

**Whirls in main stream.
How citizens experiment with alternative water
management in Brussels.**

Daniel Siemsglöß

Supervisor: David Bassens

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Daniel Siemsglöß
Brussels, 28th July 2019

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A. INTRODUCTION - AN INTERRUPTED CYCLE

“Nothing is more critical to the success of a society than its ability to supply water where it is needed, when it is needed, and, on the flip side, to keep floodwaters at bay. History is studded with enterprising cultures that failed this basic challenge—from the Sumerians of ancient Mesopotamia, the first irrigation-based society, to the Hohokam of the American Southwest (...).”

(Sandra Postel 2019)

Alarmist and menacing, the popular water scientist Sandra Postel evokes in her essay “The water cycle is broken, but we can fix it” (2019) the dark image of perishing civilisations crossing their ecological limits. Quickly she makes clear which very real, impending scenario the author has in mind. It is the advent of global warming which will be played out in the planet’s water circuit. Although precise predictions are difficult, we can expect overall higher temperatures and changing, globally variegated patterns of yearly precipitation. Among the consequences of these changes are droughts, rising sea levels and floods which are likely to pressure ecosystems and bear huge potentials for social conflict (Farnigletti 2019, WWF 2019).

These variegated threats are exacerbated in a water-cycle massively disrupted by human intervention. At a time which has been termed by some geoscientists as the “Antropocene” (Steffen et al. 2011) human imprint on water systems has become ubiquitous. Global capitalism’s dependency on growth and a growing world population have set us on a track of ever increasing water demand. Unsustainable practices as groundwater depletion or heavy infrastructures such dams have interrupted the water cycle and created dependencies into which our society has accommodated itself. As dysfunctions in an interrupted aquatic cycle only gradually become apparent, the actual threat and its countering pose a major challenge to human imagination today.

The mastery of water can be interpreted as a historical pre-condition of urbanisation (Gandy 2014, Kaika 2005). Drainage and dams opened up ever vaster lands for cultivation and irrigation enabled increased agricultural production but also engendered a loss of natural buffer zones and river ecologies, whilst a heedless urbanisation produces the threat of natural hazard in flood-prone areas. The modernist remedy thereto used to be massive state-built infrastructures. According to the paradigm of the ‘plumbed city’¹ originating in the 19th century water mainly occurs as a mediated flow, absorbed and guided by networks of designed infrastructure (Gandy 2014). In this vision, water constitutes a controlled element and manageable resource governed by public authorities and specialized technicians. Only in moments of cloudburst and flooding it has a sudden, unexpected, yet predictable return taking the shape of ‘natural hazard’.

Following Karvonen’s (2011) argument the core problem of ‘water in the city’ is situated here: Water is not regarded as a valuable resource but as a problem to be fixed or (even worse) as a waste product to be exported. The vast water infrastructure systems we inherited, still draw largely on the logics de-

¹ Gandy describes as plumbed city the cultural arrangement of a separate public and a private sphere of hygiene and body-cleansing concealing the metabolic relations between body and city. This act of creation came along with the invention of a range of new technical and domestic facilities such as the private bathroom (see Lupton/Miller 1996). Although the moralistic implications of this model seem today outdated, the logics of its technical arrangement prevail.

veloped in the 19th century. Only since the 1980's in the wake of the ecologist movement these unsustainable modes of water management are questioned. In the actual debate, an Integrated Water Management (IWM) taking into account all stages of the hydrological cycle is regarded as the alternative, more sustainable model (see the UN research program SWITCH 2006-2011). Just as water "knows no borders", IWM implies a transdisciplinary and multiscalar approach. It furthermore requires new, complex definitions of water infrastructure as pipe-and-dam systems alone no longer provide the answer. Complex systems would be composed of by a multitude of elements, which in a sense of hybrids or cyborg cities (Swyngedouw 2006), can be likewise private and public, concrete and soil, mineral and organic, imaginative and real. Such vision does not go easily with the technomanagerial approach to water; it likewise calls for different governance models.

In Brussels, it was primarily bottom-up activist groups as the EGEB (Etats Généraux de l'eau à Bruxelles) or the Coordination Senne to question the prevailing modes of water management. After years of struggle for political representation of citizens' perspective in water matters, the region in 2017 gave funding to launch the participative research project "Brusseau", short for 'Bruxelles sensible à l'eau'. By adopting the notion of 'sensitivity' the implied people strive to highlight the necessity for other relations between water and all other human and non-human elements of the city. It was conceived to capture the more cultural dimensions beyond more technical concepts, such as IWM.

The participating activists, citizens and researchers have thus engaged with concrete local situations in order to stimulate imagination, produce knowledge and to experiment with alternative ways to accommodate water in the city. Setting the citizen central their approach is set against classical technomanagerialism. With a preference for trickling and greening solutions over construction, their design orientation is in line with other actual contributions in the regional discourse on a water-sensitive urban design (see Ranzato et al. 2017). The current debate remains vivid and as examples for an alternative rainwater management have not yet been set, the work of Brusseau and adjunct citizen initiatives could predefine a-yet-to-become new position of water in Brussels.

The present research project thrives to shed light on these local water-related mobilisations and to assess them in their significance for (rain) water-sensitive redesign in the Brussels region. As climate change over the period of my writing become a major hot topic on the political agenda, I want to explicitly set this work into the context of deliberation about a sustainable transformation and its conditions.

My research shall thus be guided by the following questions:

How do selected civic initiatives in Brussels organise and position themselves in the debate on the future Blue Urban Infrastructure and with respect to the institutional actors?

In order structure my research I want to apply these specifying sub-questions:

- a) How do these actors frame the urban water-related problems?
- b) By which practices do they organise internally and engage in the debate?
- c) Which visions for urban water, infrastructure and public space are hereby produced?

B. THEORY

1. Paradigms for infrastructure and planning

1.1. Periodization of urban water regimes

“Water is re-conquering the contemporary agenda of urbanism (...). In a certain way [its] reappearance (...) has not come uncalled for. Rather, its disappearance during the heydays of urbanism in the 19th and 20th century is remarkable. Running through an ad-hoc collection of classic handbooks of Urbanism – Raymond Unwin 1909, Werner Hegemann 1922, Harold MacLean Lewis 1949 [for a more European perspective also: Stübgen 1907, DS] – one finds not a single substantive component that attends to the relation between water and urbanity. Water is reduced to a photograph of a ludicrous fountain in Unwin and a marginal observation” (Shannon 2008: 5)

Indeed, as observed by Shannon, water has become a “hot topic” in urbanism, again, and waterfront developments driven by city marketing and real estate developers have received attention in critical urban scholarship (see the compilation by Bunce/Desfor 2007). In order to make sense of the precedent, long lasting absence of water from the urbanist agenda, the political ecology literature provides useful insights. With the term of the bacteriological city Gandy describes the emerging political and technical discourses of the 19th century that shaped the urban water regime and the city’s morphology onto the second half of the 20th century (Gandy 2012). Building on technological progresses, hygienist ideology and science the model of the bacteriological city is a child of the complex societal changes since the age of enlightenment (see Gandy 2005).

In the language of the time, strongly influenced by the emerging science of epidemiology, the powerful union of moralistic and hygienist arguments was best represented by the figure of urban planner as “healer” for the sick body of the city. Urban planning as a new discipline is the expression of a general shift from a private to municipally led technical solutions to urban problems. The consequent extension of municipal technological and administrative capacities came along with the creation of new public utilities and also required financial innovation as communal bonds in order to facilitate the enormous construction activities without increased taxation (Gandy 2005).

In the Fordist period, ‘the bacteriological city of the late nineteenth century was metamorphosing into a fully-fledged technocratic paradigm for modern governance’ (ibid.: 18) and provided the ground for larger projects on a regional or national scale. Large infrastructures as highways or dams projects became hereby part of the post-war inter-class compromise. Ideas of domesticity re- embodied in shape of a growing rate of consumer products, from cleaning utensils to kitchen equipment and were marketed by the mass media. Likewise, the provision with basic infrastructure also spread out to more peripheral and rural areas, pursuing the political objective of equal living standards (van Laak 2012). However, the bacteriological has stayed merely a technocratic ideal, hardly ever fully realised (Gandy 2006). De facto, in most cases, the urban infrastructure remained a palimpsest, integrating parts of older water networks, the pre-existing topography and the new networked infrastructure as layer transposed.

The bacteriological city as a political paradigm reached its autumn in the 1970’s economic crisis. Also,

its socio-cultural implications where increasingly at odds with the social changes of the 1960's. As a consequence, cities realised their inability to further pursue ambitious renovation programs and postponed their plans. Money, otherwise invested in public infrastructure, found its way into the more lucrative investments such as real estate or financial products. This re-direction of financial flows led to disinvestment and decay of public infrastructures which evolved into – what Picon coined – a neglected landscape of anxiety (2000). The counterpart hereto to the shining semi-private shopping malls and other securitized spaces of that time (ibd.).

Today, in a post-bacteriological-city era it has become increasingly difficult to identify a model of urban infrastructure development. With certainty, one can state that in the past decades private capital has found (again) its way into urban networked infrastructures. The perception of an “urban crisis” had justified the retreat of the state from provisional infrastructure systems and private actors were allowed to enter a newly created market. Technical expertise became subordinate to an entrepreneurial perspective. Privatisation, especially in the case of water infrastructure, led to disinvestment as it bears high fixed costs and lower return rates compared, for instance, to telecommunication infrastructure (Kishimoto/Gendall 2015). The long term consequence of privatised water provision is the solidification of built disparities in the provision with an essential good (Gandy 2006). In the 2000's however, these developments have received massive criticism and, locally, have already being reversed (Kishimoto/Gendall 2015; De Gouvello/Scott 2012).

1.2. Contemporary discussion of infrastructure

Today again, infrastructure is being discussed as a guiding principle for urbanization in academic and professional circles, at the same time as cause and as remedy of a diffuse and unbridled urbanisation (Monstadt 2009). Transport hubs, green belts or water fronts are, so to say, expected to bring order back into the state of the city at the end of the millennium, as portrayed in Indovina's *Citta Diffusa*, Kohlhaas' *Generic City* or Sieverts' *Zwischenstadt* (De Block 2016).

Increasingly, infrastructure receives attention from outside of the realm of “hard” engineering but from landscape architects, planners and urban designers. Their engagement adds additional layers to infrastructures turning them into multi-functional arrangements which have to correspond to society's expectations in terms of social qualities, aesthetics, environmental preservation and economic yield (Shannon/Smets 2016). Generally, these attempts to address multiple problems in a broad, trans-sectoral way subscribe to a relational perspective on contemporary urban challenges (Graham/Healey 1999). With ideas of low impact developments nature-based solutions attract increasing attention (EC 2013). Consequently, other emerging fields of applied science such as applied ecology or environmental engineering contribute to the development of urban infrastructures. Their contribution can not easily be qualified: A bio-tech approach does not open up equally to the hybridity and relationality thinking of landscape urbanism, but is merely a modification of existing technical infrastructures. Nature-based solutions as discussed by Krauze and Wagner (2019), indeed have the multi-faceted character.

For the present work I want to interpret the current discourse in Brussels as a part of this greater search for an adapted, contemporary infrastructure. Hereby I hope to identify local characteristics to substantiate the greater idea of a *water-sensitive urban design* (WSUD). This concept originated in the variable climate and largely suburban context of Australia, where design and research in this field has thrived, before reaching progressively the Netherlands, the UK or Germany (Hedgcock/Mouritz 2017). Kruse et al. summarised the components of WSUD as follows (2011):

- 1) Ecology: re-establishing a natural water cycle
- 2) Design: using the potential of design in order to revitalise urban quarters
- 3) Functionality: using flexible techniques and ensuring easy maintenance to ensure long-term endurance
- 4) Usability: creating multi-functional open spaces
- 5) Public acceptance: citizens' participation and ensuring acceptability of costs

Building on scientific evidence for its potential to alleviate risk of inundation (De Bondt/Claeys 2008) and pushed by urban environmentalist activism, the notion of water-sensitivity has found its way into the Brussels discourse, giving name to the participative research project “Brusseau” (2017-2019). The latter is sustained by the regional innovation fund Innoviris and incorporates next to the activist group EGEB, architects and a number of researchers affiliated to hydrology, history and architecture at Brussels universities. Their demands for an urbanism allowing for the presence of water, in an ecologic-holistic vision, is very much in line with the wider regional discourse. Together with renowned Brussels landscape architects (Bas Smet, JNC International, Taktyk) and financial support from the regional government, the Brusseau architectural partner Latitude participated to the 2018 Brussels Urban Landscape Biennale, which can be interpreted as a state of design thinking about waters in Brussels.

Many of the internationally celebrated landscape designs and policies that informed the Belgian discourse were implemented in the Netherlands. Famous examples are the rather non-urban ‘Ruimte voor de rivier’ program (2006-2015), or the ‘rainwater squares’ by De Urbanisten in Rotterdam (see IABR talk “The city as a sponge”, Brussels 8.10.2018). Moreover, Rotterdam, alongside with New York and Singapore, is discussed as an early and influential example of a pronounced WSUD in the literature (Kruse 2015). Also, other European examples of comparable urbanisation patterns are being evoked, e.g. Northern Italy (Ranzato et al. 2017). Finally, a number of successful WSUD handbooks edited by architects active in the domain popularised this approaches. They are, as I can tell from my personal readings and experience, repeatedly evoked in international and Belgian urbanism (Prominski et al. 2012, Dreiseitl/Grau 2008).



Figure 1. Bishan-Ang Mo Kio Park, Singapore, designed by Ramboll Studio Dreiseitl is regarded as international benchmark in water sensitive urban design.

Such water-sensitive approaches generally line up with what De Block describes as *landscape urbanism* or *ecological urbanism*. Advocates of these approaches claim to develop their project starting from the found conditions of landscape rather than imposing pre-fixed structures and ideals. Such currents in design philosophy resonate on Latour's definitions of *engineering* and *design* (2009). He associates the former with emancipation, detachment, modernization, progress and mastery (ibid. : 2) and the latter with attachment, precaution, entanglement, dependence, sustaining, nurturing and caring (ibid.: 3). The result of the design approach is believed to be “complex adaptive systems able to both integrate and materialize myriad interactions between the ‘social’ and ‘natural’ realm, and this over extensive spatial and temporal scales” (De Block 2016: 368). As higher goal of such socio-natural arrangements

the term of *urban resilience* is often evoked (Berg et al. 2013, Krauze/Wagner 2019). The critique here-to blames resilience to embody the neoliberal doctrine of responsabilisation, which has increasingly moved into the place of a pro-active state and pro-active investment in infrastructures.

It is somewhere between these visions, whether invoked in present day or embodied in earlier built infrastructure, that the discourse on Brussels infrastructure can be situated. Pointing out to the results of questionable developments in the past, it is now a 'soft engineering', environmentalist, urbanistic approach that dominates the debate. As result a new layer on the Brussels palimpsest of water-related infrastructures, via transformation of the existing, may be laid and will characterise henceforth modes of water management.

2. Social Innovation

Science and technology studies highlight the importance of social embedding for socio-technical changes. Whilst discussions about soci(et)al transformation or progress cover up for a wide field, more recently the term *social innovation* (SI) has become popular in the scholarly literature and in public discourse (Jessop et al. 2015). Rüede and Lurtz (2012) have made an attempt to disentangle the various understandings in a dispersed body ranging from strictly academic to more practice-oriented literature. Among their findings, one trend in particular is dedicated "[t]o urban and community development" (ibid. : 16). Herein SI is defined by three main characteristics (Moelaert et al. 2015):

- a) The satisfaction of basic human needs
- b) The changing social relations between groups and individuals on varying spatial scales
- c) The empowerment of deprived groups and individuals through their engagement in emancipatory movements

In the contemporary context SI can be discerned from previous mobilisations as a direct answer to phenomena of the Post-Fordist era, i.e. individualisation and responsabilisation, and measures of the neoliberal project, i.e. flexibilisation, deregulation and privatisation (Martinelli 2010, Moelaert et al 2010). Contrary to the mass movements of the late Fordist era, the contemporary initiatives appear much smaller in scope, splintered into different directions and much more concerned with new core themes as recognition and diversity. Still, Martinelli states also for the most recent developments a return of redistributive questions. Many empirical studies conducted within this tradition had thus a focus on mobilisation within deprived neighbourhoods, often in a context of unemployment and poverty (ibd.).

2.1. Discussing Social Innovation theory

Moelaert et al.'s conception of SI (2015) implies certain characteristics that I want to elaborate in the following, as they are central to the concept or seem particularly relevant to my work. One is the *political ideologic weight* carried by the here discussed understanding of the notion. The "social" implies an anti-thesis to technical, pre-defined solutions and institutionalism (Moelaert et al. 2015). Out of a positioning against neoliberalism, it proposes "a counter-ideology of solidarity" against privatisation (ibd.: 18). Other than that, it refrains from giving all-to-precise normative definitions and opens up

multi-dimensional space for politico-ideological alternative.

SI, as discussed thus far, bears a clear spatial orientation within community development. Here it assigns a crucial role to the *local scale*, be it quarters or neighbourhoods. The experience of the everyday environment and its endogenous resources including social relations, set the starting point for change (Van Dyck/Van den Broeck 2013). Public space becomes an important arena of action and negotiation. Yet, this view is not entirely closed. Other positions underline the role of networked places and mobility of actors for innovation, without denying the role of the locale. In reality, we can presume that there hardly exists any local, isolated entity. SI necessarily combines local and external resources. Klein even stresses the need for initiatives in a context of social deprivation to be organised super-locally, in order to have an impact on wider structures of governance (2008). Multi-scalar activities seem finally inevitable to have a bigger, structural impact.

Van Dyck and Van den Broeck propose to understand SI not only *in* spatial context but *as* a transformation of spatial relations which adds a case-specific meaning to it (2013). The emphasis on territory and processes of territorialisation excludes depoliticising, a-spatial approaches to SI, as can be found in managerial or certain works of mainstream planning literature in which space becomes a “manageable entity” (ibd.), rather than a sensitive social category.

Despite articulated territorial and ethical implications of SI, the literature remains ambiguous in relating it to state and market. The emphasis on bottom-up and solidary processes forbids full incorporation into state structures as well as engagement with market forces. However, as SI theory is grounded on real cases, it comes along with a healthy dose of *pragmatism* and gives preference to a potentially malleable state over market. It sets human needs before, not against business.

2.2. Applying Social Innovation theory

Mehmood and Parra extend the scope of SI to mobilisation for an environmental cause (2013). In this reading, also ‘ecological sensitivity’ can be regarded as a basic human need among others. According to the authors, the ‘social pillar’ often ends up as the weakest in a certain discourse on sustainability, which primarily is concerned on re-conciliating nature with the demands of capitalist growth. SI as a bottom-up mobilisation with awareness for environmental degradation and climate change, might support the social pillar against a tech-focussed, “green growth” and free market approaches to sustainability.

Going one step further, a coupling of SI theory with a co-productive, metabolistic understanding (specified in the following paragraph) of human-nature relations may help to develop a suitable theoretical framework for the present study. In proximity to actor-network theory considerations (Swynedouw/Heynen 2003), I want to propose the definition of a socio-ecological innovation as an extension of Moelart’s SI.

- a) The satisfaction of basic human needs, therein intact relations between human and non-human actors (such as animals, plants, objects)
- b) The changing relations between groups, individuals and their environment on varying spatial scales
- c) The empowerment of deprived groups and individuals through their engagement in emancipatory movements, aware of environmental injustices and degradation

An extension of SI seems relevant as the existing set of theory is largely anthropocentric and therefore

inapt to address the environmental conditions for social life. However, its focus on political processes seems suited to scrutinize the production of all sorts of human and non-human relations.

3) Urban Political Ecology

2.3. General insights and philosophy

Urban political ecology (UPE) is rather young scientific strand located within the wider research field concerning the overlap of natural and cultural sphere. The attempt to approach these worlds in an integrated manner is motivated by the will to enhance society's understanding of an increasingly strained natural environment. After a long-lasting, strict separation of natural and social sciences, it was in the 1970's in times of increasing attention for the ecological crisis that the first attempts in human ecology as a cross-over discipline were made (Fischer-Kowalski 2015). Research in this wide and ongoingly vital field has evolved and opened doors into manifold directions (see for larger, recently published compilations Gross/Peters 2010, Haberl et al. 2016 and with a distinct urban focus Marzluff et al. 2008). The common axiom underlying these efforts is the insistence that "human-natural systems interact, coevolve over time, and substantially influence each other, with causality pointing in both directions" (Fischer-Kowalski 2015: 254). Located within this wider field, urban political ecology is devoted to the political implications of the transformation of nature and of human-environment relations.

Karl Marx is an important early reference to many political ecologists. Conducting his work prior to the epistemological separations that came about with the establishment of social science in the late 19th century, Marx introduced the term of *metabolism* (Stoffwechsel) to describe the continuous exchange between humans and nature. As a biochemical reference, the term implies likewise the circulation, processing and transformation of matter represented in flows. Marx sets the metabolization of nature through humans in proximity to the notion of labour, claiming that "[Labouring] is the purposeful activity aimed at the production of use-values, it is an appropriation of what exists in nature for the requirements of man." ([1876] quoted in Swyngedouw/Heynen 2003: 904). Such socio-natural interaction herewith becomes the condition of history, transforming the nature of both humans and non-humans.

In the 1960's and 1970's the prospect of the ecological crisis, coupled with new IT-based ways to collect and process data, enabled an empirical approach to the urban metabolism by measuring in- and out-flows of air and water with special attention to its polluting effects (Wolman 1965). In the Belgian context, an attempt to capture the greater image encompassing flows of energy and different kinds of solid matter was undertaken by the Belgian biologist Duvigneaud (1977). In a very systemic and quantitative approach, he estimated states and flows of matter in Brussels by their mass and translated them into a diagram. Related to this is a turn of attention towards the abiotic aspects of urban ecology.

More recently, radical scholars have applied a historical-geographical perspective on the interrelatedness of water and urbanisation (Swyngedouw 2004, Kaika 2005, Gandy 2014). Their studies show how, especially under capitalist conditions, political economic processes create urban landscapes of inequality. Similar to the environmental justice movements, this reasoning raises questions of relation between environmental benefits, risks and income distribution. However, the Marxist view stresses the systemic incapacities of capitalism to restore justice on a wider scale. It is argued that local improvements come along with physical and social deterioration elsewhere. Put simple, political ecology

“combines concerns of ecology with a broadly defined political economy. Together this encompasses the constantly shifting dialectic between society and land-based resources and also within classes and groups within society itself” (Blaikie/Brookfield 1987, quoted in Swyngedouw/Heynen 2003 : 906).

Water received particular attention in the political ecologist literature (see Heynen et al. 2006), but UPE has moved in numerous directions ever since (see for an overview of the archive of a dedicated conference website of <https://www.politicecology.org>). The interest in cities within this epistemic current can be understood as a turn towards the “urban” nature rather than the rural. It is based on an understanding of nature as theorized by Lefebvre, who claims that the world had undergone a complete urbanisation. According to him, nature in its original idea is a mere fiction, which in reality serves solely as basic matter for the productive forces (Lefebvre 1991 [1978]). A new, produced, second nature equally applicable to New York City (Harvey 1996) and to the glaciers of remote alpine areas in Switzerland (Diener et al. 2005) has thus become ubiquitous.

In order to dissect this hybrid subject comprising both natural and social components the Viennese School of Social Ecology proposes a model (see figure 2). Herein a first natural, more material sphere overlaps with a second cultural, more discursive one, each with its own feedback-loops, overlap. The former widely corresponds to Marx’s view on the metabolism, but the human dimension is specified by a further internal feedback loop with society, which stresses the cultural dimension of metabolising nature. On the overlap, *society’s bio-physical structures* are situated and defined as (technical) infrastructure, human and livestock populations. I consider this model helpful in order to understand the relations and processes between the different elements involved in the urban metabolism. It also seems suitable to identify and situate the discussed subjects, processes and actors within the debate on an altered rainwater management. However, it differs from the view of some of the aforementioned scholars. Swyngedouw and Heynen, for instance, follow an actor-network theory-inspired approach, according to which the world can be described as a multiplicity of socio-natural assemblages, where cities are “simultaneously local and global, human and physical, cultural and organic” (2003: 899). I do not reject this idea, yet, for the sake of epistemological precision, I argue to maintain certain lines between the natural and cultural. Acknowledgment of the general ambiguity of the discussed elements shall prevent the risk of re-evoking an overcome dualism.

