From dichotomies to dialogues -
connecting discourses for a sustainable urbanism

The 14th conference of the International Forum on Urbanism (IFoU), 25-27 November 2021

Type of the Paper: Peer-reviewed Conference Paper / Full Paper

Track title: The city is an object and a city is in transition

GreenWithGrey: Actions and Dialogues for a Transitioning Productive Landscape

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Abstract: Flanders is one of the best-known productive regions of Europe. Concentrating the majority of the Belgian industry and workforce, the Region features a continuous and dense infrastructure throughout its landscape: slabs of asphalt and concrete, tiles, sheds, wide roads, unused vegetated remnants of space, and industrial platforms. These elements cover approximately 4.5% of the urbanisation of the region and 15% of its overall *land take*, becoming a major question when it comes to the soil impermeabilization and water management question. This work looks at industrial platforms as umbrellas spread right across the Flemish territory. Umbrellas that every year repel approximately millions of m3 of rainwater. What if this water were retained instead? GreenWithGrey is one of the strategic projects of the "*Proeftuinen Ontharding*," a programme aiming at tackling the very diffuse – and land consuming – urbanisation of Flanders through strategic desealing actions. Within this framework, GreenWithGrey explores possibilities for desealing Flemish industrial platforms to tackle questions such as providing more room for water and strengthening the regional water cycle. GreenWithGrey achieves the ongoing transition through a mix of doing and undoing, of actions and policies, of top down and bottom-up strategies.

Keywords: desealing; transition; water management; experiment; policy implementation strategies

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Journal: The Evolving Scholar

DOI:10.24404/61561e2916da130008eb8b54

Submitted: 30 September 2021
Accepted: 01 June 2022
Published: 28 November 2022

Citation: Aragone, A., Ranzato, M. & Cavalieri, C. (2021). GreenWithGrey: Actions and Dialogues for a Transitioning Productive Landscape. The Evolving Scholar | IFoU 14th Edition.

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1. Introduction

Flanders is historically one of the best-known productive regions in Europe. Today, it counts about 1,356 industrial platforms.[1] Large impermeable surfaces made of slabs of asphalt, concrete paving, tiles, sheds, wide roads, unused vegetated remnants of space, and industrial platforms cover approximately 60,000 ha – that corresponds to a square of 25 x 25 km – that is to say the 4.5% of the regional footprint and the 15% of its overall land take. If observed within a regional gaze, industrial platforms reveal two different logics of distribution: they not only concentrate mostly along main mobility infrastructures, such as waterways, highways, and railways, but they are also mainly placed near primary or secondary watercourses. Here we could imagine them as a potential intersection between mobility and ecological networks. Historically, these industrial sites depended on the watercourses for transport, water provision, and discharge. Today, having lost this historical dependency, they are rather constituted by umbrellas spread right across the Flemish territory. Umbrellas that every year intercept approximately 450 million m3 of rainwater that is more than 200 million m3 of runoff a year.[2] This is equal to an amount of water that could fit in 1,356 water towers, 250 m in height and with a footprint of 25 x 25 m each.

Instead, most of the water runs off directly into the sewer system or into surface water. What is remarkable is that of this, 40% is roof runoff, which means 72 million m³ of good quality water.[3] This is plenty of water that, if it does not generate floods, vanishes after each rainfall. What if this water were to be used instead?

The project exploring this question – GreenWithGrey – is one of the strategic projects of the "*Proeftuinen Ontharding*" (Living Lab Desealing), coordinated by the non-profit organisation LATITUDE Platform for Urban Research and Design, together with two Belgian universities UCLouvain and KULeuven.[4] GreenWithGrey explores possibilities for desealing the industrial platforms of Flanders in order to give more room for water and so strengthen the regional water cycle. In 2011, the European Union defined the EU Roadmap to Resource Efficient Europe which "outlines how we can transform Europe's economy into a sustainable one by 2050." According to the roadmap, NO NET LAND TAKE is one of the main goals to be achieved by 2050. In the same spirit, in 2018, the Department of Environment and Urban Development (*Departement Omgeving*, Flemish Government) started "*Proeftuinen Ontharding*," aiming at tackling the very diffuse – and land consuming – urbanisation of the region through desealing actions. "Desealing for more space for water" is among the three main axes of the initiative, together with "desealing for more qualitative school environments," and "desealing for more mobility with fewer roads."

