumer choices, cannot be politicized. Any real efforts to re-politicize and seriously address the environmental situation would, in fact, require radically different paradigms to be deployed in the organization of the socio-ecological metabolic chain: from land-use legislation to urban growth and housing issues, from goods production to urban consumption. Re-politizing such issues would also require a debate in the democratic, political public sphere about possible alternatives to the existing order (Kenis and Lievens 2014). The only potential source of optimism, therefore, comes from scrutinizing environmental conflicts as a fruitful terrain for re-politicizing the environment in order to foster new societal imaginaries and new socio-ecological relations.

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Annexes: List of interviewees

Participant	Group	Year	Code
Representative of Milan City Council for River Contracts	Institutions	2017	130117
Council member, municipality of Lentate sul Seveso	Institutions	2016	220616
Council member, municipality of Senago	Institutions	2016	090916
Representative of Italian Network of River Contracts	Institutions	2016	200716
Representative, AdBPo (Hydraulic issues)	Institutions	2016	290616
Council member, municipality of Bovisio Masciago	Institutions	2016	22b0616
Technical Staff, municipality of Varedo (Urban Plans)	Institutions	2016	210616
Representative of Regione Lombardia, River Contracts (General Office)	Institutions	2016	170616
Representative of Regione Lombardia, River Contracts (Hydraulic issues)	Institutions	2016	150616
Council member, municipality of Bresso	Institutions	2016 2013	090616 101013
Council member, municipality of Milan (Urban Planning)	Institutions	2016	070616
Representative, Parco Nord – Milano	Institutions	2016 2013	230516 041013
Representative, Niguarda area (Milan)	Institutions	2016	290416
Council member, municipality of Cesano Maderno	Institutions	2013	051113
Council member, municipality of Senago (Environmental issues)	Institutions	2013	161013
Council member, municipality of Seveso	Institutions	2013	16a1013
Repreentative, Municipalities of Northern Seveso area	Institutions	2013	05e1113
Representative, AdBPo (Water quality issues)	Institutions	2017	261017
Urban Planning Professor, former researcher for Seveso Basin improvement	Expert/Technician	2017	200117
Hydraulic engineer in AIPO	Expert/Technician	2016	250716
Hydraulic engineer, collaborator of AIPO and Regione Lombardia	Expert/Technician	2016	130516
Geologist, former manager of Milan province and City Council for water sector	Expert/Technician	2016	270416
Hydraulic engineer, former manager in Metropolitana Milanese (MM)	Expert/Technician	2016	280416
Representative of Legambiente Lombardia; participant in the CdF (water sector)	Expert/Technician	2016	161216
Representative of Legambiente Lombardia; participant in the CdF	Expert/Technician	2013	31b1013
Researcher, expert of hydraulic issues	Expert/Technician	2016	27b0616
University Professor (Ecologist, water quality); Expert of the Seveso river basin	Expert/Technician	2016	120516
Representative of Reclamation Authority, "Consorzio Est Ticino Villoresi"	Expert/Technician	2013	05e113
Representative of 'ComoDepur', Water treatment plant	Expert/Technician	2013	05c1113
Reoresentative of Milan CAP, integrated water services system	Expert/Technician	2013	05d1113
Water quality expert at ARPA (Lombardia)	Expert/Technician	2017 2013	13b0117 311013
Representative of 'SudSeveso' water treatment plant, Carimate	Expert/Technician	2013	05b1113
Representative of EcoMuseo Seveso Niguarda, Milan	Environmental Groups/	2013	31c1013
Member of 'Fiume Vivo' – Cesano Maderno	Environmental Groups/	2013	16b1013
Member of 'Sinistra e Ambiente Meda' /WWF Lombardia, Meda	Environmental Groups/	2016	270616
Members of Senago Sostenibile, Senago	Environmental Groups/	2016	170516
Member of Comitato 'No Vasche' (No Basins committee), Bresso	Environmental Groups/	2016	050516
Member of Amici Parco Nord (Friends of Parco Nord), Milan	Environmental Groups/	2016	300416
Former member of "comitato stop esonda Seveso" (Stop Seveso's floods), Milan	Environmental Groups/	2016	27b0616