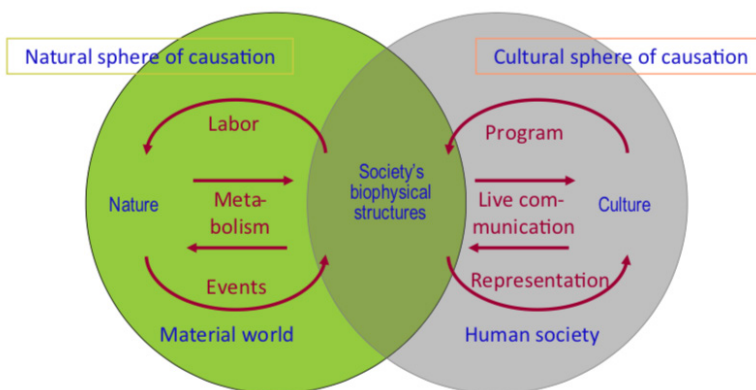


Figure 2. Natural-cultural metabolism.

The lens of UPE shall emphasise a dimension of ethics into the redesign-transitioning discourse. Socio-technical and ecological transitions necessarily incorporate multiple actors’ agency and agendas. Rejecting ecologist and economist imperatives, this work aims to clarify the political nature of the processes under scrutiny in the urban landscape marked by sharp inequalities of Brussels (Kesteloot 2000).

2.4. The politics of urban runoff

In an exceptional study (2011), Karvonen has explicitly shed light on the political dimension of rainwater management. Based on research on the US cities of Washington and Austin, he develops a typology of three distinct environmental politics: Rationalist, populist and civic. The term “politics” has hereby to be understood very broadly as processes of relation building. It encompasses likewise

constructive endeavours to find common ground and political powerplay.

Karvonen identifies *rationalist politics* as the dominant form of water and, more widely, environmental management. Following this dominant logic, citizens are recipients of environmental services handed out by technicians and experts. Typically, the latter have the profession of lawyers, engineers and scientists. Nature herein is defined as a subject which – depending on the moment and context – has to be domesticated, protected or, put generally, to be managed. Hence, rational politics lack to build a systemic approach, but function along (administrative) boundaries. This reproduction of human-nature dichotomies results in a “jigsaw” landscape of attributed responsibilities, resonating on Euclidian and object-centred conceptions of place (Graham/Healey 1999).

Rationalist solutions to environmental problems are allegedly universalist, general and timeless. Its instruments are typically borrowed from a pre-given and presumed to be proven catalogue. However, the notion no further defines the character of proposed solutions. They can thus likewise take the shape of classical engineering or nature-based solutions, if they follow general patterns and miss to be embedded in wider systemic considerations. Neither is right to assume that the rationalist solutions were necessarily ineffective. They have their merits, for instance in addressing one-point water pollution. Yet, compartmentalisation fails when being confronted with more dispersed sources of pollution (Karvonen 2011), as it is the case with urban run-off.

Populist politics can hereby be interpreted as the reaction to the rationalist approach - which does not imply their irrationality. As the “flip side of top-down, broadly applied regulatory approach” (ibd.: 164), populist politics are implemented bottom-up by organizations and individuals concerned with discrete, local issues. Speaking for the American environmental justice movement (ibd.: 165), it is typically activist groups to follow this approach and actively question the hegemonic role of the state in environmental politics.

The specificity of action is at the same time strength and weakness of this approach. By leading attention to the locale, they highlight the “suppressed” voices of non-experts and the affected by the mainstream approaches. However, according to Karvonen’s observation, they fail to successfully mobilise local knowledges but call more widely for broad participation in decision making. Depending heavily on political opportunity, they remain timely and spatially limited.

Civic politics can be interpreted as the attempt to reconcile the former two, almost antagonistic approaches. Following the idea of a deliberate democracy and echoing thinkers as Habermas and Dewey, Karvonen sets citizens central, in a collaborative process of problem definition and solution. The process itself receives hereby higher emphasis than the eventual product. Similar to populist politics, a local problem serves as a starting point. From there, similar to rationalist politics, the strive is to find a far-reaching, comprehensive solution to the problem (ibd.: 172).

Karvonen further stresses the importance of the locale as the best suited scale for community organization, experience of everyday life, but also as scale of perception of ecological problems. Neither by a central unitary state, nor by decentralization but by a bottom-up mobilization of informed and informing citizens, a relational perspective in environmental politics has to be enacted and finally sustainability achieved. Consequently, this approach has to deal with a multitude of sometimes differing viewpoints and aims at their integration. Finally, Karvonen’s call for civic politics resonates with the earlier described, contemporary concept of social innovation, as civic politics are aimed at “topping into the public’s pent-up demand for effective community-building strategies and intentionally incorporates the notion of practice: The conjoining of social and political ideas with ‘new social practices’ (sic!) and technologies.” (ibd.). As ideal he sketches three cornerstones to realize the vision of a

*relational city*²: Civic environmental imaginaries, civic expertise and experimentation. All three, the production of imaginaries, integration of local expertise and the experimentation with the unknown, in relations and designs, necessarily are part of the processes in civic politics.

² Building on relational theory on time-space Graham and Healey (1998) conceive the relational city as an application to urban and land-use planning, which has to acknowledge multiplexity, simultaneity and heterogeneity of experience and networked character of space.

C. RESEARCH DESIGN

1. Definitions and basic assumptions

My engagement with the described set of theory, combined with exploratory interviews, consultation with my supervisors and the scan of relevant policy documents, has led me to formulate a number of initial theses. These assumptions are not to be understood as equal to my research question; my work does not aim to explicitly verify or falsify them. Yet, they undoubtedly gave direction to my research. Hence, my effort to *a posteriori* re-phrase them, shall clarify how I disembarked on this process. Moreover, in the following I want to specify the key notions derived from early stage research and adapt them to my very study case.

1.1. The water sensitive city

My first basic assumption, according to which Brussels faces a transition of its rainwater management, is mirrored in precedent scientific analysis (Dobre et al. 2018). Local experimentation in territories of greater needs, demands and capital may take place in “frontrunner communes” (ibd.); international benchmarks and urbanistic exchange may hereby be the precursors of wider future developments (public singular event 1, IUBR 2018). In this framing of Brussels’ development, I am, admittedly, influenced by the activists’ and academics’ network around my study object Brusseau, but also by the wider design discourse to which it contributes.

The Brusseau project adopted the notion of ‘*water sensitivity*’ in order to highlight the wider social and cultural dimension of stormwater management, beyond the technical and political aspects of an integrated water management. As a thorough definition on the website and publications is missing, I inquired Dominique Nalpas, member of the EGEB and Brusseau, who instead of providing a definition named a number of aspects to describe ‘water sensitivity’ as a project-specific notion. Describing water as a suppressed (“refoulé”) element of the city, one had to find a new access and to re-sensitize citizens for water (Interview 1). He specifies this by describing different approaches to urban waters. The first is to read and design landscape and public space with regards to water. Another approach is to re-trace lost or forgotten waters on historical documents as maps or photos, as it has been practiced by citizens in the South of Forest. Also by artistic and creative means the presence of water can be re-evoked as practiced in earlier projects by the EGEB. Further, he mentions the instruments handed by Brusseau researchers to citizens in order to enable them to measure underground water flows themselves. Finally, the direct physical contact with the element e.g. through a bath can be seen as a vector to re-vitalise human-nature relationships (ibd.).

For my work, following the descriptions of Brusseau, I want to adopt the notion of *the water sensitive city* as a planning vision or, paying tribute to its operational implications, a *leitbild*³. By pre-cautious

3 As defined by Potschin et al. (2010) the notion of Leitbild, commonly translated as “mission statement”, “guideline” or “target system”, in the Germanic planning context carries a richer coherent meaning. Following their definition, it is a “(...) summary statement describing a desired and releasable future state for a specific issue or spatial unit, which takes account of the primary objectives and drivers in a holistic and integrated way. All present knowledge is used to balance future constraints and demands from social, economic, cultural, political and environmental perspectives. Therefore, a commonly accepted leitbild projects a specified trajectory for the future spatial structure, distribution, utilisation, con-

embrace rather than rejection, this vision of a city includes all human and non-human elements. Starting from a new positionality of water, it stimulates and integrates new interactions.

1.2. Unequal environmental risk distribution

Another preliminary assumption is that Brussels' fragmented socio-economic landscape, overlaid by flooding risk maps make emerge zones of intensified environmental risk or safety. As demanded by the European directive 2007/60/CE, Bruxelles Environment has created flooding maps according to the criteria of impact areas ("aléa") according to varying intensity. Combined with vulnerability of population, monuments and transport infrastructures, maps of flooding risk are derived.

As Brussels floods are mainly caused by stormwater run-off cumulating in overstressed sewers and at the valley bottom (PGE 2017, De Bondt/Claeys 2008), it is along these situations most prone to inundation can be found. Speaking for the Senne valley, it is particularly the old industrial zones and densely populated traditional working-class quarters along the canal that bear the highest risks. But also along the smaller, often covered creeks and on some of the heights, zones of risk are allocated, often due to inapt sewers. Brussels' topography has historically been a determining factor to the city's urbanisation and has hence contributed to social fragmentation and hydrographies fraught with variegating portions of risk.

To bridge environmental injustices embodied by unequally distributed flood proneness, Brusseau proposes a '*solidarity of the catchment*' (fr. '*solidarité du bassin versant*'). Following this principle, inhabitants of the low and the higher parts of a catchment gather to elaborate measures of water sensitive redesign in public and private space. Ideally, the municipality would join forces within a more institutionalised collaboration called the '*bassin versant solidaire*' (fr. BVS), aiming at an integrated and participative water management.

Pre-supposing an unequal distribution of flood risk just, social and economic capital, one could expect varying degrees of engagement within the assembly. Thus, I assumed that the most suffering residents of the lower catchment could have an increased interest in solving the problem, whilst the unaffected residents of the heights might shy away from little unprofitable investment in water sensitive technologies as green roofs or cisterns. A disproportionate participation of population risks an unbalanced framing of the problem and challenges the idea of BVS.

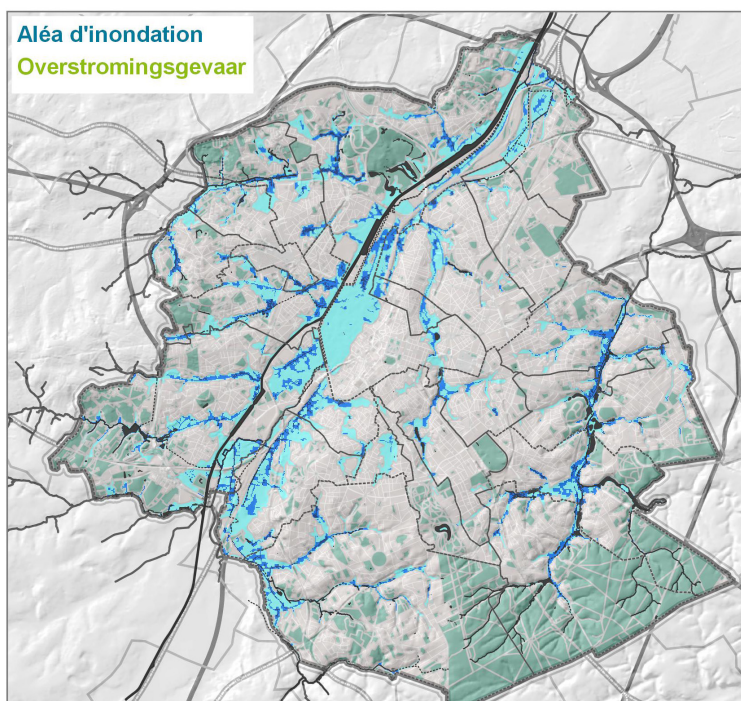


Figure 3 Flood risk in Brussels. Light blue : low risk; dark blue : high risk.

dition and development of the socio-natural system. It provides a set of guidelines that shape actions, and a framework within which the impact of particular developments can be judged and socially negotiated." In the usage of Brusseau, the notion is not treated as holistic as in planning theory. However, based on discussions on urban development starting from water, I would argue, that it could be developed into a fully-fledged leitbild.

1.3. Blue Urban Infrastructure

Infrastructure for the present work shall be conceived in the tradition of social ecology as a socio-technical arrangement that mediates the urban metabolism at the interface of cultural and natural sphere (Fischer-Kowalski/Erb 2016). In order to achieve a more integrated water management the redesign of its infrastructure has a key role to play. Therefore, Dobre et al. describe ‘alternative’ solutions in distinction to conventional approaches as attentive to the physical context and ecological conditions. With regards to stormwater, they observe that its alternative treatment took place in decentralised manner, at the surface and commonly became a matter dear to citizens or non-profit-organizations (2018).

An other development is the increasing attention for *nature-based solutions*, to which commonly notions as “green” or “blue-green” urban infrastructure like public parks and (planted) water bodies are subsumed (Krauze/Wagner 2019, EC 2013). The divisions between these notions are fluid. As an integral part of the water cycle plants absorb and store water, they transpire and facilitate its trickling into the soil.

In order to include all kinds of infrastructures which mediate flows within the urban water cycle, I want to propose an integrative, broadly understood *Blue Urban Infrastructure (BUI)*. Thus conceived, BUI encompasses all water relevant infrastructures as diverse in their legal status and physical appearance, such as private roofs, gardens, public sidewalks and common water bodies. It is the artifice that conducts, detain or filters urban water streams. In a similar vein, also Brusseau’s hydrological studies on potentials of alternative water management take a wider range of run-off relevant infrastructures into consideration than conventional studies (Brusseau forthcoming 2019). Fully comprehensive BUI maps in this sense do not exist yet for Brussels and would need highly complex data integration, however, the maps drawn in the collective Brusseau mappings could be interpreted as such.

2. Case study Forest-Nord

2.1. Selection process

The nature of Brussels’ run-off caused inundation problem suggests an approach by rainwater catchment. Within these hydrogeologically defined areas (BE 2017 : 57), measures to mediate risks between the height and valley bottom can be implemented. Another potential starting point to address local problematics in Brussels is at the level of the communes, which still hold important competences in urbanism and, supposedly, are best familiar with the local social and environmental problematics. Also, the most important regional tool for urban revitalisation “Contrat du Quartier” (CdQ), which formally includes participative mechanisms, is implemented by the communes. With the formation of ‘hydrological communities’ (“*communautés hydrologiques*”, CH) Brusseau combines these perspectives of geographical opportunities with local civic potential: Taking together hydrogeology, political-administrative boundaries and the social space of the CH, Brusseau defines the three subordinate catchment zones Forest-Nord, Forest-Sud and Jette-Ganshoren as laboratory cases.

After some exploratory interviews, I identified among these local territories Forest-Nord as my preferred study case, as it seemed to carry a number of interesting characteristics. It is a zone of very distinct geomorphology, including key characteristics of the wider Brussels hydrogeology and is exposed to high flooding risks (PGE 2017). Politically, the commune of Forest is often described as the “most advanced” in water management practices (Interview 1, Ranzato/Bortolotti 2015, Kohlbrenner 2015).

Judging by early research, Forest-Nord seemed to me the most emblematic for conflicts along a rain-water management transition and Brussels fragmented social structure. Despite the potential of a comparative study, for instance with the catchment of Jette-Ganshoren, I decided to focus on a single, complex case study. As Jette-Ganshoren has hardly any history of water-related activism, Brusseau until now could not advance significantly (Bastin/Hermans 2018); this case, it seems, would have provided insufficient material. Likewise, it would have also been possible to research other civic engagement related to water in Brussels than Brusseau, for instance around the initiative Coordination Senne, yet, I was not able to single out beforehand a second similar case, equally vivid and rich. Finally, Forest (Nord) in itself requires, due to the multitude of local activities and its social complexity, an own thorough study.

2.2. Landscape, water and the expanding city

The sub-catchment of Forest-Nord is distinguishable on the back of the regional landscape by the steepest slope of the Senne valley. Between the tip of Altitude 100 and the valley's low, roughly 75 metres difference in height cause a considerable runoff during heavy rain events. Yet, the sub-catchment cannot solely be defined by surface inclination, also the water guiding infrastructures, as the underground drainage/sewer system which conducts the bulk of urban water flows has to be taken into account. Reading directions of this network, one can infer that it does not fully correspond to topography but, mirrors the historical progress of urbanisation.

Maps drawn prior to the industrialization reveal that the Eastern sandy slopes of the Senne valley used to be the location of several springs and smaller water currents which today are either integrated into the sewer network or have, due to diminishing surface recharge, entirely dried up. The wider aquatic mark on the landscape becomes even more apparent at the monastery close to the historical centre in Forest-Sud, which had managed a complex water system of several fishing ponds, mills, a little canal and two rivers (print around 1660, quoted by Brusseau 2018: 75). In 1858, the slopes were gradually affected by the expansion of the Brussels close suburbs (historic map by J. Huvenne quoted *ibid.*: 32).

The late 19th century saw the creation of the twin parks of Duden and Forest along large parts of the steep, sandy slopes. Since the completion of the Art Deco square Lainé in 1949, the larger, forest-dominated, Parc Duden is connected to the Northern, more pastoral Parc de Forest. Set into the heart of evolving residential quarters, they were part of the Leopoldian vision for the expanding capital. After the quarters next the South station, the lower parts of Forest were industrialised only in the late 19th century. Exemplary for these processes is the establishment of the Wielemanns-Coeppens brewery (1881) in the valley low, which was facilitated by the availability of water. Today, the brewery's expressionist main building has been remodelled into a museum of contemporary arts which stands for the effort to induce a creative urban renaissance of the quarter (Debersaques 2017). From around 1900, the commune saw its population increase and in its lower parts, adjacent to St.-Gilles, new quarters for the workers emerged. These quarters, as the triangle shaped St.-Antoine or Point de Luttre, were sharply delimited by the Leopoldian axes and the railway/industrial zones, which until today pose a barrier to further urbanisation (on a similar account on Brussels Eastern expansion, Sacré 2019). Furthermore, the railway limits block the direct access to the Senne for stormwater running off from the slopes. The railway zone also isolates the communes of Anderlecht and Forest from each other and creates a number of left-over, sporadically industrialised islands, which today evoke interest for new urban developments.

With ongoing urbanisation and increasingly sealed surfaces, inundations in Forest have become more

frequent over the last few decades. Statistics derived from the national calamity fund confirm an increased occurrence of flooding and high damages in the low areas of Forest (De Bondt/Claeys 2008, BE 2008), which stand out in a regional comparison. Consequently, the commune saw the creation of two stormwater basins in its South, whilst a third is planned under the square Lainé.

2.3. Anti-inundation activism on a background of social inequalities

Next to regional, top-down implementation of flood protection infrastructures, on local level, citizens and the commune have made efforts to achieve a more integrated rainwater management. The committee “Stop inondation!” was founded already in 1985 by flood affected citizens in the Southern low of Forest. In the years that followed their activism shifted from a position demanding immediate public action towards an engagement for more sustainable solutions. Particularly their hobby-historiographic work in communal archives shed light on the past position of water in the commune and found strong resonance (for instance the communal anti-inundation plan 2015 owes parts of its analytical content to their work, Mannes/Da Cruz 2012). By consequence, communally initiated urban revitalisation as the CdQ Abbaye was in particular dedicated to water management and enabled first water sensitive redesigns in the described perimeter. Also the EGEB had entered Forest, in order to study together with organised citizens the potential for the concept of a ‘New Urban River’ (fr. Nouvelle Rivière Urbaine” - NRU) in public space and to initiate private cooperation within urban blocks (Kohlbrenner 2015).

The Forest inundations and water-activism takes place on a background of Brussels socio-spatial fragmentation: The lower area of Forest is part of the so-called ‘Croissant Pauvre’, stretching from St.-Josse to the North of Brussels’ centre to the West, along the canal, to Kureghem and the poorer areas of St.-Gilles before reaching its furthest extension in Bas Forest. This area encompassing the bulk of Brussels’ traditional working class quarters, is characterized by high population density and, compared to the regional average, younger, poorer and more often unemployed population with migration background.

Also for the area under scrutiny, these social differences can be easily retrieved in regional statistics. A monitoring of Brussels neighbourhoods enables to identify three statistical entities within the studied perimeter. We can thus identify the neighbourhoods of Bas Forest, Van Volxem-Van Haelen and Altitude 100, and as a fourth, uninhabited entity, the parks Duden/Forest. For the former three, we find statistical data on age, unemployment and yearly income which seem to mirror a local social stratification analogue to topography: The lower lying Bas Forest corresponds to the characteristics of the ‘Croissant Pauvre’, the high Altitude 100 shows low unemployment, higher revenues and an older population compared to the regional average, whilst the Van Volxem-Van Haelen quarter at medium height shows, compared to the other two, intermediate values. Statistical data reveal a certain degree of ethnic diversity in all three quarters; Bas Forest, however, stands out with an over proportionally high share of Northern-African population (9.08%, ibsa.brussels 2019), which has been declining since 1994 (31,68 %, ibd.). A visit of the quarter and informal talks on the street suggest though that the quarter is still strongly marked by the presence of a Moroccan community; the decline in statistics might also be explained by naturalisation rather than mobility alone.

On this canvas, the architect-researchers of Latitude have mapped water-related civic engagement (engagement map). Several of these initiatives will reappear as study objects in the following chapter. The map reveals the strong presence of citizens with a certain sensitivity to water in the perimeter. However, it also becomes clear that most of the lower lying parts, therein especially the triangle-shaped St.-Antoine neighbourhood, stay blank in these regard.



Figure 4. The neighbourhoods in Forest Nord. The overlying colours indicate income categories. With the region's quarters split into quintils, the dark red represents category 2, Bas Forest category 5.

2.4. Lines of conflict in an emblematic case

On rather small area of roughly 2 km², Forest-Nord seems to bundle up a number of conflicts characterising wider regional developments and trends; it reflects thereby on diversity and inequality in what has been called a “small global city” (Hermia/Vandermotten 2015).

Just as the whole of the Brussels capital region, the three analysed neighbourhoods grew in population from the late 1990's onwards (ibsa 2019). After decennial industrial decay, the Forest council (2002-2006) showed a strong will to foster residential functions of the lower parts of the commune at the turn of the millennium. Land was bought and progressively handed over to private developers who engaged in a number of projects, particularly along the formerly industrial streets Van Volxem and Point de Luttre (Debersaques 2017). In parallel, a number of CdQ redevelopment were launched on the perimeter (CdQ St.-Antoine 2009-2012, CdQ Point de Luttre 2010-2013, CdQ Wiels-sur-Senne 2018-2021), which positions the Commune as one of the most eager applicants of this tool (Forest

2019). Along with a symbolic rebranding of the “quartier Wiels”, labelled after the newly established centre for contemporary arts, this process has been interpreted as an act of planned gentrification which only slowly is bearing fruits (Debersaques 2017).

Consequently, from 2000 until 2017, it is possible to observe a significant increase of population in the neighbourhoods of Bas Forest (18%) and Van Volxem-Van Haelen (18%), whilst the increase in Altitude 100 remains more moderate (10%) (ibsa 2019). In 2017, all three neighbourhoods showed high population densities (Altitude 100 : 17.755 inh./km²; Van Volxem-Van Haelen : 15.474 inh./km²; Bas Forest : 17.477 inh./km²), clearly above the regional average (7.357 inh./km²). As the delimitation of Bas Forest, contrary to the other two neighbourhoods, includes vast industrial brownfields and railway zones, I recalculated its density to a value of ca. 22.000 inh./km² after subtracting the uninhabited areas. In contemporary discussion among inhabitants, the ongoing densification of the low areas of Forest and loss of open spaces is contested by local committees which in this regard remarkably often evoke rainwater management (QWW 2019, Comité St.-Denis 2019). One central place of this conflict stands equally emblematic for the contradictions between market and demographic pressure, on one side, and the wish for natural preservation and quality of urban life on the other: The ‘Marais Wiels’ is a pond created by water from the fluvial aquifer of the Senne filling the excavation of an abandoned construction site, next to the Wiels arts centre. Residents admiring the wild beauty of spontaneous, natural re-conquest have appropriated the place and want to defend it against an impending real estate project.