The research project starts from the general hypothesis that optimising water management in industrial platforms can, via desealing actions, be strategic to counteract regional water dysfunction. As part of a systemic reflection, this hypothesis not only stimulates the physical transformation of the industrial platforms, but it also investigates new forms of coalitions between local and regional stakeholders, while broadening to ecological and societal scopes. Furthermore, GreenWithGrey acknowledges that rainwater has to be considered an opportunity and that industrial platforms could be seen as water towers. This article focuses on the relationship between the industrial platforms of Flanders and the water management of the territory they are part of.

2. Theories and Methods

Water management strategies such as desealing offer potentials for other actions that support the sustainable redevelopment of the industrial platforms. These strategies include the strategic reuse of runoff water (a potential resource) generated by industrial platforms, and the development of ecological (green-blue) networks (whose continuity and connectivity has often been compromised by the development of these platforms). The above-mentioned strategies are aligned with the Flemish Regional Strategic Vision (Departement Omgeving, 2018) that sets the objective of a sustainable transition for Flanders. Within this framework, GreenWithGrey discloses the complexity of a multi-level and polycentric stakeholder structure of water management (Knieper & Pahl-Wostl, 2016). Existing forms of management, coalitions, and policy frameworks are not currently adapted to today's challenges and should be reconsidered in order to bring about a change in the management of water and to reach the regional objectives.

According to the World Resource Institute, by 2040 water stress in Belgium will be extremely high when compared to global geographies. Moreover, in Flanders one in every six jobs is related to the subject of water (Vlaanderen Circulair, 2017). By contextualising these figures, especially in relation to the most recent extreme events – be they floods and droughts – that have occurred in the region, the unfolding of water management complexity becomes not only a fundamental but also an urgent subject. Moreover, the specific urbanisation of the territory as a diffuse and dense infrastructural network causes frequent overflows of wastewater into surface water. As it is commonly known, this specific runoff flooding is caused by the lack of sewer capacity, so that rainwater cannot be drained during extreme events. As a result, because of the untreated wastewater, it occurs that the quality of surface water falls below the accepted European standard, while rainwater continues to be considered a threat (in terms of flooding), rather than representing a resource (for recycling and combating drought), or offering an independent and unitary water system (Cavalieri & Vanin, 2019).

GreenWithGrey provides the foundations for turning to the *Thousand Flanders Water Towers* scheme. All tools, methods, and actions which are part of the project aim to demonstrate that industrial platforms can detain, infiltrate, and reuse rainwater in order to counter the current cultural dimension of its wastage. The shifting consideration of the existing industrial platforms as a source flow instead of the cause of overflow requires the

overall motion of legislators, institutions, and industry players in the years to come. To understand the complexity of Flanders industrial platforms, GreenWithGrey first looks at how they are organised and what are the basic determinants to be considered when transforming them from an overflow problem into a resource. But the making of the *Thousand Flanders Water* scheme is not a unitary project: it implies not only the reconceptualisation of surfaces, infrastructures, and flows but also an understanding of the hundreds of thousands of actors, activities, and situations. Hence, industrial platforms are revealed as the strategic potential space many initiatives can be experimented, from the convergence of the will and action of many institutional and private actors, to the testing of specific implementation for specific conditions of water dysfunction, or ultimately the disclosure of new opportunities in combining local and regional regulations.