Finally, the current plan to build an underground stormwater detention facility at the square Lainé causes civil unrest. At once, it endangers the further existence of the citizens’ gardening project ‘Jardin Essentiel’ and upsets the immediate residents with the prospective construction works. This spontaneous, uncoordinated resistance is now backed and informed by Brusseau, who gratefully takes up these voices of discontent. In the citizens’ name it formulated the hypothesis that the effect of the BO can be reached by implementation of cheaper, soft re-design measures. This conflict represents the confrontation of traditional and alternative rainwater management; Brusseau seems willing to push this case in order to state an example for sustainable transition.

In summary, my motivation to study the Forest-Nord case is twofold. At once, the area encompasses a diverse social landscape, including a very active local civic society with a disproportionately high interest in water. The striking differences in neighbourhood based social statistics mirror disparities and fragmentation of the Brussels region on small terrain. Taken together with a diversity of natural (topography, soils, water streams) and built physical structures (quarters of varying density, railway, parks), I want to argue that it may be treated as a *pars pro toto* for the region. Yet, these structures do

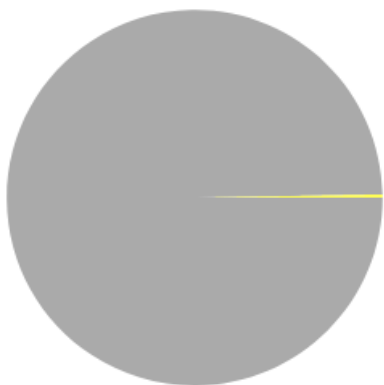


Figure 5. Flood risk Altitude 100.

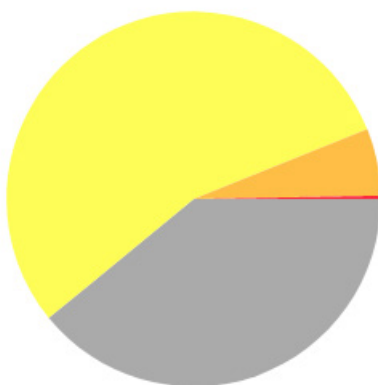


Figure 6. Flood risk Van Volxem-Van Haelen.



Figure 7. Flood risk Bas Forest.

The graphs indicate which share of the population at its place of residence is with which likelihood to be affected by flooding. According to BE estimation grey represents „no risk“, yellow „low risk“, orange „medium risk“ and red „high risk“.

not seem stable, but influenced by other trends elsewhere observed in other post-industrial quarters in Brussels and elsewhere, such as gentrification, densification and urban revitalisation. On the other hand, the here negotiated conflicts, as explained in the previous paragraphs, have a close relation with water management or are even *emblematic for the transition of water management*.

3. Methods and research process

In order to answer the initially formulated research questions, I followed a mixed-methods-approach. I used the publicly accessible communication from activists and public authorities as starting point, to conceive a series of expert interviews. Whilst at the beginning their character was widely exploratory, I became more selective with the choice of interviewees, and my questions more problem-focussed. This was accompanied by participant observation during the diverse activities of selected activists' groups and the Brusseau-organised events and internal meetings.

3.1. Plans and open accessible communication

The review of open accessible documents, issued by public authorities and, to a smaller extent, urban activists, happened continuously and throughout the whole research process over a year from June 2018 to June 2019. Rather than a central piece of my analysis, I used them to contextualise my interviewees and their work, before or after the actual interview.

On a regional level, water and flooding publications are mainly issued by the environmental agency BE. They can be sighted on its website and comprise info brochures and advisory material for citizens. As most important planning document, the 'Plan de Gestion de l'Eau de la Région Bruxelles-Capitale 2016-2021' (PGE), elaborated by BE and enacted by the Brussels government, is a comprehensive document stating the official view on Brussels' water problems and advises concrete measures. Other relevant, older documents are the anti-inundation "Plan pluie" (BE 2008) which became integrated into the first PGE (BE 2011), and the communal anti-inundation plan of Forest (Mannes/Da Cruz 2012). The communal and regional flooding plans are not planning documents in the classical sense. They are not the product of negotiation between relevant actors but followed as direct reaction to an accumulation of flooding incidents in the early 2000's. Instead of describing in detail complex scenarios, they provide problem analysis and statement, in reaction to citizens' concerns and urgency of recent events.

Generally, these planning documents have to be read as consensus and as a state of the debate between the implicated actors at a given time. However, they do not single out positions of the different actors, neither do they provide information about internal processes and power relations. Moreover, with the exception of selected civic experts as the EGEB during the elaboration of the PGE, and reference to some of the citizen-produced water visions in the Forest plan, these documents exclude the opinions of a growing amount of informed citizens. Finally, these documents miss to take a stand on the aforementioned concrete conflictual cases.

On the activists' side, a whole body of writing in local and activist journals, to which notably the EGEB have contributed, documents the activists' opinion (see for instance IEB 2011). Among them, especially older works proved useful to better grasp the recent history of water-related activism in

Brussels and re-trace the development of ideas. Furthermore, Brusseau produced two unpublished “Scientific Reports” as requirements of the Innoviris framework. These documents, which I received from Brusseau members, report on their activities in 2017 and 2018. Contrary to their name, they are no scientific documents in a strict sense. In large parts, they rather are a continuation of EGEb water activists’ rhetorics, enriched by scientific terminology. Moreover, they incorporate hydrological studies conducted in the frame of Brusseau. Despite some self-reflection, they lack a clear engagement with own failures and shortcomings. Others, as the locally constituted neighbourhood committees, more often published via blog posts or Facebook. Public online communication around neighbourhood committees, particularly via social media I read next to my fieldwork in order to “keep posted” on local activities and discussion. Yet, due to methodological and privacy concerns I did not undertake a thorough analysis. Generally, the activists’ depictions in public debate have to be regarded as, sometimes strategically, constructed images of themselves and their subjects.

The described inherent shortcomings of open accessible communication, their very diverse expression and basically incomparable nature let them appear insufficient and not fully operable to the ends of my research project. To follow up with social, local developments, the application of ethnographic methods appeared necessary.

3.2. My approach to the field

Personally, I was widely unfamiliar with the topic of rainwater management before my arrival to Brussels. I only had some basic knowledge on WSUD. After thematic detours I developed an interest in the position of water in the city, and it was my co-supervisor Chloé Deligne who introduced me to the Brusseau project. Approaching the subject of WSUD and inundations in Brussels from this angle was probably the most feasible option. I could most quickly catch up with the dominant, regional discourses, the Brusseau project and its actors. Yet, it remains to be stated that I also adopted their angle and bias; the people who introduced me to the topic also became subjects of research and I had to deliberately take distance from their views and positions. Following up their work, I opted for a beaten track which allowed me, as a foreigner, to the matter advance with more ease but also disclosed alternative approaches.

It was the orientation towards the Brusseau project that directed my research to the case of Forest-Nord. Moreover, the area appealed to me as research object as I had earlier been living in the lower areas of Forest for eight months. I had been fascinated by an urban landscape with steep slopes, a dense urban grid and the irregularities of Belgian urbanism. Its buzzing street life, small shops and Moroccan influences had been part of my initial impressions of Brussels. However, beyond a multitude of unstructured impressions and a sense of the local geography, I had no relevant contacts with regards to my research project before.

During my fieldwork, I experienced to be often addressed as a foreign student in Urbanism. This framing, sometimes in combination with reference to my academic affiliation and supervisors’ names, seemed a suitable door opener to access public administration and politics. But it also prompted several experts to discuss a German-Belgian comparison of rainwater management which I had no interest in and tried to carefully avoid. On the activists’ side, the appreciation of my work was mixed. Some, it was my impression, felt offended that my main motivation to approach them or participate in their activities was an academic thesis. I also felt a certain saturation among activists to be confronted with people claiming to “conduct research” on water, either with or about them, as the Brusseau project had done so before. In these cases, it was more difficult to pin down a date for an interview, active participation in their public events however was most appreciated.

Despite my status as foreigner with imperfect French skills and my initial ignorance towards some of the activists' topics and activities, such as ornithology or gardenry, it was not overly difficult to connect with the citizens who were mainly from a fairly educated, white Belgian middle-class environment. The contact to the Brusseau environment was further facilitated by the involved, multi-disciplinary and multi-national group of researchers.

3.3. Ethnographic methods and limits

The literature on social innovation suggests the researcher not merely to participate and observe, but to take an active, engaged role within an initiative (Jessop et al. 2015). Only in this perspective it was possible to follow the twists and turns of SI – metaphorically Hillier (2013) compares these collective processes with the growth of a ginger root – but it also requires enhanced reflexive attentiveness to the researcher's own role. Hence, for my research project, I tried to get as close as possible to the circles of the neighbourhood and the activists' community in order to grasp the ephemeral and fragile nature of social dynamics.

Thanks to my teachers' networks who entertained contacts with certain of the academic involved in Brusseau, I was allowed to join internal meetings of Brusseau and the CH Forest-Nord in the beginning of 2019. Being at first, widely unfamiliar with the state of the project, I remained foremost in an observing role. Nevertheless, I was welcomed with great openness and participants did not hesitate to communicate on internal matters in my presence. Despite my observer's role I was even granted access to a Brusseau meeting with the newly elect council of Forest. Yet, gradually I understood that I was throughout the longest time classified only as a "student/visitor" by Brusseau, rather than as active member. As I offered my help with certain tasks during a CH meeting, I received evasive replies from the organisers who preferred to work with the established members of the CH. During the exploratory walks or other more citizen-oriented public events, my contribution was more welcome and I felt more at ease to participate. However, due to my partial expert status as researcher and urbanist, I refrained here from an all to active participation. In conclusion, for the bulk of my fieldwork I adopted rather the role of a *partially participant observer* (Bryman 2012: 442) than of a truly engaged researcher, although over time with increasing inclusion into internal dynamics my role developed towards the latter. I was not all myself responsible for the choice of this role, but it was attached to me in a process of co-definition with my informants.

Generally, physical presence during important events and personal contact with the engaged people proofed crucial in order to be invited to follow-up meetings, but also to pin down dates for interviews. Contrary to the institutional actors, email with engaged citizens contact had been useless to initiate real exchange.

My empirical work is thus mainly based on ethnographic methods. Participant observation during water-related public events was coupled with more dedicated interviews with experts and key actors (for an overview of participation in events and interviews see the appendix). Not quite extensive in time, as a stricter ethnographic standards would have required, I conducted participant observation mostly on the weekends in March and April 2019 and interviews over a broader time frame from January to April 2019. Singular events were visited also beyond this frame. My fieldwork was thus focussed on an intense, limited period of time and qualifies more easily as the mixed-method and less extensive kind of ethnography practiced by geographers (Swanson 2014). Due to a multitude of observed activist groups and types of events, I was only able to participate between two and three times at each type of event; over the whole time frame I participated thus at 18 guided walks, group internal meetings, public clean-up and gardening events. Hence, my portrait of water-related events and activities

around Brusseau lacks true ethnographic depth.

Despite an unavoidable imperfection with regards to ethnographic standards, the application of ethnographic methods appeared to me as the only valid way to explore local activists' positions and to get hands on the fragile and ephemeral world of non-formalised social relations. I hereby went beyond purely water-related questions, as sometimes quite different initiatives served as a starting point for activism. As the methodological literature suggests, entering the field I tried to leave behind as far as possible my pre-assumptions, in order to approach the subject of local water activism in an inductive manner (Eckardt 2014).

The open character of the regular events organised by the initiatives around 'Marais Wiels' and 'Jardin Essentiel' enabled me to directly join their activities. I thus conducted participant observation during two public cleanings at the Marais and at three gardening sessions and a garden party at the Jardin Essentiel. Among the public walks, two (June 2018 and March 2019) were part of Brusseau's participatory research agenda. The third was organised exceptionally for the regional water days (Journées Bruxelloises de l'Eau, JBE) in March 2019. It was strongly frequented, also by a number of local civic and institutional actors and turned into a political platform on which participants expressed publicly their opinion. I documented my observations during these public events photographically and in a research diary. From these my field notes I will reconstruct selected scenes in chapter D.

Observations were combined with semi-structured interviews with experts from the regional government, regional and communal administration prior or at an early stage of the intensive fieldwork phase. By these interviews I strived to derive personal assessments going beyond the official communication in the form of brochures and documents. After questions on their daily occupations and duties, I enquired my interviewees' view on water-related problems in Brussels before confronting them with the alternative concepts and positions, as presented by Brusseau. Finally, I asked them for an estimation of prospective developments. In these talks naturally private and official point of view intermingled. Due to the alleged leading or export role of the persons within their organisation, for the present work it seems justified to treat the two views as congruent, if not explicitly differentiated by the interviewee.

Throughout my further fieldwork in the catchment I strived to collect more bottom-up views of local citizens who had joined the Brusseau project and whose personal engagement touches water issues. Informal talks during public events were a first important step to collect impressions and ideas from the neighbourhood. In this way I could also set up meetings for further semi-structured interviews with the key actors among them; formal email contact proved less efficient. In total I was able to conduct four interviews with representatives of three different neighbourhood initiatives in which I inquired them on their activities, organisation, their position in the neighbourhood and relation to water-related issues. The interview with Gautier Briade, likewise resident and water-responsible at the regional neighbourhood committee association Inter-Environnement Bruxelles, stands out in this regard, as he could report on regional activist stands rather than from the neighbourhood.

Finally, I conducted three expert interviews with Brusseau- activist/researchers in order to gain inside information on the project and particularly on their efforts to mobilise a local 'Communauté hydrologique'. These interviews varied in their nature. The first with Dominique Nalpas was at the beginning of my research project, was partly of explorative nature and served to explore the history of water activism and general activist view points. Ananda Kohlbrenner provided me more of the involved academics' view on the project and also was of functional nature as it helped me to re-gain contact to the Brusseau social environment. Finally, the interview with Andrea Aragone was very focused on a concrete action in Bas Forest and touched thereby on questions of participation and the framing of the

problem. It also served as a supplement for the missing direct contact to people who actually suffered inundation through the initiatives.

3.4. Analysis

In a first step of my analysis I want to apply the idea of a periodization of urban water regimes to the history of Brussels, which has been documented in the literature. Therefor also a short introduction into the hydrogeological preconditions of the region shall be given. The historical introduction of the water problem seems indispensable as it is not only explaining the origin of today's problems, but also has been evoked likewise by public authorities and civic society initiatives over the past years (see PGE 2016-2021, websites of EGEB and Comité de Quartier Saint-Denis).

For the analysis of my fieldwork I want to, first, recall my research question, guided by which I wanted to find out, how selected civic initiatives in Brussels organise and position themselves in the debate on the future Blue Urban Infrastructure in relation to institutional actors. The sub-questions specifying the "how" were formulated as a set of deductive categories which helped me to formulate interview questions and guided me through the analysis of collected material. I enquired thus about activists' framing of (local) water-related problems, their activities and organisation and, finally, about concrete aims and claims concerning an alternative treatment of water, in the sub-catchment and beyond. In this section I want to explain the logics behind my approach to the following analytical chapter.

Combining insights from public accessible communication, particularly derived from planning planning documents, with statements made by different institutional actors, I will in a first step reconstruct the incumbent model of Brussels rainwater management and to qualify it in theoretical terms. My talk with a representative of the Forest administration shall serve as a first revision of this regional model and give insights on its local application.

The analysis of the water activists' positioning shall be read against the current management as identified before. I will therefore will introduce the EGEB - "DNA" of Brusseau and selected local initiatives that organise as the "hydrological community" of Forest Nord. Based on my interview material I will reconstruct their motivation and activities. Furthermore, I will relate them to Brusseau, its positions and the political process it has initiated in the area under scrutiny. As early research quickly revealed originally disconnected, water-relevant places can be regarded as cause or origin of the different groups' activities. Four such places widely spread over the Forest-Nord catchment and discursively defined by the encountered citizens emerged during my research; in the present work they shall serve to organise positions of activists in a manner which contrary to a strictly reconstructive procedure, in accordance with Ulrich Oeverman, had to be called *subsumptionslogisch* (Rosenthal 2005 : 59).

The supplementary portrayal of the initiatives' organisation and social composition is deemed to elucidate the internal political dimension of their mobilisation. A such perspective seems indispensable to anchor a political ecology perspective in this thesis.

D. ANALYSIS

1. State of Brussels' urban waters

1.1. Hydrogeology and landscape

With an average annual flow of only five cubic metres per second the Senne is a minor river in a Belgian comparison. However, being a pluvial river supplied by precipitation, it can decline to two litres (low-water) in dry periods and rise up quickly to a 100 cubic metres per second during heavy rain events. In the greater context of northern Belgium, the Senne is one of several rivers running at similar distance parallel to another from south to north. The occurrence of these rivers, together with their numerous smaller tributaries and their sub-catchments, can be interpreted as a single structure, characteristic for the region; the landscape architect Smet describes it as “a capillary hydrography that resembles a tissue of micro fissures draining a flat landscape” (2012 : 244). Little reminds us today of the historic ubiquity of slow waters in the bottom of the swampy Senne valley. It was before the massive urbanisation that along the valley's slopes little creeks run through watersheds towards the Senne.

This landscape was carved by wind and water. To the east of the river, on the western fringe of the plateau of Brabant, aeolian sedimentation has created the steep, sandy slopes, whilst the land to the west ascends much more gently. Given the focus of the present research, an in-depth study of geology is not necessary. In order to follow the debate on infiltrative capacity of the soil some basic conclusions on the hydrogeological properties of the Brussels region are indispensable.

The Brussels geological underground can thus be described as a complex composition of different layers of sandy and loamy soils of varying conductivity. See maps attached. As a very general insight, we can state for the immediate surface-near layers a higher infiltrative capacities on the perched sandy soils compared to the valley bottoms, which are characterised by alluvial clays. Consequently, it is the former that play an important role as regional groundwater recharge zones. Brussels' subsoils reveal important aquifers in the depth of the Hannut sand layer and the socle. On the heights of the region, the water carrying sand layers can be found on the plateau of Brabant, on the East of the Senne valley, and to the North in the Ypresian sand. Locally, along the overlays of an aquifer with a more solid lower lying layer, Brussels hosts a number of springs on its territory.

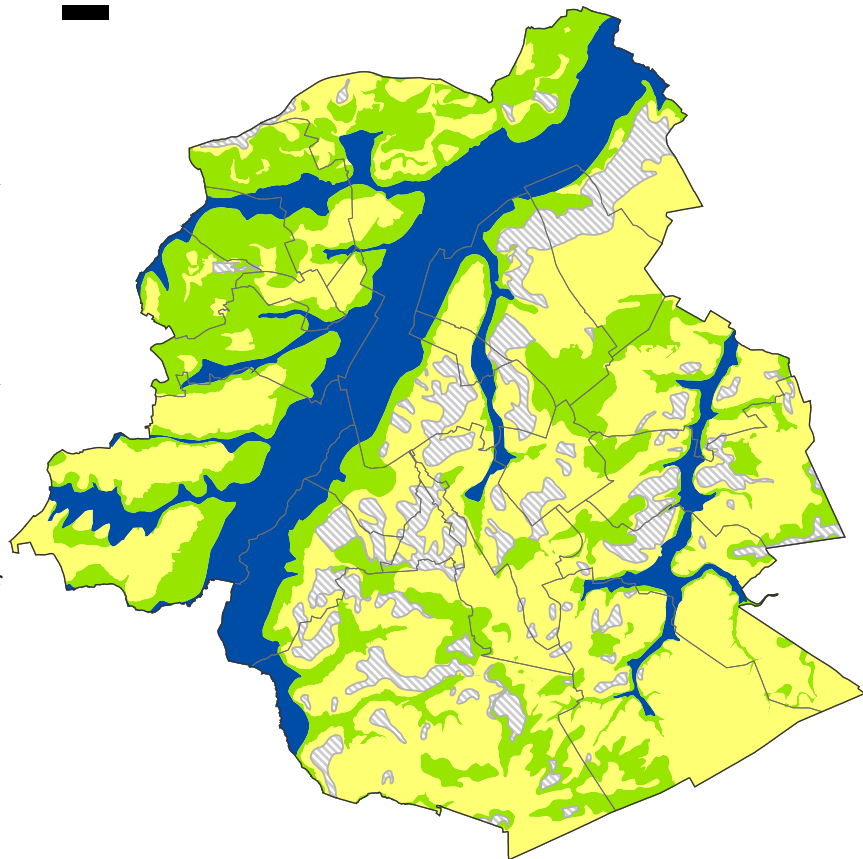


Figure 8. Brussels soils. yellow/grey : silty/sandy soil of high infiltrability; green : silty soil of mediocre infiltrability; blue : alluvial clays of bad infiltrability.

1.2. A brief history of becoming: Brussels urban waters

As most urban foundations between the 10th and 12th century in Brabant, Brussels is located on a river. Here, at the bottom of the Senne valley, it is presumed that its earliest structures were established on a group of swampy islands (Corijn/Vloegeerghs 2009). The Senne and its smaller tributaries were for the longest part of the city's history a constituting element in the urban landscape. Smaller creeks ran through Brussels' most densely populated quarters and created island-like situations in midst of the city. Until the construction of the Canal of Willebroeck in the 16th century, the Senne was also used as a waterway to the Schelde river and onwards to the North Sea. This new major infrastructure, projected and financed by the city of Brussels, dramatically shortened the distance to Antwerp and its harbours from 120 kilometres on a meandering river to 30 kilometres on a controlled waterway. The economic development linked to the Canal fostered population growth and urban extension. The port was developed and market functions moved to the city's North West.

Also for local production activities, the economic importance of Brussels water streams is not to be underestimated. The count Ferraris' map of 1771 reveals a large number of mills along the Senne and at the Eastern peri-urban streams, where they constituted veritable "energy chains" (Deligne 2012 : 22). This concentration of mills could hardly be encountered anywhere else in the Southern Lowlands at that time and testifies of the city's regional political and economic importance. In order to moderate between extreme dry and wet weather, the mills were typically equipped with ponds which served to either store water for dry periods or to capture abundant storm waters. Due to their occupation, the millers were best positioned to monitor, control and maneuver flow rate and passage of water and thus were often represented in the local *Chambre des Toulieux*. This water board, one of four in Brabant, used to control and maintain water-related infrastructures and served as a chamber of jurisdiction in conflicts between users until the end of the Ancien Regime in 1795. Just before the advent of the industrial water regime, in the late 18th century, it can be argued that the historically grown hydro-social system was already "under strain" (ibid.: 24). The *Chambre des Toulieux* was confronted with an ever-growing number of conflicts between different groups such as millers and fish-farmers, upstream and downstream, which proved to be impossible to solve. Historic pollution from residential and artisanal activities had accumulated and became increasingly visible downstream the Senne.

In 1804, under French occupation the Belgian Civil Code set the basis for the contemporary regulatory framework. It defined forms of property according to types of water and regulated the rights over its usage and disposition on a general, now national level (Aubin/Varone 2001). In this era a series of transformations in Brussels' hydro-social system occurred, which can be interpreted in the political economic context of the century, notably industrialisation and the emergence of the new Belgian state. The construction of the canal to Charleroi in 1832, linking the southern coal deposits to the North Sea, was an emblematic infrastructural project for the economic structure of the new Belgian nation. In order to feed the canal, water from the Senne was extracted, diminishing further its flow. Hence, the river was gradually disabled to flush away the increasing amount of residential and industrial organic waste (Deligne 2012).

In 1832 the first Cholera epidemic broke out, caused by the deteriorating living conditions in the densely built central quarters. It became visible that the sheer quantity of new urban dwellers demanded new hygienic solutions; between 1831 and 1846 alone the population grew from 140.322 to 231.634 (Kohlbrenner 2014). Inspired by hygienist ideas and instructed by the miasma theory the public authorities progressively introduced an 'all-to-the-gutter sewage system' rejecting alternative

technical arrangements that would have enabled the further usage of feces as fertilizer (ibid.). Whilst the Senne thus became the sole receptor of all residential wastewater, Brussels created the country's first residential freshwater conveyance in 1855. Such service was expensive and could only be afforded by the wealthiest citizens of Brussels and its eastern suburbs. Provided by the city, we can speak of a service that was contrary to the pre-modern water supply by wells and creeks publicly organised .

The deteriorating state of the polluted river and the insalubrious living conditions in the most densely populated inner-city quarters were finally taken as a pretext to launch the city's biggest urban project of the 19th century: The covering of the Senne. The plan involved not only the redirection of the river and its partly covering, but also the destruction of some of the poorest inner-city quarters and their replacement by a new bourgeois quarter along a central, Haussmann-inspired boulevard. According to Deligne this project was more than just a necessity of urbanization and growth alone, but the projection of a hygienist and bourgeois urban vision for the Belgian capital (2012).

In the 20th century water-related infrastructures in Brussels did not change significantly until the 1960's. Population growth and outspreading urbanisation did not come along with infrastructural innovation; sewage continued to be discharged into rivers without treatment. The second vaulting of the Senne in 1955 followed the solely pragmatic considerations to conceal the polluted, stinking waters. It no longer cherished the bourgeois capital, which by the time had already lost attractiveness for the reigning classes who instead sought to live in the sprawling suburbs. The reasoning behind the second covering was largely the same as for the first, whilst the actual problem – water pollution – remained untackled (Deligne 2005). It was only in 2000 that the first sewage treatment plant in Brussels started operating.

In the second half of the 20th century, the sealing of surfaces occurred in synchrony with spreading car ownership. For the area of today's Brussels region and the adjacent watersheds in Flanders, the share of impervious surface expanded from 18 to 37 percent between 1955 and 2006. The central areas even reached values of more than 80 percent (Vanhuyse et al. 2016). As a general trend, sealing of soils continues despite rising awareness for negative impacts and moderate growth rates in Western Europe, and is far from reaching a turning point. In cities as Brussels, demand for construction and rising real estate prices increase the pressure on the remaining free spaces. Yet, the relative increase of soil sealing within the regional territory has arguably reached a high level of saturation.

From 1971 onwards, water became a regional matter and ever since mirrored the country's hydrological disparities and political cleavages in the wake of federalisation (see Cornut 1999). For Brussels only since 1989, the newly created region took over the role of water management on its territory. The Belgian state reforms also coincided with the Europeanisation of water politics and increasingly international treaties enforced care for water quality and waterways. Today, also the ambitions of the European Commission to enforce European standards delimit leeway and scope of water politics (Aubin/Varone 2011).

1.3. The water question today

Brussels today shows no more traits of the historic marshlands. The wet soil has dried under mineral surfaces and water streams have been laid into artificial under-earth beds. Still, water transported over long distances circulates through the city's underground pipes, supplies households and washes away their waste. Many of the sewers within this network have reached the end of their lifecycles and await urgent refurbishment. Today, the miserable state sewers drain the aquifer and cause sewer and groundwaters locally to mingle. In 2010, after decades of disinvestment, the responsibility for the network has formally been shifted from the communes to the inter-communal operator Vivaqua.

The utility aims to lay the estimated costs of 1,5 billion to refurbishment a quarter of the sewer network on the users' bill (La Libre 2017).

The sealing of surfaces in the metropolitan area entails increased run-off, render urban climate drier and put urban drainage systems under strain (see scheme). The bulk of storm water is directed into the unitary sewer system, where it mingles with other, mostly residential wastewater. During even moderate rain events sewer overflow is directed into the Senne as the network's capacities were not designed for the sprawling nature of 20th century urbanisation (BE 2017).

Furthermore, heedless urbanisation of the flood prone areas of the valley bottom exposes its dwellers to environmental risk. Inundations in Brussels are not fluvial but linked to precipitation and an overstrained, aged urban water-network (see for more details, BE 2017: 191-217). Since the adoption of the flood prevention master plan in 1980, the answer to such natural disaster, has been the installation of big underground detainment facilities (fr. "Bassin d'orage" - BO) (Kohlbrener 2015). These concrete-based fixes are able to temporally detain water masses, in order to protect the city against their devastating impacts. However, the capacities of the BO's are limited and their costs in maintenance and construction are rather high. It can thus be argued that their rationale resonates with the Bacteriological City of the high Fordist period; countering symptoms of the ecological crisis with large scale engineering, stormwater basins entail long-term economic and political risks.

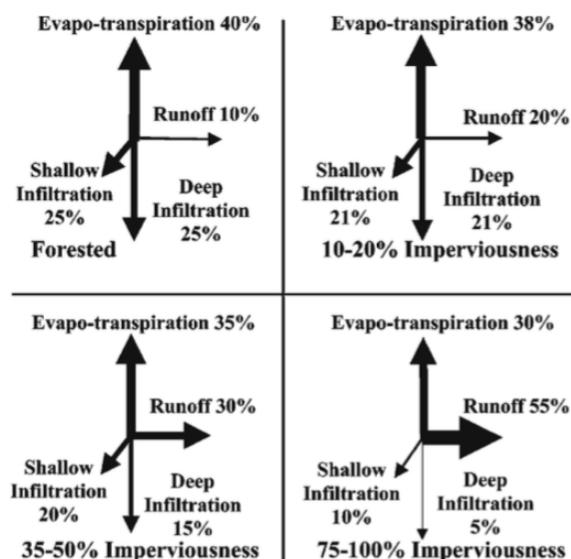


Figure 9. Changes in hydrologic flows with increasing impervious cover (Arnold/Gibbons 1996, quoted in Marzluff et al. 2008)

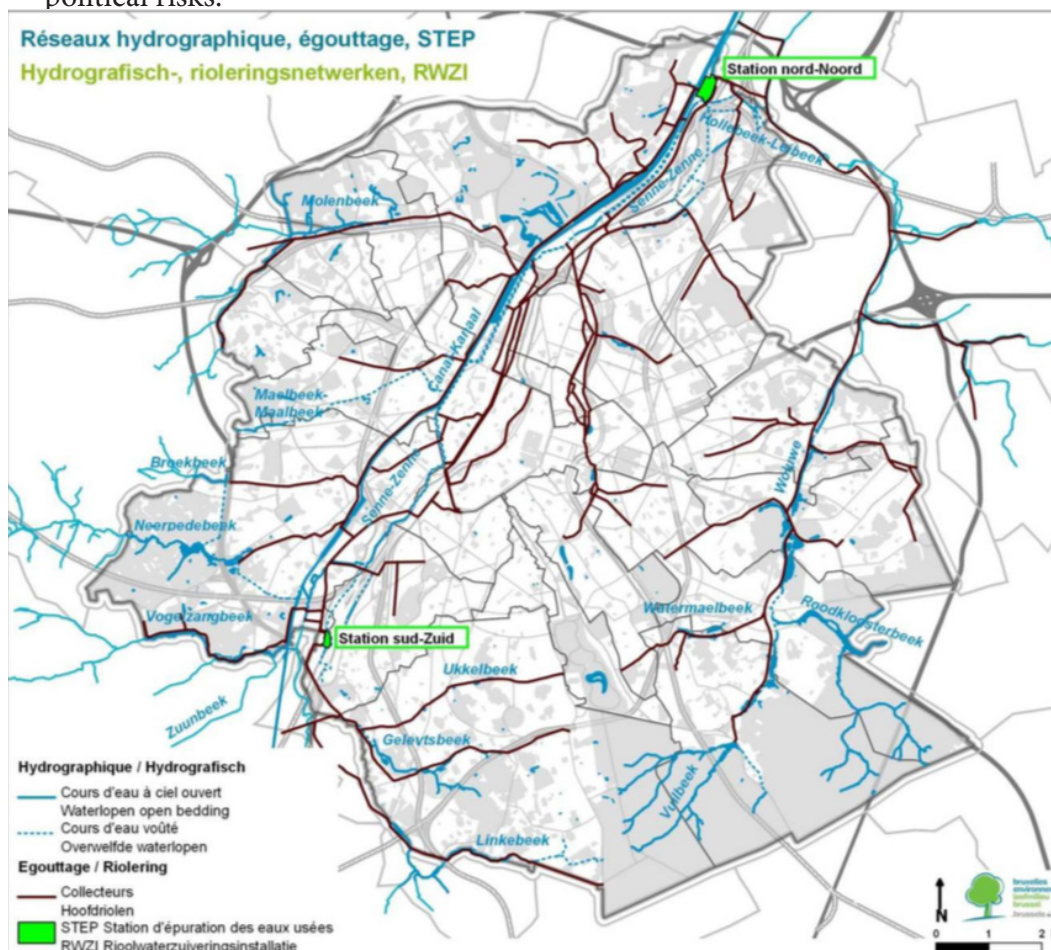


Figure 10. Brussels network of natural water streams and main sewers, as monitored by BE. The region's urbanization has led to a massive diminution.

Moreover, climate change poses prospective threats. For Brussels drier, hotter summers and warmer, wetter winters with an increasing number of heavy rain events are announced. The Brussels environmental agency summarises the expected risks for the water circuit by four points: a declining quality of surface waters, a persistent and evolving risk on inundation, an increasingly uncertain recharge of the aquifer and a stronger dependence on external freshwater water (BE 2017: 77-84). Research on Brussels underground waters is still at an early stage (public event 22.3.2019, De Ville/Verbanck 2017), whilst knowledge is urgently required in order to tackle the before mentioned problems.

These prospective problems, on the background of a longer history of alienation between the city and its waters, gave rise to civic unrest. Since the early 2000's, activist groups like the EGEB challenge technocratic approaches to public water management with visions of a more integrated management.

2. State of the rainwater management

2.1. Water, whose responsibility?

In Brussels today, the water network is largely in public hands: The inter-communal enterprise Vivaqua and the regional SBGE control the largest sewers and the freshwater network, with the exception of the Northern treatment plant which is run by the public-private-partnership Aquiris. All smaller sewers are still in communal hands. For the water sector as a whole, the political responsible is the concerned Minister, who can shape the sector by executive power. Furthermore, he or she has steering capacities over the main public utilities, which for greater operations depend on money from the cabinet. The SGBE and Vivaqua are also the operators of the stormwater basins. The subordinate body of regional administration, Bruxelles Environment (BE), is charged with the management of rivers, open waters and public green. Therein, it is concerned with alternative approaches to water management beyond heavy infrastructural fixes as practiced by the operators. BE also is responsible for the continuous re-elaboration of the regional water management plan (PGE), which serves as the guiding planning tool for the sector. Another, relatively new actor on the Brussels water stage is BRUGEL. Initially responsible for the regulation of the regional energy market, it works since 2017 also with the water sector. Comprising a consortium of government-elected experts, it is an allegedly independent body that regulates water tariffs and serves as advisor and mediator for the other actors.

This multitude of actors and fragmentation of the Brussels water sector can be explained by the historical, complex developments of the Belgian state and local infrastructures. Today, processes of centralization of political power can be observed at the expense of communes and public utilities. Over the last years, the position of the Minister was strengthened by economic dependencies of the system operators and the establishment of the water plan provided a solid and comprehensive steering instrument. Also the role of BE, the administration adjunct to the minister, was enhanced. As coordinator for the implementation of the plan it reunites important technical and functional competences.

In a broad understanding of blue urban infrastructure, as I proposed, a myriad of other relevant would actors expand this already complicated scheme of governance. It would for instance include the municipalities which are responsible for the state of streets, or private home owners, responsible for their roofs – both of which are important, run-off related infrastructures. In order to limit complexity and create a simple overview for the present case, I want to present a diagram listing the main actors of the catchment in relation to the places under discussion.

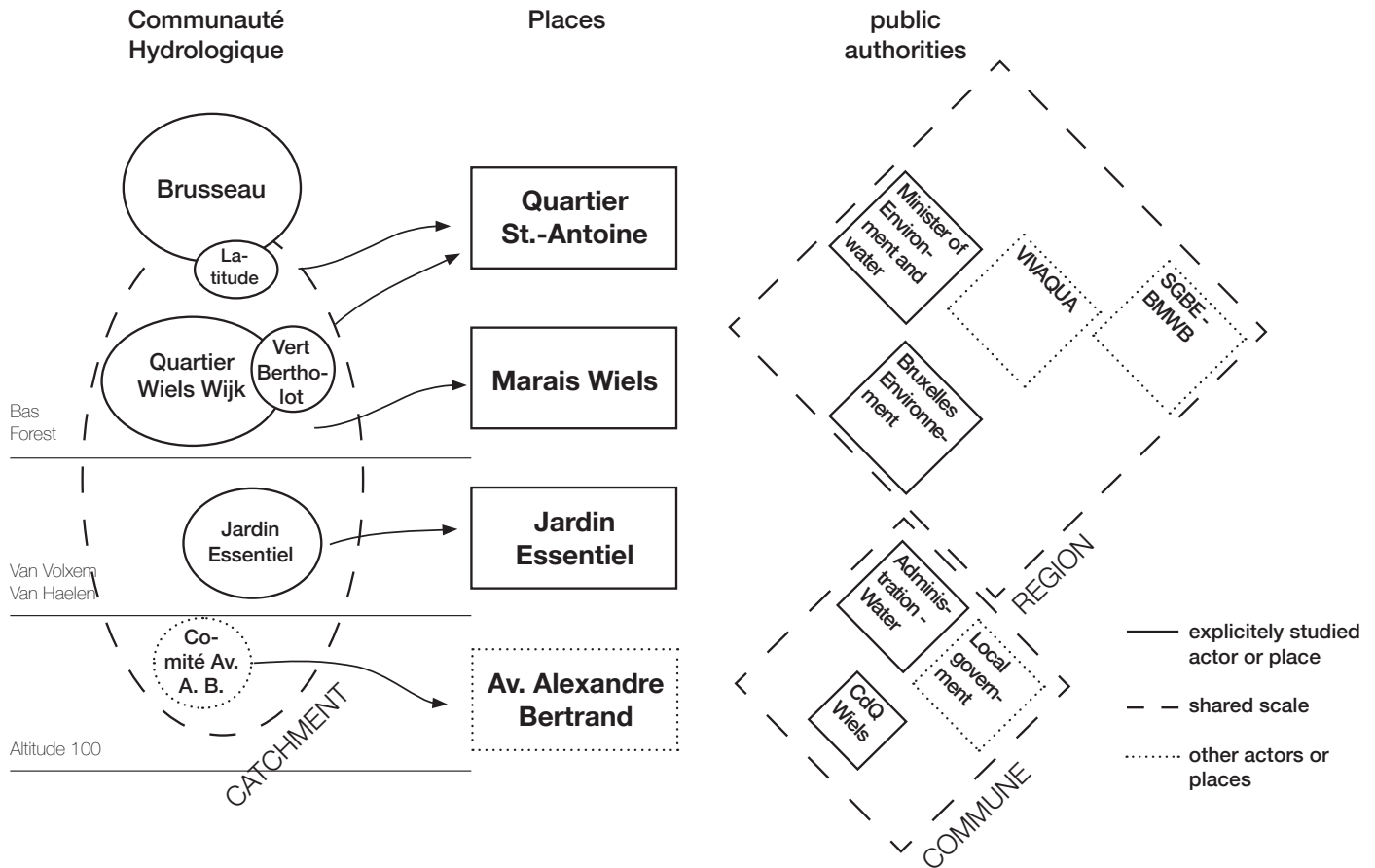


Figure 11. Actor scheme.

2.2. Regional perspectives

2.2.1. Planning framework

In 2006, the Brussels regional government followed the requirements of the European water framework directive (2000/60/EC), by commissioning BE with the elaboration of the first water management plan. The actual, second PGE (2016-2021) is an impressively comprehensive document which approaches the water question by a multidisciplinary analysis of the state of waters.

The plan formulates objectives and a long list of concrete measures instructions which in particular Vivaqua, the SGBE and the port of Brussels are demanded to follow in close cooperation with BE. These 'main actors' commit to and largely contributed to the elaboration of this most important water-related planning document. The plan's objectives follow the international and European requirements, among which, most importantly, Brussels is foremost obliged to fulfil criteria of water quality. However, the PGE goes further and attempts to respond "in an integrated and global manner to the whole of water related challenges" (BE 2017). In its "eight axes of action" (ibid. 23) from which the concrete measures are deducted, it highlights potential for more ambitious endeavours:

1. Ensuring a qualitative management of surface and underground waters and protected zones;
2. Managing surface and underground waters in quantitative terms;
3. Applying the principle of cost recovery for services related to water usage;
4. Promoting sustainable water usage;
5. Prevent and manage flood risks;

6. Reintegrate water into daily life;
7. Setting a framework for the production of hydro geothermal energy;
8. Contributing to the implementation of coordinated water politics and participate in knowledge exchange

Reading through the catalogue of actions, it becomes clear that most of these actions are clearly directed to institutional actors, particularly the ‘main actors’ of the sector; to lesser extent it addresses for instance the communes. Hence, these components of the plan can be classified as elements of rationalist water politics. Actions along some axes, particularly 6. and 4., can be read in the sense of water-sensitivity at the same time they do not include any option for direct civic contribution.

With regards to rainwater management and urban planning, the plan proposes next to general improvement measures of the hydrographic network the continuation of the BO preventive program. But also objectives as to generally decrease sealing of surfaces and to limit construction in flood-prone areas are stated. The relevant competences are within urban planning which is formally detached from environmental questions. An objective, BE has been working on over the past years is the restoration of the river banks and quality of open water bodies. Finally, BE is also commissioned to inform the public about possible alternatives in rainwater treatment. Yet, despite drawing in its problem analysis on similar evidence as scholars that plead for alternative water management (De Bondt/Claeys 2008, Deligne 2005)⁴, the plan generally refrains from articulating higher reaching ambitions.

2.2.2. Governing an element

Against this background, I will analyse the positions of two water experts at BE and the Cabinet Fremaux (Brussels Minister of Environment 2014-2019). Both were interviewed prior to my intense field phase, in which I enquired about the general state of the debate, constitution of the water sector and its relation to the citizens. The interview with Eric Mannes from the cabinet stands out insofar, as it only represents the last office term in regional water government, in which he played an important role, as my other interviewees pointed out. Mannes’ long career also has roots in Forest, where he led the department public works, until his move to the regional level. By contrast, the interview with Anne-Claire Dewez, who at the time of the interview (Dec. 2018) has been rainwater responsible at BE for six years, stronger reflects on continuities.

As rainwater and the flooding problem are closely related, Dewez deals with both. She informs the public on origin of flooding and explains preventive construction measures. Much of the information, as presented in the best-practice collection from Brussels “Maillage Pluie” [“Rain Network”], is directed rather to managers of bigger projects than ordinary citizens, who are informed by brochures as “Faire face aux inondations” (see BE website). Moreover, Dewez’ work is dedicated to the creation of coalitions between operators, communal and non-public actors, knowledge transfer and facilitating cooperation. As a regional expert, she also is consulted on water requirements of new constructions and regulation, as the new regional construction code. On the other side, Mannes, trained as an engineer and experienced in public administration, received a call to join the cabinet, where he would fully be in charge of water related issues. He thus prepares decrees, coordinates within the water sector by force of his networks and is commissioned to elaborate further the measure of “alternative manage-

⁴ In this context it has to be mentioned that, around the emergence of these plans, a number of specifically designed studies were issued by the region in order to evaluate the inundation problem and the potentials of alternative management practices (see De Bondt/Claeys 2008, Vanhuyse et al. 2006). Especially the studies of the VUB hydrology department seem to have pushed the issue of alternative rainwater management and rendered it technically credible in the regional debate (see also De Bondt/Claeys 2012).

ment” (interview 4).

Since 2016, the Brussels Water Days (Journées de l’Eau, JBE), initiated by the cabinet and organised by BE in cooperation with the activist groups, has become a success to sensitize citizens to ‘water in the city’. Among the presented recent projects, the most popular and most acclaimed deals with visibility of water. Over the last years, this event has gained popularity and increasingly takes also a showcase function; Mannes describes this development by an anecdote about the minister’s surprise over the number of interested citizens on a JBE event, which made her ensure further financing (ibd.). Today, the program demonstrates the variety of often contradicting positions in the regional debate; it encompasses observation of amphibians, visits of a stormwater basin organised by Vivaqua and a film screening about outdoor swimming culture (see program JBE 2019).

2.2.3. Framing the water question

“Water is often too technical for politicians.”

“(…) if compared to climate or other things, water is not so political, it is more technic. I say ‘water has no color, no political’ (…)”

(Mannes, interview 4)

By these words, Mannes explains the reason for his call into politics with the lack of expert knowledge among politicians. Mannes clearly seeks to distinguish himself as a technical expert within the cabinet. He regards as his job to answer to given problems, of which the most urgent is flooding, by means of his expertise. Thus he de-politicizes framing and answer to the water issues by pre-assuming solely technical solutions.

At BE, water is particularly regarded as a ‘crucial element for life’. Dewez speaks about the wider aquatic circuits disturbed by humans who have lost their sense for its importance (interview 2). When I named floodings a “nature-caused problem”, in irritation she underlined the human-made and human-suffered nature of the problem :

“The floodings here are not related to nature. They are unfortunately related to humans. Because, as we have an urban region the cause is sealed soils and a unitary sewer network that cause flooding in the basements. It’s not rainwater but shit what makes the whole thing even worse... So the floodings in Brussels are hardly natural hazard but a bad management of water and urban space.”
(interview 2, own translation)

Differently, without reference to the long-term historic developments in BUI or the ecological relevance of water, Mannes describes flooding as a phenomenon which appeared at a given point of time during his early career and which, ever since, was countered with the construction of BO’s. However, the situation has evolved and, also from an engineering perspective, solutions to avoid water run-off by infiltration are being developed. His advocacy for what he calls “alternative management” is strongly motivated by cost reduction in wastewater treatment and to respond to citizens’ desire for visible water. For citizens, re-integration of water was a “bonus in the landscape” (interview 4), which can be both interpreted in its financial and aesthetic aspects. His insistence on BO’s indicates that he conceives them still as the most suited response to future inundation, particularly against the insecurities of climate change. Dewez is more negative about BO’s which have to be regarded as an inefficient and costly solution and do not address the problem of pollution, whilst valuable water continues to be treated as waste.

Both interviewees collaborate as partners for further implementation of alternative management

practices by rainwater infiltration, detainment and re-use. Yet, these projects, as showcased by the “Maillage Pluie”, remain punctual and are hardly integrated in higher ranking strategic planning, such as the green network “Maillage Verte”. And indeed, both acknowledge that on a list of priorities their project ranges behind the in financial terms biggest BUI-project of the region: the renovation of the dilapidated sewer system by Vivaqua. However, the interviewees suspect that the current discussion on climate change might give new impetus to their cause. As Dewez describes the urgency:

“Yes, the CO₂ is at the heart of the greenhouse effect, but it is in the water cycle where the mess will arrive”, (own translation, interview 2)

An increased attention and an enlarged discussion might extend attention to other affected areas. Eric Mannes is very optimistic in this regard. He praises the demonstrating students of the Fridays for Future movement and reports that “the peoples’ mentality” had changed over the time of his professional life: they weren’t satisfied any longer with management of the problem, refused the re-direction of sources into the sewer but claimed to see the water (again). Dewez speaking about the citizens’ role is less optimist and rather complains about the insufficiency of individual action. According to her, water is, contrary to energy, too cheap to develop an economic leverage for sustainable development (“le grand bloquage”). She argues for a stricter regulation in construction to impose water sensitivity. For water awareness in regulation and activity, both observe that some Communes stand out by their citizens and administration, which they also link with the urgency of local water problems. In this regard, Dewez points out to Forest, Uccle and Jette whilst Mannes mentions Forest, Uccle and Woluwe-St-Lambert. Generally, the operators and especially the inter-communal Vivaqua, are portrayed as inert organisms, tied by manifold political and economic dependencies. Also, the qualification of Vivaqua employees who are trained in “traditional methods” and cannot easily be fired (Mannes, Interview 4) slows down processes of institutional change. But Mannes observes also here a “change of mentality”(ibd.).

2.2.4. Future projections

“A lot of small projects” (Mannes, ibd.) with more infiltration, detention, and re-use as exemplified by the “Maillage pluie” herald tomorrow’s BUI constitution, according to the interviewees. Dewez emphasises that a water infrastructure is only relevant if it incorporates “the green” (interview 2) and fulfils ecological functions. The general direction for BUI has been set already by the PGE and can only further be pursued in the near future. Only the pace of change can still be influenced by the political will, projects Mannes. “To go quicker” (Mannes), would require more money.

The current dilemma of financing BUI is the artificial disjunction of related water-relevant fields of public politics. As an example, sealing of soils (land use planning) increases water treatment costs and flood risks (water politics); its costs are carried not by the responsible but by the city as a whole. A deviation of money flows reserved for flood prevention by BO’s into investment in public space is not possible. Mannes, however, predicts legal changes for the coming five years: The costs of water treatment will no longer be deducted from water consumption but by the amount of waste water. Large impervious surfaces, like parking lots, will thus become more costly. Finally, even a re-declaration of flood-prevention costs could become feasible in a more distant future (“maybe ten years”, Mannes). Dewez also identifies lacking incentives or mechanisms of financing as the “threshold to overcome” for a wider transition. According to her, it is the government which has to take action.