Throughout the spatial analysis, in-depth interviews, stakeholders' workshops, policy analysis, and design exploration, GreenWithGrey displays how to operationally and spatially transform industrial platforms into *detainment, infiltration, or retainment devices*. These new devices transform industrial platforms from umbrellas to water towers, that intelligently reuse roof runoff water via a set of physical transformations, tested both on ideal-types and on two case studies.[5] Further on, GreenWithGrey goes on to propose a trajectory of policy implementation addressed to the regional decision-makers. This is identified at supporting the regional objective to accelerate the process that will lead to resorting to the Flanders water towers. GreenWithGrey's outputs serve as the basic inspiration tools for the various actors to be able to start developing an integrated water management of the industrial platforms both on their own and also in concert. In addition to these desktop research methods, GreenWithGrey recognises that experiments and collaborations between actors are an essential part of the process of investigation (Köhler et al., 2019). In this respect, GreenWithGrey opened up with the Asiat DePave Summer School (August–September 2019): about 10 days in the field to sample materials of the industrial platform of Cargovil in Vilvoorde, the municipality north of the Brussels-Capital Region. Students, local stakeholders, academics, designers, and local politicians were involved to discuss the first ideas about desealing industrial platforms. Afterwards, GreenWithGrey organised a series of (online) bilateral meetings to allow experts, representatives of different regional and local institutions, managers, and users of industrial platforms to explain their perspective on the subject and react on the research hypothesis and findings (June-November 2020). Finally, a roundtable with key Flemish institutions provided the momentum to take stock of research outcomes and the project communication (December 2020).

3. Results

In 2018, when the programme *Proeftuinen Ontharding* (Living Lab Desealing) was launched, the Flemish Government decided to explore the potential of desealing on two scales of investigation, which also refer to different actions of exploration: desealing tests on small-scale interventions (e.g., schools, roads, or parcels) and the desealing strategic regional projects. GreenWithGrey is part of the second line of action. The call for setting up pioneering actions within Flanders is also a call to install roots for a future necessary cultural shift (Architecture Workroom Brussels and Departement Omgeving, 2021), featuring the urge to physically and strategically anchor the projects to the territory in the short term by working with design tests and policy adaptations at the same time. To keep this interaction between the two levels, GreenWithGrey based its processes and results by setting up continued exchanges with local and regional actors (of change), be they industrialists, public and private developers, policymakers, and infrastructure managers. But how does one allow the discussion to continue once the project has finished, to attain the activation of *A Thousand Flanders Water Towers*? To do so, GreenWithGrey has compiled the research into five different booklets to inform a larger public of the possibilities of desealing industrial platforms, and primarily to nourish the transition debate and stimulate the interactions with the actors of change.

1. Seize the opportunity and understand where you are: The GreenWithGrey diagnosis

To find its way around the world of Flanders industrial platforms, GreenWithGrey first had to understand how they are organised and what the basic determinants to be considered were when transforming them from an overflow problem into a resource. The discovery is by no means obvious. There are organisational patterns and it is possible to build a taxonomy, but when looking at water logics, each platform is different in itself,

with not a single block having a unified water functioning/system. Any industrial platform is a kaleidoscope. If the permeability conditions of infiltration or detention prone soil is often a unitary issue for an industrial platform, things change when we look at the second determinant, i.e. the existing drainage system. It could be a combined wastewater, a separated system with stormwater pipes or a separated stormwater with open air ditches. GreenWithGrey shows how this condition often changes within the same industrial platform.

2. Figure out with whom: GreenWithGrey coalitions

Building on experience in the field, exchange with the various cross-fertilised actors, GreenWithGrey elaborated a compilation of potential coalitions. They are plausible situations that can be encountered in the variegated landscape of the Flanders industrial platforms. Depending on who one decides to work with, GreenWithGrey designs initiatives such as *neighbours*, when it is among different industrial entities, *districts*, among industrial and one or more public institutions, and *parks*, when the initiative is led by one or more public institutions.