A gradual transformation within the existing institutions, described as “movement in the sector” (Dewez) or “changing mentality” (Mannes), is already underway. According to Mannes, the main players show an increasing readiness to engage with the domains of the others, i.e. BE developed an

interest in sewers and Vivaqua participated in a study on alternative rainwater management. For the future governance of the sector, Mannes predicts a merger of the regional SGBE with the indebted inter-communal Vivaqua to centralise competences. For Dewez in an ideal “sponge city” - she prefers this popular notion over Brusseau’s “water sensitive city” - every owner of a lot would take responsibility for the rainwater falling on his/her property. Bruxelles Environment would take a role to facilitate exchange and collective decision making. All implied institutions and private companies would not only adopt new roles but would have to re-qualify their staff as well, e.g. by training specialised gardeners.

2.2.5. Conclusion

Despite all general agreement on the benefits of an “alternative” water management, the two interviewees reveal different framings of the water question. Dewez is largely in line with the argumentation of water activists and shares their ideology, yet she refused to adopt their concrete notions and governance proposals. As a solution, she favours general and stricter regulation and conditioning in construction. She also follows a moral argument by insisting on individual responsibility for environmental impact, which she perceives as insufficient. Mannes, on the other hand, identifies himself as the public’s servant. He offers his expertise throughout changing political majorities and what he calls “mentality changes”, whilst covering his personal opinion behind a facade of mixed (traditional and environmental) engineering imperatives (“it is a logic [to follow the PGE]”). Contrary to Dewez, he neither responsabilises nor invites the public to participate. It largely stays a recipient of the state services, which once a year during the JBE are showcased.

A parallel reading of positions in government and adjunct administrative body is interesting as it reveals the different mindsets and approaches which have led to the consensus water planning documents. Next to the more formalised planning, BE follows a strategy of communication and information in which the “Maillage Pluie”, a map of exemplary water-sensitive measures implemented in the Brussels region, figures prominently (interview 2). This approach can be seen in *a logic of showcasing* as practiced during the JBE. As in previously edited material (BE 2014) BE highlights best-practice examples in terms of water management in order to cherish so-far accomplishments and to find further followers. However it does not engage with the politics of implementation, but lists predominantly public projects. It remains very open who and in what way could be inspired by this document. Finally, also the designation (“maillage” = network) is misleading as no relevant connections between single projects can be identified.

Generally, contemporary public rainwater management remains a patchwork of “heavy infrastructure” and “soft environmental” measures, knit by actors with different ideological and professional backgrounds, as the presented interviewees exemplify. Close relations between key persons and hybrid positions as in the case of Eric Mannes facilitate swift exchange between key actors. Civic actors, except for the occasional participation of the EGEB, have not been integrated into public water management. It adheres therefore largely to the principles of rationalist environmental politics and practices something that we could qualify as *a soft technomanagerialism* by remaining in connection with a wider public but does not really welcome its participation.

Formal planning documents hardly impose concrete measures, but indicate a direction. Integrating also classical engineering solution, the documents and interviewees suggest a shift towards a more water sensitive city, which has not yet found a clear manifestation; single projects hereby serve as illustration, but a general lack of definition allows for flexibility and imagination regarding future modes of management.

2.3. Forest

2.3.1. An experienced administration

Throughout all interviews, I identified a very common narrative about Forest as a particularly advanced commune in alternative rainwater management. This state of development is embodied by the institution of local water ombudsperson. In Forest since 2009 this position is held by Magali da Cruz, who was, according to observers, “built up” under Eric Mannes (Interview 3). The fore-runner role of the Commune is also inscribed into the local construction code, which in terms of plot-based water management goes further than the regional regulations. Another testimony of communal willingness to engage with the water question is the 2012 anti-inundation plan (Mannes/Da Cruz 2012), which reacts on and incorporates citizens’ concerns about regularly occurring inundation. It represents a very topic-specific public communication with citizens, informs about all planned and existing countermeasures and explains the potential of alternative approaches.

However, limited communal resources, it is reported, prevent effective enforcement of the high standards (interview 11) and exclude a pro-active role of the commune. For concrete water-sensitive restructurings which are not part of the communal budget for street renovation, the commune made use of CdQ’s (interview 5), among which the CdQ Abbaye (2015-2018) had a particular water focus. Hence, experimental concepts, sometimes born in an activists’ environment, as the ‘*New Urban Rivers*’ (NRU) and the ‘*Ilot d’Eau*’, found their way into local planning discussions⁵.

The attempts of citizens, the EGEB and the commune, to collaboratively achieve a local rainwater governance, earlier portrayed as a promising model (Ranzato/Bortolotti 2015), has reached an impasse (interview 3): Dissensus and disappointment over the form of a local subsidy system directed to home owners, within the CdQ Abbaye, have cooled down the relations between like-minded persons in the EGEB and the Forest administration.

2.3.2. Assessing local water developments

Magali da Cruz confirms from a local perspective that the big institutions (BE, Vivaqua, SGBE) are moving and breaching their formal professional boundaries. Also, academia and renowned landscape architects would become more visible and active in Forest⁶ (interview 4). Yet, despite all current exciting proposals, she underlines the importance of traditional regulatory urbanism to roll out the principles of water sensitivity. In real estate development, if not explicitly demanded, other more lucrative aspects than water management would otherwise be treated with priority. The RRU could enforce a sort of “legal visibility” of the water question.

When asked whether citizens addressed her regularly in water matters, da Cruz revealed hardly any experience of direct contact and encounter. This came to me surprising, considering the emphasis on participation in the local anti-flooding plan. Instead, she speaks of a small core of actually engaged citizens. Often, these people were even the non-affected, which seemed odd at first, but was sociolog-

⁵ Similar to BVS, these notions describe participative, water sensitive design concepts, dealing with public (NRU) and private space around urban blocks (‘Ilot d’eau’) and are promoted by the EGEB. At several points they have entered the public planning discourse and were adopted by the public authorities whereby their original signification has become watered (see interview 4, interview 2, Mannes/Da Cruz 2012.).

⁶ Da Cruz later explicitly refers to Latitude, but also might refer to the urbanism platform metrolab’s activities in the commune which have been exposed and published on several occasions (ex. Rotterdam architecture biennale 2018). As renowned she names the taktyk office for landscape architecture.

ically somewhat sound. Otherwise, the topic escaped the wider public attention. Despite an enhanced importance of the citizens' role, according to da Cruz, an engagement for water beyond mere information was time-consuming and not relevant for a majority.

For future developments, da Cruz makes a plea to enlarge the group of engaged citizens, possibly in the frame of a BVS. Exemplary projects, as coordinated by the commune in several places, can serve as illustration and lead the direction. She describes the BVS as a scale of great hydrogeological suitability, however, all scales were relevant for water management and the biggest importance was of networked rather than isolated solutions. Asked for the most relevant next steps, da Cruz situates, in accordance with regional strategies, responsibility to the main operators and the local state. Persisting separations between their realms have to be breached and better collaboration has to be enacted. Moreover, despite declaring not to be a supporter of "too much regulation" (Interview 5), she emphasises the importance of construction codes, especially on local level.

She stresses again the role of communes which can by local construction codes set examples or try out practices, which – as it is now the case – can then be implemented in regional regulation. Forest for example demands currently to trickle down water on the building plot; only in case of dense construction further detention measures are considered as compensation. Moreover, detained water should be obliged to be reused, for instance in toilets. According to her, water management should become an integral part of urbanism which is "one of the big levers" (interview 5).

2.3.3. Conclusion

Due to a history of rain-caused flooding problems and an active civil society the commune of Forest has been exploring the possibilities of alternative rainwater management since the 1990's (interview 4). The urgency of flooding and political pressure has led to the adoption of relatively strict regulation and to the construction of several protection measures as BO's. Inter-personal proximity has facilitated exchange between local scale of Forest and the region. The recently increased attention for the water question in Brussels, despite absence of heavy inundation, can also be explained by the transfers made around the key actor Eric Mannes (interview 3).

In the Forest administration, expertise and willingness to implement a more integrated rainwater management is outstanding, yet the communal financial leeway is limited. It thus depends on regional support and accepts for sake of swift and efficient problem solution both, hard engineering and water-sensitive measures.

3. Socio-spatial arrangements of the catchment

Early research has shown that local civic mobilisation for water issues, within the frame of what Brusseau calls the "*Communauté Hydrologique*" (CH) of Forest-Nord, starts from very concrete *situations*. Three of these places, the 'Marais Wiels', the 'St.-Antoine' neighbourhood and the 'Jardin Essentiel', were already introduced in the precedent chapter and shall be given closer descriptions in the following. I want to argue that local citizens' positions, conflicting with the prevailing environmental and planning politics, were developed out of these 'problematic' sites and the related activities. Hence, I want to reconstruct lines of contestation along the sites of conflict. Next to this, Brusseau's role as an umbrella organization, catalyser and advocate of civic mobilisation in the catchment, shall be de-

scribed.

Among the other examples the situation of St.-Antoine is exceptional. I selected it not because of local civic dynamics but for their absence (see figure latitude). As the area most prone to inundation it has repeatedly become subject of discussion in the CH, but in form of local initiatives it reveals no agency. A fourth site, the 'Avenue Alexandre Bertrand' and the residents' committee of the same name, shall only be given superficial description; the related initiative seemed less organised and was not available for interviews. In my description I will introduce the discussed places in a topographical, i.e. valley ascending order.

Admittedly, this order might play on a superficial up-VS-low image. Such conceptualization of the catchment by socio-spatial fragments and place-focussed activities might also run counter to Brusseau's holistic idea of the territory. However, I want to argue that this approach is justified by the relevance of socio-spatial proximity between the initiatives and their deliberate, selective placemaking in a territory of a certain social fragmentation.



Figure 12. Neighbourhood groups and places in the Forest subcatchment. The dashed line indicates the territory as identified by Brusseau.

3.1. Brusseau and the catchment's whole

Can Brusseau be actually regarded as a civic actor? This remains questionable, considering the high level of expertise in its rows. Currently, I want to argue, that they rather fulfil the role of an advocate, catalyser and umbrella organisation for local citizens' activities. However, in its core, the EGEB can look back on a history of civic engagement. By force of their political and organisational experience, they leave a strong mark on the debate in the catchment. It seems therefore indispensable to dedicate some attention to the activist core of Brusseau and its becoming.

3.1.1. From the Maelbeek to the Senne

The birth of the EGEB can be located in the Maelbeek valley in Ixelles. In 2001, out of informal neighbourhood relations opposition against the planned construction of the BO Flagey took shape. Dominique Nalpas, co-founder of the EGEB and today's coordinator of the CH Forest Nord, was part of this mobilisation. In the first interview Nalpas portrayed the early days of the EGEB activism as story of unsatisfactory communication. At no point prior to the construction a public debate had taken place; when approached, the responsible was only willing to "announce" the works (interview 1). This rejection of the local residents' doubts led to general unrest about top-down planning of water infrastructure. Although the group of discontent residents finally was not able to stop the construction, some among them became autodidacts in water management methods and found about alternative approaches as applied in other countries. During the consequent gatherings that they developed a series of own design and governance concepts such as New Urban Rivers (fr. NRU) or the BVS.

Their argument that water as public good needs a public and participatory management, rose in a context of global acts of resistance to water privatisation (Kishimoto/Gendall 2015) which they interpret as follows: "the commodification of water, which is certainly based on a strong ideological idea, arises from the fact that all levels of action around this common good are segmented, from local to international. Rampant opportunism is asserting itself in our collective inability to shape the pragmatic management of this natural resource." (Nalpas/Lebecq 2012). Next to this rather political economic critique, they assert the more cultural argument of water as a suppressed ("refoulée", interview 1) and forgotten element in the mineralised and drained city, which only sometimes, in form of heavy rain and flooding, has its unattended resurgence. Following Nalpas, with an ecological and public dept crisis in view, a "discourse of *collapsologie*" (ibid.) - an actual consideration of the seemingly unlikely case of financial or ecological collapse - is becoming relevant. As an answer he proposes the concept of resilience.

After years of fruitful debates and creative actions around water, Brussels experienced what the aforementioned citizen groups interpret as "the second crisis". In 2009, Aquris, the operator of the Northern water treatment facility refused to cleanse Brussels sewage, complaining that it did not attain the promised quality. This complex conflict, involving the operator and the Brussels and the Flemish Region, highlighted the disintegrated and problematic modes of water management and finally served as an occasion for the Brussels Minister of Environment to give a subsidy to the newly founded EGEB. In a self-description, they take reference to the Aquris conflict, which they interpret as symptomatic for privatisation of public services. The EGEB was conceived as a vast, hybrid 'citizen and expert' platform questioning water policies at the crossroads of thought and action. At the root of EGEB is the idea that the state has every interest in creating partnerships with citizens." (Nalpas/Lebecq 2012).

This first institutionalisation of civic water movements represents an evolution of an initially populist protest movement into a civic platform. From there on, the EGEB frequently were called as partners in the debate on alternatives in water management. As a Brusseau member reports, this situation, which

urged to collaborate with both authorities and citizens, proofed to be anything but easy for the EGEB, now formally set “between two chairs” (interview 3). It might be due to this persistent identification with the activists’ background (interview 1), that public authorities seem to keep a certain distance: Dewez repeatedly refused the catchy notions of the EGEB and sets them in opposition to her or BE’s terminologies (interview 2). Mannes calls Nalpas “a friend” but describes his positions as “radical”, whilst positioning himself “in the centre” (interview 4). He further portrays the work of the EGEB as a niche activity in “[places] where it’s possible to have an alternative gestion [management, D.S.], for the sensibility”(interview 4). It was rather “sociological experimentation [than] technical experimentation” and he concludes with: “I say to Dominique ‘Dominique, your core business must be the sensibilisation of the people’” (ibd.).

The civic ‘Brussels water movement’ entered a new important stage with the opening of the Brusseau project. This union of an EGEB activist core with an interdisciplinary group of water researchers, funded by the regional innovation fund, raised the group’s credibility in the eyes of many institutional observers. The Innoviris funding (2017-2019) came as an official acknowledgement of the potential and the relevance of their activities (interview 3). However, it also imposed a certain rhythm and set the requirements of the “co-create” program. Brusseau thus entered the Moolenbeek valley in Jette-Ganhoren and the Eastern Senne valley in Forest. The choice of these locations was mainly motivated by the presence of previously established contacts, networks and the availability of funds via local CdQ’s (interview 13). Compared to the EGEB’s “incubator” in the Maelbeek valley, with its vaulted river and overall dense urbanisation, these areas provide larger design possibilities along railways, parks and a post-industrial landscape. It is also the latter which is at the moment under the pressure of real estate development, bearing equally risks and opportunities for rainwater management.

3.1.2. A main objective - Fight the BO Lainé

The Brusseau project, it can be argued, further pursues a struggle in the tradition of the early EGEB activism in Forest Nord: the fight against a moderately-sized BO of 5.000 m³ under the Square Lainé. Although not explicitly put, it is reasonable to believe that Brusseau activists identify this case as a possibility to set a precedent for another rainwater management in Brussels. It could thus be the first time that a much more complex reasoning about alternative measures makes a BO, still the emblem of incumbent management, officially unnecessary. This speculation follows the perception, similar to Dewez’ and Mannes’, of a “paradigm shift”(interview 1), as Nalpas puts it: “this is the momentum, I really believe...” (ibd.).

By supporting the spontaneous resistance of neighbouring residents to a public infrastructure project, Brusseau deliberately backs a potentially NIMBY (Not in My Backyard)-laden position. Yet, they argue that along with a reflective process, the analysis of documents and an initiation of dialogue, this first reflex may lead to more profound reasoning, as previously experienced in the resistance to the BO Flagey (Brusseau 2018). Consequently, in their framing, this principal opposition is part of a wider vision for the catchment, enriched with a number of constructive proposals, which I want to present in the following.

According to Brusseau the persisting inundation risks along the slope should not be tackled by the construction of another BO but rather the through the idea of ‘solidarity of the catchment’. This very pronounced situation of inequalities could serve as a sort of prime example for implementation and might give “great strength to the idea” (interview 1). To enact solidarity, it needed a critical amount of people. To these ends, Brusseau has been organising for years public events and worked on the formation of a core of water-sensitive local citizens. This Communauté Hydrologique is the informing and

disseminating local anchor of Brusseau in the catchment. Even though the group CH Forest Nord is not asked to directly do investments, most of its members are engaged for water beyond their Brusseau meetings – and, for instance, work together to implement a water tank in their street. The BVS, as a scale for water-sensitive redesign, is hydrologically sound; also social proximity and neighbourhood structures are in support for a such approach. Nevertheless, Dewez criticises this very localised focus as too narrow and uncalibrated – according to her, the risk is to give too much voice to those who “yell the loudest”.

By New Urban Rivers (fr. NRU), Brusseau refers to the whole of over-ground, low-tech or nature-based BUI dedicated to an ecological and integrated rainwater management (see also the website brusseau.be). This novel sort of infrastructure shall be elaborated, together with the citizens, in a participative manner and further contribute to public space and social life in the neighbourhood. The concept of ‘ilot d’eau’ describes a sort of equivalent to the NRU in the more private setting of a block of houses where rainwater, in collaboration with the neighbours, can be retained and re-used for plants and domestic application. Currently, in the frame of the adjacent CRU 4 (Contrat de Rénovation Urbaine), an inter-communal renovation tool, Brusseau was able to join as co-partner of the hydrological study. Although not formally participative, they intend to feed this study with the questions of the inhabitants in order to strengthen an alternative vision in local water management (public singular event 3).

Next to these measures, also in the idea of Innoviris’ ‘co-creation’, relies on the participation of a local public, of which the CH can be regarded as the core group. In the next section, I want to have a recourse on participation and inter-group relations throughout Brusseau events in Forest Nord, before giving detailed descriptions to the single initiatives and places.

3.1.3. Community organisation CH Forest Nord

During conventions of the CH and in informal talks, Nalpas repeatedly made a point that “we as citizens” had a right to know where the tax money went. Although, due to their professional attitude and expert knowledge, it seems unjustified to make the institutionalised EGEB/Brusseau platform common with “regular” citizens, it certainly has its roots in civic mobilisation. As a civic-academic expert platform, it mainly takes the position of an advocate of citizens’ voices claiming their say in public water management. For the Forest Nord area, the strategy had been to set up a group of likely key partners in the valley, who themselves already execute projects, which Brusseau qualifies as ‘urban ecology’, even if the involved people would not primarily do so (Bernard/Nalpas 2012). Brusseau follows thereby a track of opportunity:

“There were already pre-existing relations, of political and social nature in the areas [before we arrived]. We need to get them together. I don’t believe they have a lot of contact with another otherwise. It’s usually people who are already engaged in different projects. There are people who are engaged to protect trees, others for the Marais and others again like to plant. We need to establish the link between all of these projects.” (A. Kohlbrenner, interview 3)

In order to do so, an important part of Brusseau’s work consists in an active social animation in the catchment. This happens in a series of public events, such as collective walks and mapping exercises and more enclosed meetings of the core group. For Brusseau and especially for Forest Nord, Dominique Nalpas takes herein an organising and moderating role. The members of the CH core were selected in a first place by Brusseau, who firstly approached with their new project their local contacts. Through their networks and some more or less co-incidental encounters, the CH was constituted. However, by setting the organisational frame for the activities, Brusseau holds a gatekeeper position. Now, in the project’s third year only people, who bear certain qualifications such as a relevant profession, local res-

idency, affectedness by inundation, were permitted to join under premise of general agreement. The CH became thus more exclusive. Contrary to occasional statements and despite a certain diversity in their claims, these participants are not of very different backgrounds or “from all over the area” (interview 1). Rather they can be described as white, middle-class and Belgian French-speaking residents with a general sensitivity for ecological problems.

In discussion with members of quite diverse initiatives, Nalpas takes a moderating role, explaining and patiently leaving space to peoples’ contributions. He reacts on them respectfully and sometimes attempts to re-phrase and place them into the bigger narrative of the group. This narrative remains largely marked and defined by Brusseau’s conceptions, on which the participants seem to agree, and only sometimes, in moments of deviation from the water-related topic or when entering potentially conflictual fields, Nalpas gently re-focusses the group on the alleged core issues.

For the involved initiatives, the collaboration with Brusseau clearly yields greater visibility and political weight to their stands. Many also appreciate the access to Brusseau’s expertise to support their activities and generally broaden their knowledge. Also, the interesting nature of the topic itself and the engaging, “poetic” (interview 11) communication by Brusseau certainly attract a wider public beyond social networks. Still, being very peculiar in their nature and requiring a general knowledge and awareness for environmental questions, not anybody will feel appealed by these activities. My general impression was that, primarily, groups of a similar socio-cultural background as the CH participated in the walks. However, despite earlier deliberation about water issues (interviews 12, 8, 6), without the intervention of Brusseau, it appears unlikely that the citizens and diverse, engaged groups would have found together in a similar form. It is therefore that I would call Brusseau a *catalyser* of pre-existing local mobilisation.

Brusseau clearly makes an effort to embed the CH meetings in the local social context. It profits from the rooms of the Quartier Wiels Wijk (QWW), where the evening meetings occur in a convivial setting with beverages and sandwiches. Thanks to the sponsoring by Innoviris, Brusseau is able to provide for catering and a small monetary reward for the “volunteers” of the CH. Especially during the phase of arrival of the participants, it becomes obvious that diverse bonds have already emerged. People are chatting about their activities and reveal some specific expert knowledge on, for example, how to apply for a BE ‘Quartier Durable’ funding. Formally, the evenings serve to inform the participants on the ongoing Brusseau activities, to discuss and to prepare future action. Although open to all sorts of contributions – I myself proposed to present an excerpt of my research – Dominique Nalpas remains the doorkeeper, setting the evening’s agenda. Hence, before my presentation on the 13.06.2019, we had to meet in order to agree on a topic.

3.1.4. The walks

“At times the carriers of projects know each other already, but this is not always the case. These walks are going to bring them together”, (Nalpas/Bernard 2018, own translation)

This optimistic vision on the potential of public walks originates from an early stage of the project. As the regular CH conventions show, these efforts have reached a certain success. However, observations reveal that, of the early announced “seven active groups” (ibd.) on the territory, only a diminished number continues actively. Typically, these walks, open to an interested public, are organised and moderated by members of Brusseau, in collaboration with members of the CH who highlight selected places from a resident’s perspective. One discusses where inundation has occurred and which (soft) countermeasures could be taken. This is followed by a collective mapping exercise, in which the inhabitants re-evoked the walk and fix the results on a map of the territory.

Brusseau and, earlier, the EGEB have already organised many such walks since the beginning of their Forest engagement in 2012. Consequently, they show a certain routine and professionalism. Some of their local supporters feel a certain saturation of interest complaining about missing effects (interview 7). At the same time, when observing the preparation of the walks, it was my impression that Brusseau failed to enlarge significantly the radius to reach citizens. Invitations were only “diffused by the [existing] networks” which mainly meant the Brusseau newsletter and the CdQ Wiels-sur-Senne (Brusseau-member, personal note 13.3.2019)⁴. Consequently, the participants of walk on the 30.03.2019 in Bas Forest included employees of the CdQ Wiels-sur-Senne, some externals with no connection to Forest, participants of the earlier walk (17.03.2019) and only one inhabitant of the area, who also is member of the CH. The incapability to open up these actions to people of more diverse social background is recognised by observers.



Figure 13. The ‘most political’ walk on 17.3.2019. Activists setting up the stage for image production.

“This is a general remark on many of their actions... which attract a very specific kind of public. A public which is already open and commits to this question because they do not have other, more urgent problems. And it is true that with this kind of event we have difficulties to attract a more popular public.” (Anne Bocquet, interview 9, own translation)

For Brusseau, the alleged importance of these walks as a participatory tool is put practice into perspective through apparent organisational constraints and a socio-cultural hurdle. Acknowledging these dilemmas in informal talks, it seems that Brusseau prioritises other more efficient or feasible activities as the political negotiations on higher level and the cultivation of the already mobilised CH.

The walk on the 17.03.2019 stood out insofar, as it was conceived and carefully prepared as a political action. Most importantly, signs in the Brusseau design with slogans dealing with the concrete objects of negotiation were handed out to the participants (for example “Le jardin est essentiel”, “Het moeraske Wiels bestaat”, “Regenwater is waardevol. Geen afval.”). Photos were taken and distributed on social media. As a part of the Brussels water days (JBE) it was an event of regional interest and attracted an audience far beyond the neighbourhood. A member of the CH reported the participation of 90 people, according to his counting, including the mayor and the alderman for urbanism (personal note 17.3.2019). Besides the presentations given along the way, many informal talks between local actors took place, all within a framing of very Brusseau-friendly positions. But there was also space for dissensus, and the participants could observe open debates between Brusseau and BE, respectively Forest politicians. It was thus a very strategically prepared event, which effectively disseminated Brusseau’s positions to a wider public.

3.2. The valley's lows – high densities and Wiels-sur-Senne

3.2.1. The mute Communauté Hydrologique

The population of the catchment's lowest parts, as captured by the socio-spatial definition Bas Forest, is the least represented in the CH activities. But, as the area most submit to the dangers of inundation, it becomes subject of discussion. The CH members are aware of flooding, poverty and social problems but their activities at large stay restricted to other areas. Some seem to have contacts into the neighbourhood, yet apparently, most of them seem to share a similar social background. Also, Brusseau sees a need to act on the quarter, but their work, as I will show in the following section, is at a very early stage.

So far, their research in the St.-Antoine area has focused on a very chronic, invisible problem: the humidity of basements. Not only by water entering from the streets during floodings, but also in normal times, the basements in numerous streets accumulate water. Some basement floors have a constant level of water, others only during heavy rain events. Other dwellers reported about overflowing toilets indicating the sewage network's inability to absorb an increased run-off (Latitude 2019 forthcoming). The reasons for the appearance of clear water are not entirely understood, as knowledge on underground water streams is limited in these areas. Awaiting the results of a larger hydrological study, Brusseau relies on the first-hand knowledge of residents.

These insalubrious underground conditions impact the daily comfort of the inhabitants, but also threaten their health and cause economic costs. The situation is exacerbated, for instance, where people cook or even sleep in the basements. In the generally poorer quarter, marked by migration, some people are "forced to live in these conditions" (interview 10), as their niche on the housing market is limited. Still, people strive to escape by selling-off their properties, in the case of the owners, or by moving elsewhere, in the case of the tenants (interview 12). The problem of insalubrious living conditions, by its nature delicate or private, is hardly finding a way into public awareness. Also, legality matters play a role, since housing people under such conditions is not allowed. Sometimes, some of the affected have no legal permit to stay in Belgium (interview 12).

Due to the recurrent flooding and in the area, its high population density and the deprivation of green spaces, one could expect this to be a key area of the Brusseau project. Like one seventh of Brussels, the quarter is situated on former wetlands; the houses here should have never been built, as the Brusseau architect Andrea Aragone states (interview 10). However, the area also confronts Brusseau with an unsolved puzzle, which is maybe best expressed by a situation that I witnessed during the 17.3.2019 "political march" with Brusseau:

We were descending with the crowd of participants the Av. Wielemanns-Ceuppens and I was walking next to a CH-member as a man came across us heading the opposite way. Looking from the signs with water-related slogans some of us carried to us saying "On a faim d'abord" ["In first place we're hungry", D.S.]. As it was not entirely clear what he had meant and we had continued on our walk, I asked the CH-member next to me whether I had understood right. He nodded and reacted with a joke "On a soif aussi" ["We are also thirsty", D.S.]. (public singular event 3)

The non-participating man's statement stays unclear, as we missed the chance for a discussion with him. We do not know whether he fully understood the idea of the march or how "hungry" has to be understood. However, I consider the CH member's reaction informative concerning his relation to other social problems. His joke played down the other man's objection and reinforced the own position there against. This defensive reaction to a mutual incomprehension is one way to deal with the

failure to integrate people of diverse social realities into the project. Other CH members expressed their regret to miss out people whose priorities are to “sleep, eat and pay the rent”, rather than to worry about water (interview 12).

3.2.2. An ‘ilot d’eau’ for St.-Antoine?

The ULB-related architecture platform Latitude has launched a number of projects as a partner of Brusseau, focussing mainly on the role of private spaces within a water sensitive city. To these ends, they have been promoting the concept of a collaborative, water sensitive redesign of private and shared spaces within a block of houses (‘ilot d’eau le retour’). The Brussels region disposes several thousands of such blocks catching considerable amounts of rainfall. Important parts of their surfaces, such as roofs or gardens, are owned and used by multiple persons and demand thus a collective intervention. The participative design process – so is the idea – can strengthen neighbourhood relations around the question of a more sustainable water management.

Latitude first tried out the concept in the South of Forest. It benefitted from the networks of a main civic anti-inundation activist living in the neighbourhood, who proofed to be a key person to initiate the project. The main dilemma of the implementation of a more sustainable water management was identified in its missing short-term profitability for individuals (interview 2), which had to be bridged with financial incentives provided by the CdQ Abbaye. Andrea Aragone described a generic figure of the activists (“the militants”) as people “who get always engaged in those questions and, in many cases, it occurs that they are not even the ones who have the highest problem.” (interview 10). With the initiation of the projects “Relever les caves” and “Wet bodies” in the St.-Antoine neighbourhood, Latitude deliberately left behind this comfort zone of these social milieus. The goal was to start anew from a yet-to-be-established local perspective, independent from established activists’ networks.

In order to create a new local network, raise awareness and nudge the water issue into the public awareness in the neighbourhood, Latitude tried out, together with ULB students, a range of different methods. Some of them resembled artistic performances but had a distinct informative character; for instance, they undertook geological corings in public space or drew the borders of floodable areas on the ground. Others were closer to participative research; during the Wednesday markets, the participants re-traced flooding incidents together with residents on a scale model of the quarter. Finally, students were invited to conduct different kinds of interviews with flooding affected people. The most surprising outcome was the willingness of inhabitants to reveal their basements to the researchers, which turned out to be in alarming contrast to common ideas of decent living conditions (interview 10). A photo series on these places thus was commissioned to a professional photographer in order to highlight the problem, whilst respecting peoples’ privacy (Latitude 2019 forthcoming).

The fieldwork in the neighbourhood confronted the researcher-designers with very tangible environmental problems of a local community - different from the earlier “militant”, more privileged contacts - with a very different, non-ecologist perspective on water. Rather than mobilising collectively, their stance was “guys, it’s the municipality that should do those things. We should never do it” (paraphrased by Aragone, interview 10). Aragone explains these social differences as follows:

“I should be honest, it’s not so easy to get in contact with people in the quartier St.Antoine, but it’s (...) understandable. I mean they really have different things to think. I mean relationship, that’s the ecological thing. For them, it’s probably not the first thing, that counts. I mean if you live... if you have bakery, I am saying generally, I am generalising, I mean you have other things to think about. I mean it doesn’t... it is not your first thing if you don’t have any time available, free time. It’s also when this kind of the image of the activist, many times it’s someone highly educated, that

has a job that gives him/her flexibility. You don't have a huge family, probably, I don't want something too generic.. It exists many different cases, of course, but still this kind of an idea, figure, it's more or less like that." (interview 10)

By the means of generalisation, he describes ideal types of residents in the catchment. On one side, he speaks of smaller households constituted by educated, environmentally conscious people with time and financial resources. On the other hand, there describes bigger household who are equipped with lesser cultural capital but have children and, maybe, run one of the little shop as characteristic for the quarter. This juxtaposition might appear a bit archetypical, yet they seem useful to highlight disparities in social and economic capital which appears crucial for the implementation in the Brusseau project.

Left with this unresolved, sociological puzzle, Latitude is by the time of writing in process of revision of the own methodologies and objectives. Instead of "cheek-to-cheek" co-creation as experienced before, the work on the area might rather be focussed on sensitisation, reaching out from the neighbourhood to the public authorities. Rather than actual implementation, Aragone envisions to initiate an exchange and political process between citizens and institutions, which may finally lead to a sort of "sharing responsibility" (ibd.).

3.2.3. Perspectives of redevelopment

The actor in place who actually disposes over the means to induce sustainable urbanistic changes is the CdQ Wiels-sur-Senne⁷. At the time of writing, its collaboration with Brusseau is put on ice, as the CdQ awaits an external hydrological study to be conducted in order to evaluate how its 800.000 € budget for public green and unsealing can be efficiently allocated. The scheduling of the two projects seem not to reach the predicted overlap.

Its coordinator Anne Bocquet also takes distance to Brusseau, which sometimes seems for her to narrowly water-focussed, leaving out the wider local challenges that the CdQ has to address. She is also aware of the failures to reach more marginalised social groups via the established modes of participation, which is even more true for Brusseau. More generally, she expresses criticism over projects which seem not to correspond neatly to actual local needs, but to attract people from outside the quarter. This impending risk is gentrification – according to her a common, but not undue point of criticism against the CdQ (interview 9). Also projects of water sensitive redesign could be not sufficiently anchored in the will of the local population. As an example, Bocquet names the proposed park along the Senne, a project strongly promoted by the previous alderman of urbanism (interview 11), which is listed in the catalogue of potential projects created in a pre-study:

"I would also say, that it is very good to have this great potential of the Sibelga site [scarcely built land of the electricity operator Sibelga behind the railway, D.S.]. It would be really nice to have something there but we can't forget about the heart of the neighbourhood. So, if we could improve the access and create there something of true surplus-value for the rest of the quarter, yes. But otherwise it is not the role of a CdQ. I don't say there was nothing to be done, but the CdQ has to remain a local development, not to the detriment of... well, basic needs." (own translation, interview 9)

A water sensitive development of the railway areas is also part of the Brusseau's considerations. In particular, the rail embankment should be crossable for water and pedestrians, who could in this manner approach a remaining undisclosed part of the Senne.

⁷ This name was chosen to highlight the water-relatedness of the neighbourhood. However, contrary to other Forest CdQ's, especially the CdQ Abbaye, the CdQ Wiels-sur-Senne has no explicit dedication to water issues.

Supported by recent acts to enhance the neighbourhoods' attractiveness, the perspective of its gentrification appears real (Debersques 2017). If this is, as the involved actors state, undesirable (interview 1, interview 9), steps for its avoidance should be taken into consideration. Yet, participation in the so far practiced formats (of which I have only observed the Brusseau practices) proved unsuccessful to reach the marginalised, potentially threatened social groups. Within the CH, discussion of gentrification also revealed different opinions. Some seem strictly opposed thereto, others would welcome wealthy newcomers to contribute to "rehabilitate neglected buildings" (Brusseau 2018: 106). The moderator of Brusseau acknowledged the importance of the issue, yet he insists that other urgent problems and questions had to be treated with priority (ibd.).

3.2.4. Verte Bertholot

Also, local citizen initiatives have their impact on public space. The group "Verte Bertholot" represents a planting project in the Bertholot street, initiated by residents and supported by BE in the frame of the sustainable neighbourhood funds, which is not to be confused with the much larger, institutional regional redevelopment program "Contrat de quartier".

The group's exclusive focus is on the mentioned street, which stretches along the slope between the low areas of the St.-Antoine triangle to the prestigious boulevard van Haelen. All along, they planted flowers in wooden containers on the sidewalks and in the earth around the trees. Working with plants, the interrelatedness of vegetation and water became quickly apparent. It is via the necessity of water and attachment to the vegetation set into public space that the group tries to create a sense of responsibility among the neighbours:

"At the moment that you take care of plants, you quickly understand that water is crucial. And (...) we are actually trying do to water the plants for the people, at one hand. In the moment you entrust somebody to take care of a box, we consider this person to be responsible for the watering. With the planting around the trees it is a bit different. We realized that we have to intervene here a bit." (own translation, interview 6)

Faithfully watering neighbours who had "adopted" a piece of green were rewarded for their reliability. In addition, collective watering actions with a self-built vehicle, the 'Berthomobile', creates attention for the group's activity. Whilst descending the street, the Berthomobilistes have to ring doorbells or ask the merchants for refills of their cans. Especially curious children join and help with the watering. Encouraged by Brusseau and possibly supported by the CdQ, the activists currently seek to go one step further in technical complexity and set up a cistern on the lower end of the street, filled by water from the nearby roofs. Hence, Verte Bertholot is in regular contact with the commune to ask for permissions, but also phrased concrete claims on how it could contribute to greener streets.

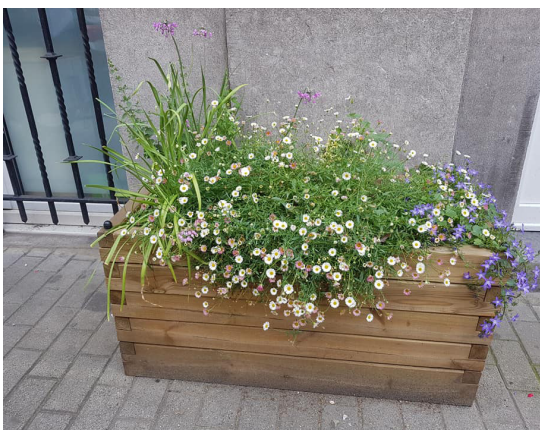


Figure 14 and 15. Vert Bertholot in action with boxes and Berthomobile

The main motivation for the participating neighbours is certainly to beautify the densely parked, mineral street they live in. One of my interviewees however also gave a more social and intellectual description of the objectives. Through a program of greening he wanted “to spark off reflection about the public space” (interview 6), favouring its functions of recreation and play. Also, the contact with other social groups is of particular importance in these activities. By facilitating encounter, they want to contribute to “social cohesion” in a “very diverse” neighbourhood (ibid.). According to the active members, this difference mainly plays out as along the height of the street: The densely populated low area shows dynamics of gentrification but is also home to typically large families living in small apartments. Among such “disadvantaged groups”, the initiative had difficulties to recruit members or to find willing care-takers for the planted boxes due to, as they concluded, insecurity and “metal barriers” (ibid.) facing the core group of “socio-culturally more advantaged” people (ibid.). These differences are for my interviewee part of the project’s appeal:

“And why we are more active in the lower parts of the street? It is because there is an other relation to public space. That means, that people in the higher areas where they have a little garden, are very much oriented to the interior whilst in the lower parts they are more oriented to the exterior. And you always have children there that play on the side walks and so on... So you have an other relation, one creates connections quite easily. That’s why... it’s really interesting to see how this happens, actually.” (own translation, interview 6)

Not all members explicitly subscribe to these optimistic and very sociological reflections. A woman spoke rather with frustration about the difficulties when dealing with a diverse public (public singular event 6). Beautification, fun and contact with more similar social groups seems to be of greater appeal than social confrontation, as described in the following:

« In the beginning, I thought we were perceived like ‘people from the top’, like the bourgeois that descend and invest into a space which isn’t theirs. So in the beginning we had torn out plants... and I have been thinking a lot about this... to be taken for intruders and I think that little by little (...) we managed to create some relations. I can enter the workshop without necessarily knowing the person [he refers to a facility where they can refill their can], so there is a trust relation. But it takes time. There is some hurdles to overcome, but it’s really interesting, very rich” (own translation, interview 6)

Due to their strict focus on the very street, the group members of Verte Bertholot seem not to have taken an effort to engage with the wider social structures of Forest Bas and its “rich networks of associations” (Anne Bocquet, interview 9). As I spoke to them, they were not aware of any of the local activities but a mosque and a facility for handicapped at the end of the street.

3.2.5. Movements in the “Wiels neighbourhood”

In an area that, roughly spoken, coincides with the statistical unit Van Volxem-Van Haelen, groups of neighbours have forged a ‘Quartier Durable’ in 2012. On an area which is at large congruent with Van Volxem-Van Haelen their actions, aiming at a sustainable transition, have been revolving around topics as pedestrian friendliness, composting and circular economy and received the same BE-funding as Vert Bertholot. Years of activity have created strong social networks within and around the Quartier Wiels Wijk (QWW). A ground-floor venue in a former office is entertained by the inhabitants and offers a space for neighbourhood activities. Located on the soft ascent to the park, its members feel stronger connection and have personal contacts to the valley lows, where the floods occur (interview 12), yet their focus of action and residence of their active members seems to be South of the Av. Wielemanns-Ceuppens. However, having adopted the name of the art gallery, the QWW makes reference to

a low-lying post-industrial place at the corner of St.-Antoine. Visibly installed in the iconic Blomme building, the ‘WIELS’ shapes the identity of the quarter, as perceived from outside and by many of its inhabitants⁸.

Since the arrival of the EGEB, the QWW is also concerned with sustainable water management and flood prevention. Recently, some of its members have been working on newly arriving residential real estate projects, which prospectively densify the neighbourhood. They have been participating in public consultations, usually taking a critical, defensive stance. A number of projects in the valley has, despite the strong communal regulation of water issues, raised their concerns about exacerbating flood risks. Following roughly their argumentation, densification in flood-prone zones exacerbates the risks on the existing houses by further channelising water masses, over and underground. The citizens, similar to the EGEB, became autodidacts in hydrology. However, in a discussion with the authorities, they have been missing expertise to formulate a grounded critique (interview 12), until the arrival of support from Brusseau-hydrologists.

It was within the network of the QWW that the Marais Wiels has been ‘discovered’ and discussed. On a construction site, interrupted by credit withdrawal in the financial crisis of 2008/2009, water from the low-lying alluvial aquifer has created a lake in the excavation pit.

During the following years, the developer JCX Immo abandoned this technically problematic site in favour of other projects in the area. It blocked the view from street with metal sheets, yet the entrance to the south, the necessary access for participants of an adjacent gardening project on communal ground had to remain open. Consequently, a small but diverse crowd of local adventure-seeking youngsters, sprayers, camping Romani and local residents walking their dogs re-appropriated the site. Over the years, plants returned in ecological succession, birds and fishes re-populated the pond, but also trash from users and neighbours accumulated on the site, all followed and documented by the neighbours. Their regular postings on social media, but also coverage in local news raised public attention for this hidden brownfield and urged the commune to justify the state of this private terrain. However, in 2018, shortly after a photographic exhibition about the Marais organised by the QWW, JCX Immo made a second construction proposal. It comprised the construction of 176 apartments with underground parking, shops and office space in several buildings. Against all apparent downsides of the site, the developer further pursued its project with a moral and legal advantage towards the public authorities: the planning permission charges have been paid already and were invested in



Figures 16 and 17. Scenes from a Sunday afternoon clean-up, as documented and published by the activists.

⁸ The modernist building formerly hosted the Wielemanns brewery in Forest. Its conversion into a gallery for contemporary art has triggered enthusiastic reactions in the national and international press. Urban researchers have been analysing the project as urban revitalisation via re-branding, favoring commercial real estate developers (Debersaques 2017).

the renovation of the Blomme building in 2005 and in the 'BRASS' cultural centre. Consequently, the non-profit association 'Wiels', which on interpersonal level is linked to JNX Immo⁹, ignores the aesthetically stimulating water body next to it (interview 7).

Although the second proposal was finally rejected by the commune, due to its scope and environmental impact, it revealed the fragility of the Marais and further determined the inhabitants to fight for its preservation. Supported by Brusseau, they argue that the Marais is not any longer an "accident", but has become a "fact", emerged like everything in nature from coincidence. It thus had to be treated as what it has become in their interpretation: A place of urban biodiversity, attractive for wanderers, neighbours and artists.

In order to reach this long-term goal, they demand BE to acknowledge the undeniable presence of the Marais and its emerging biodiversity. Together with hobby-ecologists, they observe life around the Marais and register the encountered species in online data banks. Despite all local activism and media attention, BE has so far refused to officially enlist this private terrain among the regional water body. The inhabitants, with inspired architecture students, developed diverse ideas for an altered project which would preserve the pond and feed hereby a discourse on alternatives. Brusseau hydrologists even suggest using it as compensatory basin against flooding. Even if these proposals do not necessarily exclude construction, they neither are opposed to the developers' idea of maximum construction.

Feeling powerless against the interests of the private owner, the group of activists decided to pursue a strategy of consequent visibilisation, to increase pressure on the region and the newly elect 'green' local government. Since February 2019, they thus organise public weekly clean-ups via a Facebook group. Several women, who started calling themselves the "fairies of the Marais", are at the core of these actions. Other participants join freely, and the group reaches, according to my observations, a size of 6-10 people. Men and women participate likewise, have no palpable migrational background, are white and should be aged between 40 and 60. Most participants are from the wider neighbourhood, including nearby parts of St.-Gilles, the area of the Van Volxem-Van Haelen, but hardly from the adjacent areas in Bas Forest. As the Facebook group has a wider range of communication, it reaches people beyond the circle of the QWW. One of the initiators reports that people had even come from Uccle, which she explains with the "new civic clean-up movement" (interview 7). Generally, the main motivation seems to be curiosity and attachment to the place, its peace, nature and exceptional aesthetics, but also to socialize with neighbours and like-minded people. By cleaning the surrounding the lake shall be rendered "welcoming" to people, who otherwise would have no intention to enter a dirty enclosed space (interview 12).

The "fairies", who organise the clean-up carefully, arrive with a shopping cart filled with gloves and trash bags. Week for week, the group advances further into the wildly grown surroundings, fighting with dumped heavy construction remains, just as with plastic litter. Their engagement challenges a number of passive actors such as the regional waste collection and the commune who formally refuse to enter this private terrain. Yet they cooperate marginally; the commune has sponsored plastic bags and the regional utility has offered to place a container for bulky objects on the street. Other activities, as collective bird-watching or photo-tours are less time-consuming than a seemingly endless cleaning as, against all progresses, new garbage arrives continuously. At another occasion, the cleaners have built bird boxes from empty plastic bottles, which arguably represent an ideal union of re-cycling and environmental care. All activities are documented and posted weekly on Facebook to entertain the community and to keep up the pressure on local authorities. The question of the Marais and ongoing civic mobilisation seem inconvenient for local administration (interview 5), whilst the political will

9 QWW activists report of a personal friendship between the Wiels director Dirk Snauwaert and the director of JCXImmo Sophie Le Clercq. Debersaques mentions that she functions as treasurer for the ASBL.

for preservation in the green local government is obvious, yet financial constraints forbid, for example, to purchase the terrain. Consequently, they rely on uncertain regional intervention.

The cleaners of the Marais have entered into an under-regulated space of neglect of unknown destiny. Stimulating by the free social and ecological processes in place, the 'Marais' mobilises its defenders. Hereby, it has the potential to become emblematic for a re-negotiation of human-environmental relations in Brussels, by blending water sensitivity and ecologist thought with social mobilisation. However, the currently dominating civic mobilisation has to be understood as the distinct perspective of certain social groups who developed an interest for the site, stimulated a public debate over it, claiming its prospective public functions. They do not represent all users, such as the entering homeless or teenagers from the neighbourhood. These "others" are judged by their behaviour; their graffiti is appreciated, camping is largely tolerated, littering however is fiercely condemned.

3.3. Green slopes and lofty heights

Following Brusseau, the parks of Duden and Forest stage the centre of the catchment and its hydro-social mobilisation. To further stress this argument, the Jardin Essentiel, positioned at the junction of the two parks, allegedly unites spatially and stages a space where attracted by herbal odours diverse populations come together and mingle (Brusseau 2018). This hopeful description given in the 'Scientific Report' certainly expresses a wishful ambition rather than observation and is used to illustrate the reasoning behind the Brusseau-project. Together with a description of the built parts of the upper valley, I want to introduce the 'Jardin Essentiel', namely a place and an initiative. Here, the high areas, due to their sandy soils, seem particularly suited for the application of infiltrative methods relieving the flood pressure on the bottom.

Situated between the low and the height, the parks seem to have a double character, posing at the same time a barrier and a link between the quarters. The steep slopes pose a certain obstacle for soft modes of mobility, notably cyclists and less mobile citizens, and also public transport connections between in East-West connection between the different neighbourhoods of the catchment is underdeveloped. Citizens from both sides of the park confirm to me that, beyond the Brusseau project, they perceive few social links (interviews 7, 8, 12). On the other hand, the parks often evoked as "green lungs" attract diverse populations from both sides of the catchment, for recreational purposes or as a site of diverse summer events.

3.3.1. The garden community and its outsiders

The 2016 artistic festival Parckdesign saw the creation of a medicinal and herb garden below the Lainé square in the Duden park. It replaced an empty lawn with a linear garden, composed by rows of plants strictly aligned according to species in a mirrored fashion. Hereby, this artistic product refers to the carefully arranged perspective view from the stairs of Laine square to the Palace of Justice. Initially created for a several months, the garden was appropriated by people who had welcomed its arrival. At the end of the project in September, BE allowed for its persistence under the condition that the informally constituted group took care of the garden on a voluntary basis. Appealed by its vastness of possibilities for gardening experimentation, these people welcomed the opportunity to preserve what already was named the 'Jardin Essentiel'. As one of its active members reports, they themselves only gradually understood that the civic take-over after the end of funding had been the actual intention of the project (interview 8).

However, the maintenance of the large garden creates a lot of work, shared by few people, whilst a much larger group harvests its fruits. This dilemma of the garden's commons, to re-evolve Garret Hardin's classical essay (1968), is addressed by an offensive communication of the garden's rules. Around, its demarcation signs are set up informing people on the appropriate moment to harvest – the only park in Brussels where this is allowed – and remembering them to stay on the marked paths. As the gardeners can communicate directly only with a small fraction of the park's visitors, they learned mostly by observation which methods proved efficient. In our talks the gardeners continuously complain about visitors' misbehaviour and, generally, about a lack of gratitude for their engagement.

The collective gardening sessions at which I participated are organised by the core members, who distribute the different tasks of organization, including outward communication among themselves. These sessions are used to recruit members who are willing to further contribute by creating an attachment to the project. As they are in the midst of a public park passed by many people daily, attention is easily generated and talks at the fence facilitate exchange.



Figure 18. View on the garden during a Sunday afternoon session.

Yet against the gardeners' conception of their work as a contribution to the common good, I perceived a palpable distance between active members and new-comers or outsiders. Although the gardeners themselves acquired their knowledge recently in self-study and experimentation, their patience for the new-comers' questions appeared limited. For example, rather than answering all questions, they suggested to look it up on Google (interview 8). This refusal seems to be related to the dissatisfaction with 'old knowledge getting lost' (ibid.) and a perceived alienation of a majority of people from nature. Yet it seems paradoxical in relation to the overall ambition to teach or to disseminate knowledge. The general sceptical attitude towards outsiders is mainly routed in dissatisfaction with unequal readiness to contribute and a perception of insufficient acknowledgement for the own work which is recurrent throughout the interview 8.

Clearly, there is a socio-cultural dimension in this difficult encounter. My interviewee spoke of a missing "gardening culture" particularly, among the poor and immigrant:

"And then there is people who don't have this gardening culture. And eh ... I was already able to notice that they are very often people... that I call 'derooted from their country' who are here since one or two generations (...) and it does not matter which country they come from, if it's from the East, the South or the West. They come, they take and consume [from the garden]. But they don't get involved. We have never had... well, it's extremely rare for people ... ehm who don't have neither a garden nor a balcony who come from a milieu eehm... I want to say... how to say... of low income who would get involved in the garden. They come once and that's it. And then they come to serve themselves or they came before already but... This is quite remarkable." (own translation, interview 8)

She illustrates this with an anecdote about a young man who readily helped her until his friend point-

ed out that this was voluntary work. He immediately stopped and never came back.

“For him it is just an exchange against money. And there we have a gap in education.” (own translation, ibd.)

Being teacher herself, the interviewee blames this attitude on a failed education and, vaguely, their “de-rootedness”. Her positioning is highly normative and fails to take the outsiders’ perspective.

From my observation as a partly outsider, I can tell that also the community of gardeners poses certain social hurdles. Indeed, their voluntary, time-consuming engagement for a place which only yields non-nourishing fruits as aromatic herbs, may appear not sufficiently lucrative or even irrational. Also, the esoteric positions cultivated within the group (“of course, every plant has a spirit”, statement of an active member in discussion with new-comers, collective gardening 2) are not appealing to everyone. Another new gardener talked to me after the session, stating that “they are not only ‘bobo’ [bourgeois-bohemien], but super-eco’s”, as they pursued a very advanced, sometimes stereotypical ecologist lifestyle (collective gardening 3).

Regarding the social characteristics of the group, my impression is, once again, of a middle-class community. Those who do not have an own terrace or garden to plant, they had at least own experiences with gardenry in their past or childhood. Furthermore, most appear to have grown up in Belgium or France and some revealed towards me, taking me for a Flemish, an almost perfect bilingualism.

According to my interviewee’s perception “more people from the bottom than the top of the valley [were participating]” (interview 8). In my own observation this is not confirmed. An email list on public display during the garden party on the 19.05.2019 showed significantly more interested people with addresses in the higher areas than the valley bottom or even the St.-Antoine quarter. Also, the presence of non-local initiatives pointed out to the wider reaching networks of the Jardin Essentiel qualifying it, as a participant confirms “not [as] a neighbourhood project” (interview 8). The party guests not only came from the Forest Nord catchment, but adjacent communes as St.-Gilles and Uccle and even from further away. Compared to the regular participants, the party showed a higher ethnical diversity and an increased presence of families with young children.

3.3.2. Beyond gardening - water and politics

Contrary to the QQW and the activists of the Marais, politics play a subordinate role among the members of the Jardin Essentiel. Their lack of formalised legal status, keeping their position feeble, suits the park administrator BE best (interview 8). On the other hand, confrontation with public authorities play a minor role for the participants of the observed gardening sessions. Discussion over internal organisation and relation to the outsiders prevail, whilst there is no political positions are elaborated or disseminated. Yet, there is complaint about the neglect of the group’s apparent activities in formalised pre-studies to urban planning measures, such as the park renovation of Belliris (ibd.). The weak status of the groups’s activities also has been exploited by communal politicians, who misused the garden as a sign of successful greening policies. After the gardeners’ complaints, the politicians excused and ever since underline the civic engagement which carries the project.

During the gardening, the impending BO was not mentioned. Instead, the struggle against it seems largely carried by Brusseau, only with support of single members of the Jardin. Interviewing the most water-concerned gardener, I was surprised by her ease regarding the topic. She seemed to be convinced that Vivaqua’s debt would finally prevent the project. Instead, Brusseau is taking up the argument and used the garden party as a stage for its cause, setting up an info stand and the signs of the JBE walk. Next to this sensibilisation, Brusseau on their behalf has conducted further hydrological studies with

an altered methodology from the precedent Vivaqua study. The CH members among the gardeners contributed hereto as experts for processes in the parks. As a result, they proved the technical feasibility and lower costs of alternative water management against the BO (Brusseau 2019 forthcoming). This study illustrates very well how Brusseau gives credibility to citizens' initiatives that would have otherwise been easily dismissed as extreme ecologists or NIMBYs. At the regional administration it was thus not welcomed; the water responsible explained to me that she was already aware of the alternative methods' feasibility. However, immediate action that only a BO could provide was necessary, in order to alleviate flooding risks in the bottom.

Despite the threat by the BO for the garden, only two people among the gardeners recognised the relevance of the Brusseau project and joined the CH. Being also residents of the catchment, they themselves had observed water and mud flowing down the main streets. Since the creation of the garden in 2016, they state that despite occasional heavy rain this was no longer the case, because the young plants by their roots permitted a better infiltration (interview 8). Beyond the sheer protection of the appreciated garden, it seems to be also a civic awareness of relationality very much in the sense of Brusseau's solidarity of the catchment that has been motivation for the mobilisation:

"It's a question of solidarity. That idea has immediately caught me. A solidarity that goes beyond the protection of this place, that's the solidarity of the catchment. It's true that I live on the top. The water flows down has to be stopped, so it has to be stopped before it reaches the bottom. We're trying to do so and it is not because I live on top that I had to feel shame when I meet people from the bottom, no! So what can I do as a citizen? It is clearly via the garden that I can speak about it [the flooding problem]. I think we already did a great job with Brusseau. The people are already a bit more conscious when we speak about it." (ibid., own translation)

In this explanation, the garden hardly is an end in itself but serves as illustration to enforce socio-ecological entanglement about which she wants to apprise. Yet "people [were] refractory today" (ibd.). The pleas for solidarity, frequent in many public debates, might help in particularly dramatic cases. As a general concept, according to her, 'solidarity' finds acceptance only among people with "a civic spirit" (ibd.).

3.4. On the top of Altitude 100

A last case of civic mobilisation is located on the catchment's top, in the avenue Alexandre Bertrand, located in the quarter of the elevation "Altitude 100", topped by a conspicuous Art-Deco church. Inhabitants of the street have forged in 2017 the Comité Alexandre Bertrand to oppose the regional project of new bicycle paths through the street which would have necessitated to cut several of the cherry trees the inhabitants feel very attached to. This activity stimulated the contact with Brusseau which, searching for local allies, reached out to the committee to discuss the potential of urban trees to absorb water and facilitate (interview 1). Together, they enlarged the discussion to potential unsealing of nearby spaces and the terraces above the Duden park. This development seems in line with Brusseau's idea to nudge citizens starting from a defensive NIMBY reaction towards a broader reflection about aquatic interdependencies in socio-nature.

This group reveals again strong local bound. Asked for the motivation for his political engagement, a founding member argued simply: "I bought a house in the street and my children and family live here". In this conception the struggle for trees means to care about the very personal environment, in which he has already financially and social invested; the neighbourhood as a sort of enlarged private

sphere. This particular person during walks and internal meetings repeatedly pushed forward the cause of his committee. For instance, during the more political, strongly frequented JBE march, he asked me to hand over the sign with the slogan “Geen massale ontbossing!” (“No massive de-forestation!”), which he in an earlier internal meeting had proposed. In the following, he clearly watched out for photographers to pose with it (public singular event 3). With all respect to this and other persons’ wider engagement within the CH, such behaviour illustrates how the Brusseau project can be used to promote singular interest which on a first glance seem rather loosely associated to the greater topic. The mentioned slogan seems largely exaggerated regarding a single street but has to be read in the context of other tree cuttings in the Duden park, which caused emotional reactions on social networks. Thirty-one old beech trees had to be cut due to risks for park users, resulting from damage by water shortage in the summer of 2018 (Rtbf info 2019). Essentially about water in the city, this sort of news could further have a mobilising effect on ecologically aware populations.

The potential of the heights for an integrated water management is not entirely clear. At once, layers of sand provide what has been called “natural stormwater basins” (De Bondt/Claeys 2008) of enormous size. Due to lacking knowledge on locally specific underground flow dynamics, it still has to be determined to what degree and where water can actually be detained and filtered over longer periods. A yet poorly treated potential threat from infiltration is the exacerbation of humidity problems in low lying basements, due to more intensely soaked subsoils. However, optimism about water sensitive measures prevails (interview 2).

The upper urban quarter, for a number of reasons, seems quite distinct from the valley low. Its emergence is more recent and does not have the strong industrial influence as the valley. Regional statistics reveal here less population dynamics and higher incomes than in the low area. It appears to be a socially more stable and also is a safer quarter with regards to inundation. The socio-spatial disconnection from the valley bottom can not be bridged by the sharply ascending parks which, at best, provide an occasional meeting point. Also in their daily geographies people residing on the heights seem to prioritise an orientation to the East, towards the better-connected communes of Uccle and Ixelles (interview 8).

E. CONCLUSION

1. Bottom-up challengers in discussion

1.1. “Principe Brusseau”

Brusseau is at the same time a multi-faceted, political actor group and a collaborative research-re-design project. It is an exceptional, temporal arrangement working on multiple very localised cases to pursue ambitions on a regional scale. Its special status is free of longterm obligation and allows for experimentation; the opposite is the case for the incumbent institutions of water management. Brusseau carries a relatively complex theoretical framing of the water question which it owes to local, sometimes formally associated academics and to manifold discussions of the EGEb. Also the activist experiences beginning with the EGEb's struggle against the construction of the BO Flagey have influence Brusseau's thinking and practice, particularly in regards to their disapproval of techno-managerial top-down implementation of infrastructure. These differences in have to be kept in mind when contrasting their with approaches of institutional actors.

By implementing older concepts concepts as ‘Nouvelles Rivières Urbaines’ and ‘Îlot d'Eau’ Brusseau wanted to set examples of a water-sensitive Blue Urban Infrastructure. It seems that within the given time frame they will not reach the step of realisation in Forest-Nord. However, by the time of writing it appears that by the force of alternative hydrological studies, the planned BO Lainé is seriously questioned. If it should finally by pressure of financial constraints and promises of alternative water-sensitive measures not be built, Brusseau would have set a precedent for a different water management. The creation of a ‘Communauté Hydrologique’ basing on local networks, I would argue, has succeeded. Its members and other related, mobilised citizens may figure precursor of a – so it is envisioned – more institutionalised, civic ‘Bassin Versant Solidaire’. Active citizen participation is at the heart of every single of these concepts which are deemed to enact the water sensitive city.

To mobilise citizens for water issues Brusseau relies on methods as the public walks, mapping and finally co-design workshops, which were welcomed by the public authorities to raise awareness (interview 4). Beyond these activities, the EGEb have always pursued more confrontative forms of activism. As since 2017 Brusseau bound more resources, these activities paused and gave way to more silent exertion of political pressure. Supported by formal academic expertise, the citizen experts of the EGEb gained a stronger voice in political negotiation. Hence, they could enter as advisors into the elaboration of the hydrological study for the CRU 4 commissioned to BE and influence an allegedly neutral, shielded-up processes of knowledge creation¹. Yet, according to their principles they would rather prefer to pull out the negotiations from the back-room into the light of public round tables. By the creation of the CH, Brusseau enlarged the circle of experts by selected local citizens. Occasionally, for instance on meetings with the communal council, this enlarged round of expert has already received institutional acknowledgment.

The overarching bigger goal for the Brusseau is to achieve an other water management in Brussels, guided by the principles of sensitivity and ‘water as a common good’. Following this rationale water management has to become more inclusive and the still practiced, yet “softer” techno-managerialism encompassing some water sensitive elements has to be breached by civic claim. New relations between human and non-human elements, particularly water, via a re-configuration of BUI opens up perspectives of a relational city (Karvonen 2011).

1.2. The first Communauté Hydrologique (Forest Nord)

Disparate citizen initiatives spread of over the slope of the sub-catchment in Northern Forest were united by Brusseau in an act of discursive territorialisation in the “hydrological community of Forest Nord”. In this landscape-guided approach by (sub-)catchment, they added a meta-scale scale, informally constituted by the residing citizens to the Brussels water governance. Transgressing administrative borders, this scale is most suitable to combat locally occurring floods, yet, by its conception alone, already challenges regional water governance.

In order to create the CH, civic engagements with various, very localised issues therefore were united under the allegedly all-integrating water question. Brusseau staging as like-minded advocate of their interests, was able by its moderating power to initiate a common reflection whilst respecting singular positions. In exchange for Brusseau’s expertise and use of political weight resulting from years of water related activism, the members of the CH contributed as citizen experts to the production of competing knowledge. Their support furthermore renders Brusseau a democratic, rather than technocratic project.

The stakes and interests bundled under the water question are thematically wide spread and bear variegated potential for conflict. By their subject-specific expertise and political processual insights and moderating qualities Brusseau manages to homogenise views within the CH. Together, based on personal ideology and their experience in activism they effectively produce what Karvonen calls civic ‘ecological imaginaries’ (2011: 189) which reinforce a perception of wider connectedness (“We are not merely living in the city, we are of the city. We are not merely social, we are associated”, *ibid.*). In the following I will treat them as a parts of a comprehensive, yet informal political program as Brusseau presented itself on several occasions (public singular event 3, Brusseau 2019).

Among the very political and highly conflictual positions is the demanded protection of successional biodiversity on the brownfield of the ‘Marais’ Wiels’ against maximal construction. The activists hereby touch upon related political debates such as the debates about the provision with (affordable) housing and real estate speculation (interview 12). With their claims they challenge private property rights by socio-ecological motivation. In parallel, the activism on the higher areas, i.e. around the Jardin Essentiel and Av. Alexandre Bertrand, is directed against regional infrastructure projects that disregard the interests of local communities, neighbours and users. Similar to the early days of the EGEB, their mobilisation arises from a feeling of disempowerment facing the logics of techno-managerialism. Starting from merely defensive reflexes, the citizens’ activities have, often under the influence of the Brusseau project, sparked off broader collective processes of reflection about alternative projects (meeting 4).

Other local activities are less confrontative and more related to individual hobbies. Yet, also they are not free of personal values and are often related to ecologist world views. City beautification, a playful experimentation with public space, gardening and nature observation are among the diverse activities practiced by actors all over the catchment. Although little conflictual, also these activities are influential as a starting point for wider reflection on the water question and lead to very concrete, but small spatial interventions. Finally, artistic expression can equally be allocated to the less political, hobby-like and the more political activities, when used to convey claims.

However, despite the effective integration of these diverse positions and interests into a single stance of the CH, informal talks and peoples’ behaviour revealed that not all members equally back the others’ positions. More critically, the “mute communauté hydrologique”, i.e. the socio-economically disadvantaged groups, residing in flood-prone areas are not represented by the current CH. Potentially, they

could also have an interest in immediate flood protection measures, as the BO Lainé would provide (interviews 5, 11). However, the opposition against this project is at the core of Brusseau's work in Forest Nord. The absence of these groups raises general questions on the democratic legitimization of Brusseau and its capability to include a diversity of population. So far as reactions on my internal presentation on the 12.06.2019 showed, these points are largely undiscussed within the project. As its "weak spots" they risk to damage the 'solidarity of the catchment' idea as core-value of Brussels storm-water-related activism.

To avoid these shortcomings, more effort to achieve an all-inclusive participation with other methods could have been undertaken already at an earlier stage of community formation. Similar to the efforts of the "Wet bodies" Brusseau project, this had to be independent from existing local networks which are limited in their reach and needed to pay greater attention to identify diverse sentiments and actual needs in quarters with a disadvantaged population. However, such an approach would have required more time and additional inter-cultural competence and even if all this had been respected, it remains uncertain whether a stronger attempt would have been able to overcome greater structural exclusionary mechanisms in participation.

1.3. Potentials for civic politics in BUI planning

The Brusseau project can be regarded as a case of civic politics (Karvonen 2011), since it operates as a civic expert platform between the established, disclosed mechanisms of incumbent water management and local claims. This led to a paradoxical situation of parallel confrontation and collaboration with the institutional actors who on their behalf are far from a united stance beyond the PGE. Evaluating successes and failures of the project we can discuss in how far 'Brusseau as a method', i.e. a bottom-up problem- and locality- focussed approach with an expert platform to cooperate with citizens and administrations, can be eventually perpetuated and to some degree institutionalised in order to achieve a sustainable transition of BUI. Now, in the preparation of the pending update of the PGE 2022-2027, the moment for a debate about 'Brusseau as a tool' seems to be right.

By setting the focus on little excerpts of the region, the sub-catchments, the project is able to elaborate suited design proposals instead of one-fits-all solutions. Also the need to network infrastructure as evoked by some institutional actors (interview 5) is best addressed by the BVS-approach. Out of local urgency and specificities, the project strives to set examples of co-production for the BUI development in the wider region.

In order to anchor this approach in Brussels urban revitalisation politics, it would be conceivable to tailor the CdQ program to the needs of water-sensitivity. The delimitation of CdQ areas is a communal task, but it could follow next to social also landscape and hydrogeological considerations and their conditions. Certain funds, for example, could only be accessed only by implementing certain water-sensitive interventions.

A such integration of BUI adaptation and urban revitalisation could prevent a Brusseau follow-up to be perceived as a "one-topic project" (Anne Bocquet, interview 9). Its narrow water focus reduces complexity, but the frictions between water question and other related fields can not be neglected. These frictions of water as a cross-cutting field of competence are slow transformational processes in its management. As major challenge it remains thus to define a relation between the water question and fields of urban development, in which no unconditioned priority is given to short-term goals.

But an institutionalisation of the Brusseau model, its dissolution into mainstream planning would also risk to loose its current momentum and its capability to lever water arguments against conflicting matters of higher political weight. One such principle dilemma is the gap between the long-term impacts of infrastructure decisions and short termed political careers. Even in the case of set water

objectives as in the PGE, they risk to be neglected when confronted with a lack of political will (Eric Mannes, interview 4). On the other hand, decisions over adequate flood protection infrastructure are essentially about space, its distribution and designation. Today, in times of soaring ground values and pressures of real estate development, financially strained communes have a difficult time to maintain control over the development of space. Water-sensitivity easily risks to appear as a minor matter therein.

In both cases, facing competing planning horizons and decreasing public steering capacities over space, it might be the conflictual dimension of Brusseau, a civic politicization of water to provide a critical leverage to inferior arguments. Guided by the idea of water as a common good (Nalpas/Lebecq 2012) Brusseau is currently making a case for the role of citizens in the governance of the element. However, this seems no longer imaginable if water should be fully integrated into the politics of urban revitalisation.

In terms of construction, Brusseau was unable to fully deliver on its ambitions in Forest-Nord. Despite or even because of this, it might, be granted a prolongation of the co-create project. This is due to Innoviris' recognition of its actual "transformative potential" (internal communication, Brusseau). Hence, it appears that the role taken by civic water politics found certain institutional recognition and might in one form or the other find a continuation. In this case, the discussion of Brusseau's successes and shortcomings, as undertaken in this master thesis, might help to strengthen potentials of the Brussels approach in civic water politics.

2. Theoretical reinterpretation

2.1. Conditions of water-sensitive transition

Today, our use of water resources is unsustainable on a global scale and has been so for decades. Perspectives of global warming, changing patterns of precipitation and increased flooding risks announce a deterioration of the already strained water conditions. On an urban level, floods and heat waves pose an immediate threat. Taken together with the city's hinterlands, locally, also drinking water supply may be at risk. Long-term prevalent paradigms identified as "plumbed" or "bacteriological city" built on human-nature-dichotomism (Gandy 2006, 2014) have anchored ecologically problematic kinds of BUI in urban planning practice. Sustainability or resilience against anticipated climatic stress necessitates the transformation of incumbent water management system including its political mechanisms and built (infra)structures. Consequently, cities around the globe are re-thinking their inherited BUI.

Contrary to the internationally renowned examples for implementation of water sensitive principles (see Kruse's study of Rotterdam, New York, Singapore 2015), the Brussels debate on water-sensitive redesign reveals strong bottom-up dynamics. Although taking inspiration from international and particularly French design practice (Brusseau 2018, BE 2014), Brussels is arguably on an own specific path framed by its hydrogeological pre-conditions and history on which citizen mobilisation takes the initiative. The present work qualified these dynamics through the example of Forest-Nord. The study provides a case of renegotiation of BUI throughout a multiplex urban governance. While public authorities despite all good will reveal a significant inertia, local mobilisation and ecologist citizen groups starting from questions of rainwater management took an outstanding role pushing forward the question of water-sensitive transition. In Brusseau, citizens, supported by academic networks, undertook a remarkable autodidactic effort in order to engage with questions commonly rendered as experts' matters and to finally disseminate their knowledge further.

Compared to impressive flood master plans conceived to set benchmarks (e.g. Copenhagen's 1,5 billion US\$ cloudburst plan, unveiled in 2016) contemporary processes in Brussels are more slow and humble. Yet, considering their very localised, landscape oriented, co-creative approach towards WSUD (Ranzato/Bortolotti 2015) of hardly any international precedent, these urban ecologist movements and political processes are worthwhile to be discussed elsewhere. The present work is the attempt to shed light on these remarkable processes below the radar of international 'best-practice'-seekers and shall contribute to a debate about achievements and shortcomings of a "Principe Brusseau". It shall describe Brusseau also in regards to its (in-)capability to transform the inherited networks of BUI and move towards future, more adapt water-sensitive systems.

2.2. Questions of innovation

"Sociological experimentation, not technical experimentation but I am for the concrete not so much for the experimentation; I say to Dominique: 'Dominique, your core business must be the sensibilisation of the people'." (Eric Mannes, interview 4)

Eric Mannes from the Brussels government remains sceptical regarding the capacities of the civic water politics. The "sensibilisation"[sensitisation] he proposes appears compared to 'politicization' as a weak term and is inclined to merely serve as knowledge dissemination to the ends of a more responsible individual usage of water. In this vision, the 'social' is strictly disconnected from the 'technical' or 'technological' aspects of water sensitive transition. I, however, want to argue that for 'innovation', the two dimensions necessarily intertwined. Politically speaking, a separating line restores the technical, pre-defined solutions and institutionalism Moelaert et al.'s 'Social Innovation' is directed against (2015). By bottom-up mobilisation, active questioning and appropriation of space it seems that the here observed water-related civic mobilisations state a case for social innovation. In the following I want to review the studied movements in the light of an ecologically extended theory of SI (see part B2b).

The mobilisation for water in the sense of ensuring water quality and a decent supply, certainly serves basic human needs and appears crucial in order to maintain the ecologically balanced relations between humans and non-humans. Considerations of integrated water management as in the portrayed case pay tribute thereto in long term objective. More anthropocentric is commonly the framing of safety from inundation as a basic need although inundation also has an apparent impact on fluvial ecosystems via pollution. Especially on behalf of the public authorities, the protection of populations threatened by inundation is a prime objective. Contrarily thereto, Brusseau's rejection of the BO approach is a thinking in longer terms and lacks immediate satisfaction of human safety needs.

The mobilisations in Forest-Nord, further supported by Brusseau, have created a number of new relations between residents and organised neighbour groups. Most of their activities and group internal relations already existed prior to the appearance of Brusseau. Spaces of urban nature were appropriated and street planting was initiated by the concerned citizens. These processes already sparked off a number of new relations and activities in the neighbourhood and contributed to local civic experience and development of knowledge. However, Brusseau added an other dimension of water-sensitivity to the existing initiatives, which united them under the umbrella of a CH and established new links between groups throughout the catchment. With their expertise on Brussels urban development they knew to create the necessary association of water sensitivity ambitions and the local CdQ planning tool. Moreover, enforced by authority of scientific expertise, citizen groups were enabled to express their claims and local knowledges, more efficiently towards public authorities.

Yet, this process of connection and territorialisation did not come about without exclusion. Most cru-

cially, as I demonstrated in this work the voice of the most flood-prone, disadvantageded populations in the valley bottom are missing in the debate on water-sensitive redesign. Here, I would argue, Brusseau failed in practice to fulfil the third criterion of an ecologically extended SI, which is “the empowerment of deprived groups and individuals throughout their engagement in emancipatory movements, aware of social injustices and degradation”. Certainly, the project empowered certain already engaged citizens against the logics of a soft techno-managerial system. It missed out on a fraction of local population which due to its size and exposure to flooding is of particular importance. Brusseau thereby also failed to deliver fully on its principle of a ‘solidarity of the catchment’. On the contrary, the studied case mirrored disproportionate affectedness and social inequalities in unequal participation. If this will further not be tackled by the active drivers of change, they risk socially unsustainable transformation (Mehmood/Parra 2013).

In conclusion, the observed mobilisation in the Forest-Nord sub-catchment can be qualified as a kind of SI, yet rather in an ecologically extended than in the original sense and with a weak spot to include diverse and disadvantageded publics. The particular merits of Brusseau and the involved initiatives lie in the co-production of – to speak in Karvonen’s terms - ‘civic environmental’ imaginaries and integration of civic knowledges in the redesign process. Their sometimes confrontative and unsettling ‘politicization of of the element’ is their way to address the ecological insufficiencies of current rainwater management.

2.3. Situating actors of urban-run off to another

With his terms of rationalist, populist and civic politics, Karvonen gave us a set of tools to assess the way how actors relate to an other. When reading his work, an intuitive assumption would be to link rationalist politics to heavy, concrete-based solution, whilst green and nature-based solutions would be somehow to the other two. Actually, he refrains from such statement and, indeed, this study has shown that for instance hybrid technology choices can be implemented in a rationalist logic. To position the different encountered actors in the political field of BUI (re)design, I propose thus to combine technology choices assessed by their degree of water sensitivity, with the preferred mode of politics. In the resulting matrix, the vertical axis represents design philosophy, the horizontal axis the kind of environmental politics. As I was not able to study in depth their positions, the result remains estimative for the public authorities, while my assessment of civic actors builds the richer empirical work, as presented in D.

The expression within a matrix is not to be confused with a quantitative assessment, but is purely based on my own subjective estimates built on the collected qualitative data. On certain actors as Vivaqua I was not able to conduct research myself but depended on external assessments by my interviewees. In the present figure I neither mentioned citizen groups which lack a significant occupation with water prior to their engagement in Brusseau nor actors which have not yet taken clear position in the debate (e.g. the municipal government in Forest elected in 2018). For this reason the actor matrix does not fully comply with the earlier drawn actor diagram.

Overall, this figure (next page) remains a torso, but it can serve as illustration and potential inspiration for further research. For example, the idea of setting a coordinate system could be applied in an inter-city-comparative study on water sensitive redesign.

I am aware that the interpretation of Karvonen’s terms as a gradient is disputable and has not been proposed in this form by the author. Yet do rationalist and populist politics embody two in every regard strongly contrasted models which invite to be set in opposition to another. A two-dimensional matrix also sheds light on the palpable cultural and political differences between the different actors which complicates collaboration. However, as reported by long term activists and professionals (interviews 1 & 4) and as it emerges from informal communication, several institutions have been moving their

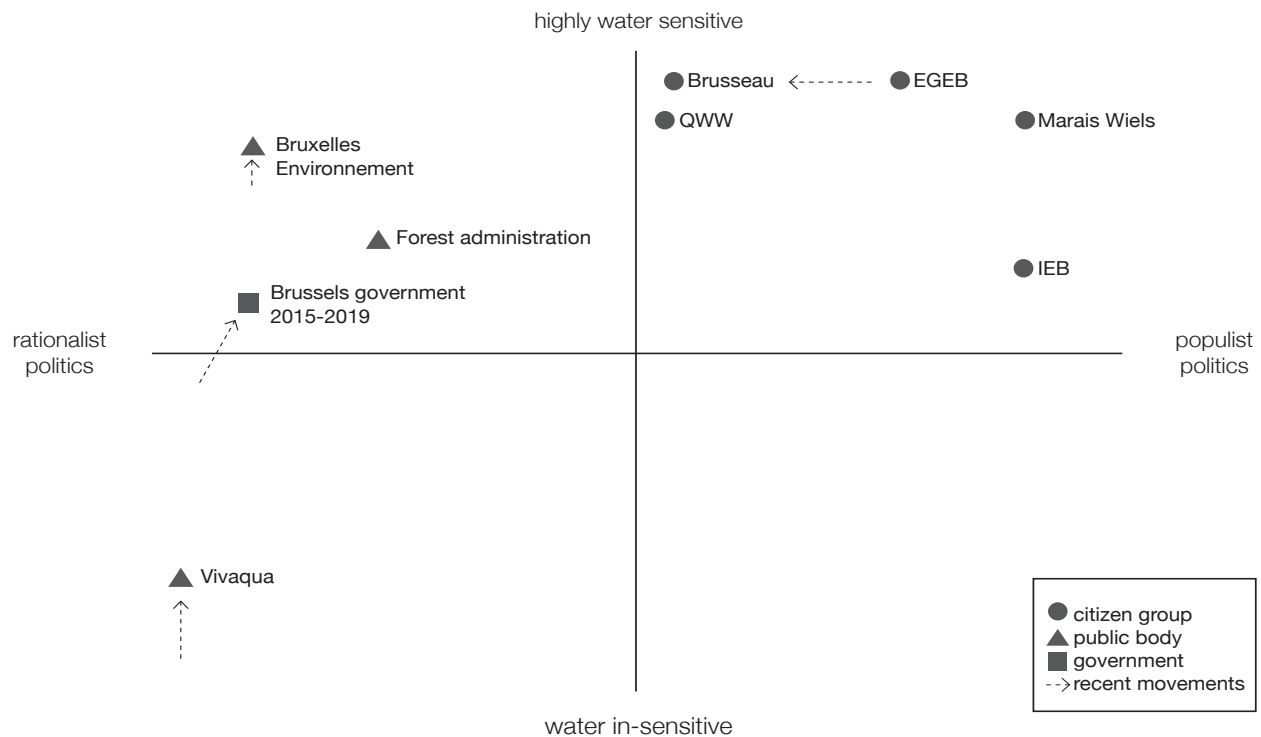


Figure 19. Actor matrix.

position lately. Whilst changes through new elect governments happen frequently, re-orientation in public administration or corporation is a much slower, yet, supposedly, more sustainable process. The actual tendency, as confirmed by my interviews, seems to be a mutual rapprochement of the different actors towards a position that can be seen as close to the idea of civic politics. This gradual turn of the debate might explain the current momentum for water activists under the umbrella of Brusseau, fostered by the regional innovation fund Innoviris.

Brusseau can be identified as an example of civic politics as it combines a multi scalar strategy, engages with civic knowledge and attempts to bridge between citizens and established actors. Although civic politics combine, simply put, the best of rationalist and populist politics, they cannot easily be allocated in the centre of the axis. For example, the people of the QWW who are concerned by the ongoing densification of their quarter hold a similar, political location in the matrix as Brusseau. Yet, due to a lack of expertise, knowledge and important contacts they were not able to initiate civic politics prior to the appearance of Brusseau.

2.4. Privileged territories

The discussion on the water question by Brusseau, as it appeared in my research, is of very localised nature. Yet although rainwater problems are most pronounced in certain catchment zones, their repercussions are found on a wider scale; first, on the regional level on which Brussels sewer network is located, then, on the interregional and international level of the Schelde catchment. Brusseau's concept BVS takes up this notion of a hydrogeological territoriality and adds to it a social overlay by pronouncing the importance of neighbourhood and social proximity.

As result from my research, we can state that not all social groups or territories are equally represented in this debate. The pre-assumption that the ones who are most suffering from floods had a higher interest in solutions to their problem and would therefor participate more actively in the debate, was not proven. Neither could I find evidence for the EGEB's generalising assumption that people wanted

to get back into contact with water and take over a role in its management (see for instance Nalpas/Lebecq 2012). On the contrary, from my interviews and observations, I would judge that for a majority of people a commissioned public management is still a vital option.

For the landscape of Brussels' communes, my interviewees highlighted next to Forest the engagement of Woluwe-St.-Lambert, Woluwe-St.-Pierre and Uccle, which are among the wealthiest of the region (see interviews 2, 4, 5). The presence of urban waters and flooding problems might play a role but the discussion on water also bears a distinct markaton by class or, at least, social milieu, as my research has shown: "A public which is already open and commits to this question because they do not have other, more urgent problems. (Anne Bocquet, interview 9, own translation). The water question thus mobilises, first of all, people of a Belgian middle-class background with a high awareness for ecological problems. The 'forerunner role' of the mentioned communes may further be enabled by the availability of unbuilt space, as they all include quarters of lower density on the fringe of Brussels. Density, but also building typology and ownership structures, as the "Ilôt d'Eau" project exemplifies, delimit possibilities of WSUD implementation and allow for different degrees of intervention (Krauze/Wagner 2019).

For the Brussels region we can thus observe the emergence of privileged territories for water-sensitive transition. These areas do not necessarily always coincide with highest flood risk; rather it is increased institutional and civic awareness that push the matter on the local agenda, whilst more budgetary and material pre-conditions of the commune allow for the realisation of dedicated designs. The wealthier communes among them are thus able to provide outstanding examples of rainwater sensitive redesigns as with the renovation of the boulevard de la Woluwe (interview 4), whilst the researched commune of Forest due to budgetary limits takes a rather passive role which merely exceeds the establishment of a rule catalogue (RCU). This notion of "privilege" in my opinion is more adequate to describe the outstanding territories for developing water-sensitivity than 'forerunner communes', as it acknowledges structural differences and suggests a social production of space.

Privileged territories are also the sites on which civic experimentation finds fruitful soil. When both, an enabling, potent, local state and an active and aware citizenship come together the water-sensitive city is most likely to be accomplished. However, in the rest of the area, more hybrid forms involving traits of both, classical and water-sensitive management are likely to prevail. It would be interesting to see the notion of privilege deployed in a comparative study on the pre-conditions for water-sensitive transition of a selected set of flood-prone geographical entities.

F. APPENDIX

1. Glossary

For reasons of legibility and brevity, bilingual names and their abbreviations have been reduced to their French version. In this glossary their full name and abbreviations as used in the text are being mentioned.

BE	Bruxelles Environnement / Leefmilieu Brussel
BO	Bassin d'Orage / Overstromingsbekken (stormwater basin)
BVS	Bassin Versant Solidaire
CdQ	Contrat du Quartier
CH	Communauté Hydrologique
CRU	Contrat de Rénovation Urbain
EGEB	Etats Généraux de l'Eau à Bruxelles / Staten Generaal van het Water in Brussel
IEB	Inter-Environnement Bruxelles
JBE	Journées Bruxelloises de l'Eau
NIMBY	not in my backyard
PGE	Plan Gestion de l'Eau
PPP	public private partnership
QWW	Quartier Wiels Wijk
RCU	Réglementation Communale d'Urbanisme
RRU	Réglementation Régionale d'Urbanisme
SBGE	Société Bruxelloise de Gestion d'Eau / Brusselse Maatschappij voor Waterbeheer
SI	Social Innovation
STS	Science and technology studies
UCL	Université Catholique de Louvain
ULB	Université Libre de Bruxelles
UPE	Urban political ecology
VUB	Vrije Universiteit Brussel
WWF	World Wide Fund For Nature

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Figure 1: Bishan-Ang Mo Kio Park, Singapore

By Wirbel1980. - Own work, CC BY-SA 3.0, wikipedia commons.

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Figure 3: Flooding risk. By Bruxelles Environnement (no year).

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Figure 19: Own work (2019).

4. Overview fieldwork

The following overview lists my interviews and the occasions on which I participated in events and gatherings related to my fieldwork. Detailed descriptions, recordings and transcripts can be found on a digital appendix to this thesis..

4.1. Interviews

	name	affiliation	date	length	character of the interview / talk	Topic and position of the interviewee
Interview with Dominique Nalpas	Interview 1	co-initiator EGEB/ coordinator at Brusseau	04.06.18	02:03:50	Meeting at his home /office. Presenting his work + introducing it to an interested newbie/student/foreigner to the topic. An explorative interview for me. Informal but professional.	history of EGEB , very positioned, hardly any distance to own positions and evolution. Strong belief in actual transition, very strong momentum nowâ€
Interview with Anne-Claire Dewez	Interview 2	responsible for rain water at Bruxelles Environnement	10.12.19	01:17:00	Expert interview. Meeting in her office. Presenting her work and BE to a foreigner/ student.	mixed between representative stand for BE and own strong personal opinions and beliefs.
Interview with Ananda Kohlbrenner	Interview 3	ULB (researcher in history)/ Brusseau	08.01.19	01:03:25	Setting of a cafe. Expert interview. Sharing information between researchers.	With careful distance to the Brusseau project, but committed to its cause.
Interview with Eric Mannes	Interview 4	member of cabinet Fremault, BXL minister of environment/ former head of public works in Forest	08.02.19	59:40 and 38:40	Expert interviews. Meeting in his office (8.2.) and private house (8.3.) presenting his work + introducing it to an interested newbie/student to the topic. rel. Informal.	Very enthusiastic about water and his (own) work. Belief in positive future developments, for which he has helped to define directions. Lacks critical reflection.

Interview with Magali da Cruz	Interview 5	water responsible in Forest	19.02.19	ca. 45 min (no recording)	Expert interview. Meeting in her office. Presenting the work and position of the commune to a foreigner/student.	Does not hesitate to take a stand herself, seems to take a defensive position against the activists's stands.
Interview with Damien, also Fabienne and a jardin essentiel - co-activist	Interview 6	engaged in the jardin essentiel gardening project. Damien is in the comite rue Bertholot.	17.03.19	25:18:00	Rather unstructured talk about their/his project to an outsider in the ephemere, dense setting of a street interview following a longer guided tour.	shows enthusiasm when speaking about the own projet and describing his motivations.
Interview with Genevieve Kinet	Interview 7	engaged in the Quartier Wiels Wijk and one of the leading activists in the case of Marais Wiels	20.03.19	01:07:25	Expert interview. Meeting in the room of the QWW, presenting her political practice mainly around the Marais Wiels and the QWW.	with a clear positioning, but shows openness to critical questions and humor about herself and understnading for her opponents
Interview with Fabienne Apt	Interview 8	engaged in the jardin essentiel gardening project.	21.03.19	01:17:53	On meeting. Presenting the project in a very free talking manner, has to be re-directed to the water issue a couple of times	a lot of normative judgement on peoples's behaviours towards the community project. Acts as an advocate of the project, others "partners" are generally portrayed as difficult. A lot of complaint.
Interview with Anne Bocquet	Interview 9	project leader CdQ Wiels-sur-Senne	26.03.19	00:40:27	More formal meeting. I focussed the interview on the social inequality, unequal participation issues. Reporting on her work to an outsider/student in a professional manner.	Critical distance to the CdQ instrument. Different evaluations about different other actors.

Interview with Magali da Cruz	Interview 5	water responsible in Forest	19.02.19	ca. 45 min (no recording)	Expert interview. Meeting in her office. Presenting the work and position of the commune to a foreigner/student.	Does not hesitate to take a stand herself, seems to take a defensive position against the activists's stands.
Interview with Damien, also Fabienne and a j.e. - co-activist	Interview 6	engaged in the jardin essentiel gardening project. Damien is in the comite rue Bertholot.	17.03.19	25:18:00	Rather unstructured talk about their/his project to an outsider in the ephemere, dense setting of a street interview following a longer guided tour.	shows enthusiasm when speaking about the own projet and describing his motivations.
Interview with Genevieve Kinet	Interview 7	engaged in the Quartier Wiels Wijk and one of the leading activists in the case of Marais Wiels	20.03.19	01:07:25	Expert interview. Meeting in the room of the QWW, presenting her political practice mainly around the Marais Wiels and the QWW.	with a clear positioning, but shows openness to critical questions and humor about herself and understanding for her opponents
Interview with Fabienne Apt	Interview 8	engaged in the jardin essentiel gardening project.	21.03.19	01:17:53	On meeting. Presenting the project in a very free talking manner, has to be re-directed to the water issue a couple of times	a lot of normative judgement on peoples's behaviours towards the community project. Acts as an advocate of the project, others "partners and outsiders" are generally portrayed as difficult. A lot of complaint.
Interview with Anne Bocquet	Interview 9	project leader CdQ Wiels-sur-Senne	26.03.19	00:40:27	More formal meeting. I focussed the interview on the social inequality, unequal participation issues. Reporting on her work to an outsider/student in a professional manner.	Critical distance to the CdQ instrument. Different evaluations about different other actors.

Descriptions by Andrea Aragonne during the map-it walk	Interview 10	ULB (teacher in architecture)/Brusseau	30.03.19	00:10:27	Presentation of the own research in-situ to an interested public. I focussed the interview on the inequality issues in participation and Brusseau.	research in St.Antoine neighbourhood, fact-based reporting and informing. Shows social sensitivity to the local problems.
Interview with Gautier Briade	Interview 11	member of the IEB and resident of the quartier Wiels.	12.04.19	01:00:40	Turned out to be a rather informal, little structured talk, between similar aged young men with similar interests, as my prepared questions did not work.	speaking from an inhabitant's, but more from an observer's perspective (IEB), taking position, which seems strongly embedded in ideology.
Interview with Leila Bensalem	Interview 12	engaged in the QWW. Particularly dedicated to water and flooding aspects	12.04.19	01:02:54	Meeting in the room of the QWW, presenting her practice and views on the water issues.	Takes position in water issues which appear to be mainly related to general densification processes in the quarter.
Interview with Andrea Aragonne + his descriptions during the map it walk in	Interview 13	ULB (teacher in architecture). Brusseau-member	26.04.19	00:55:50	Expert interview in a relaxed atmosphere. Sharing information between researchers/brusseau-involved people. AA uses the talk to introduce a co-worker to this projects. Meeting in this office	The design-research project conducted by latitude and ULB-Lachambre in St.Antoine trinagle, self-critical reflective about a research in progress.

4.2. Participant observation

	name	date	length	character the event	participants	main content
Walk and participative geography at Altitude 100	Map-it walk 1	10.06.18	4 hours	public, professionally organised walk by Brusseau,	an interested public, quite some locals, generally a bit older	visits of key locations for eventual projects and/or emblematic for good/failed water management
The city as a sponge – urbanistic panel discussion at World Trade Center 2	public singular event 1	08.10.19	3 hours	Public, discussion between experts and practitioners in context of Rotterdam Architecture Biennale	an interested public of mostly young people (presumably students)	two inputs by Thierry Kandjee (landscape architect at taktik Brussels/Paris) and Florian! (De Urbanisten, Rotterdam)
Internal meeting Brusseau at QWW	meeting 1	14.01.19	3 hours	private, regular gathering of all Brusseau formally involved	the Brusseau steering group (formed from EGEB members) + adjunct VUB and ULB researchers	Private - no authorisation to report on this event
Meeting between Brusseau and the new college of Forest at the town hall	meeting 2	25.01.19	1 hour	private; presentation of Brusseau followed by discussion; aimed to win the new elected city councils at partners	a selected group of Brusseau members, newly elected mayor and alderman for the green city, communal water expert	Private - no authorisation to report on this event

Crade Party at the Marais Wiels	crade party 1	03.03.19	1 hour	public, widely spontaneous organisation, but prepared in advance	people from the neighbourhood, ca. 40-60 y old. Later, the arrival of some children and a dog	Number of different collective activities : Bird watching, bird house building, cleaning.
Collective gardening at Jardin Essentiel	collective gardening 1	10.03.19	2 hours	public, organised gardening at the begin of the garden season, led by the core members	mixed group of core and some new members. The core members are 40-60 y old, are predominantly female. Otherwise mixed gender. New-comers are younger.	Casual initiation to the gardening activities
JBE public walk at Berchem St.Agathe	public singular event 2	17.03.19	2 hours	public, exceptional presentation of water sensitive projects, including all contributors in the frame of the JBE	Big group. Very mixed group in terms of age, residence etc., many visitors from other quarters of Brussels. Presenters from BE, Vivaqua, civic society	A project in the sense of the NRU "collaboration of the EGEB, the commune and neighbours.

JBE public walk at Forest	public singular event 3	17.03.19	4 hours	public, exceptional presentation of water sensitive projects in the frame of the JBE, political march by Brusseau	Mixity in gender and age, language, many visitors from out of Forest. Very big group of participants, including core actors in Forest, e.g. alderman, mayor, Magali da Cruz, Anne Bocquet, representatives of BE, many of brusseau and the CH	Showcasing BE's restoration of the Senne banks. Discussion between alderman and Brusseau at the Marais Wiels. Camouflaging the visit of the terrain as a protest movement.
Meeting of the Communeauté hydrologique Forest Nord at the QWW	Meeting 3	13.03.19	3 hours	Private, regular meeting for internal organisation	The core group with members of the studied citizen initiatives and Brusseau actors	Private no authorisation to report on this event
Conference on Brussels groundwaters at BE	public singular event 4	22.03.19	1 day	Public, Scientific conference + demonstration of the work of BE as part of the JBE, networking occasion	Water professionals and scientists from Brussels (mainly) and wider Belgium.	
Collective gardening at Jardin Essentiel	collective gardening 2	24.03.19	2 hours	public, organised gardening, led by the core members	group of similar people as at the last event, slightly more due to better weather incl. Man from av. Alexandre Bertrand	

Walk and participative geography at St.-Antoine quarter	Map-it walk 2	30.03.19	3,5 hours	Public. Practices of sensibilisation and data inquiry	Unstable and small group with more professionals than regular participants, only one local from St.-Antoine	
Crade Party at the Marais Wiels	crade party 2	07.04.19	1 hour	Public, collective cleaning, appropriation of the Marais Wiels.	smaller group than usually as QWW brunch at the same time; from core group (1f / 1m) + 2-3 pp more	
Collective gardening at Jardin Essentiel	collective gardening 3	14.04.19	2 hours	public, organised gardening, led by the core members	regular participants of the core group and a few more presumably average size (15 ppl)	
Party of + at the Jardin Essentiel	public singular event 5	19.05.19	2 hours	Public party, celebrating the own efforts at the early peak of the garden year.	big group, many people from the quarter who otherwise do not participate. More ethnically diverse and younger. A lot of families with children.	Impressive programming for a whole afternoon. Brusseau's present with a stand.
Meeting of the Communeute hydrologique Forest Nord at the QWW	Meeting 4	12.06.19	4 hours	Private, regular meeting for internal organisation	The core group with members of the studied citizen initiatives and Brusseau actors	My pre-presentation of findings of the master thesis

Neighbourhood meeting around Verte Bertholot at the higher end of Bertholot street	public singular event 6	29.06.19	2 hours	neighbourhood festivity on the side walk with food, flowers and beverages. Rather private, but not strictly.	Neighbourhood event with the usual participants and neighbours along the street (particularly who adopted plant boxes)	

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