3. Find what to do: The GreenWithGrey design toolkit

By taking into account the abovementioned determinants – infiltration-prone/detention-prone soil conditions and the sort of existing drainage – GreenWithGrey displays how to make the industrial platforms to detain, infiltrate and, in case, reuse roof runoff water. The toolkit is a set of ideal-types or possible, desirable water flow configurations, one for each of the most recurrent industrial platforms clusters, chosen among many others because they are more widely distributed, easier to implement and have greater impact on the landscape. The ideal-types altogether make the water-flow industrial clusters working parts that turn the platform into a water tower serving the territory of Flanders.

4. Get support: GreenWithGrey policy instruments

GreenWithGrey identifies a series of policy instruments or mechanisms that could be embedded within the existing set of regional policies in order to push the GreenWithGrey change. The main objective of the GreenWithGrey policy instruments is to make the upgrading process of the existing stock of industrial platforms possible. An *open water database* makes the water balance available, accounting for both the consumption of water, but also the production of water resulting from the interception of rainwater.

The fees paid by industrial entities according to their water consumption and production patterns go to feed a *common fund* for the GreenWithGrey change. Supported by the common fund, *ecologically sound projects* and *systemic water projects* increase the ecological performance and societal features of the industrial platforms.

5. Go and test: GreenWithGrey design projects

Two design projects show the feasibility of turning on *A Thousand Flanders Water Towers*. Inspired by the GreenWithGrey coalitions, fostered by the GreenWithGrey design toolkit, and supported by the GreenWithGrey policy instruments, two industrial platforms of Flanders are loaded with devices for water flow infiltration, retention, detention, and reuse. The design speculations are peppered with hydro-figures, a.k.a. what the GreenWithGrey shift would mean in terms water reuse and recycling, flood risk reduction, landscape restoration, and opportunities for recreation. They are there to trigger the imagination and arouse popular interest in the possibility.

The five GreenWithGrey booklets represent the results of the research project. They put together the complexity that has emerged throughout the entire exploration. They are defined according to the principle that they have to promote the discussion about the opportunity to activate desealing operations in existing industrial platforms in support of a better water management of Flanders. By the GreenWithGrey booklets, the aim is clearly to travel among many desks and to enrich the dialogue between technicians, politicians, and industrials in order to turn on *A Thousand Flanders Water Towers* one after the other.

4. Discussion

Since the beginning of the ‘90s, the Flemish government started to implement the Flemish environmental permit decree (*Vlaamse milieuvergunningsdecreet*, 1985) with environmental standards regulations for reducing water pollution (VLAREM – *Vlaams Reglement betreffende de Milieuvergunning*). VLAREM II made it mandatory to build

separate stormwater and wastewater drainage systems when a public sewage system is built or renewed. It is also mandatory for private owners to split up the sewage on their terrain, although only during renovation or new constructions. At the same time, the Flemish spatial planning framework (rainwater ordinance – *Hemelwaterverordening*) defines high standards for the water management at the parcel level – infiltration, reuse and buffering rainwater – again only via renovation and new constructions. When considering droughts, policy is a step behind. It was only after the extreme water scarcity occurred during the summer 2018, that the Flemish Government stepped up efforts in the fight against drought and water scarcity by drafting the *Actieplan Droogte* (2019–2021) and the Blue Deal part of the *Vlaams Klimaat Adaptatieplan* 2021–2030. This process of implementation illustrates that the Flemish government is not only seeking a circular water cycle, but that it also already tackles water dysfunction via policy revision. Although policy implementations are thus currently under development, the struggle for allowing the intended ecological transition to take off is already evident. The gap between territorial process and policy is still too big, making it impossible to anchor the former to the latter. In this line of thinking, it is important to notice that one of the main current hurdles is the fact that legislations are not retroactive and applicable to the existing built-up tissue. In other words, the legislation wishes to implement the new, but does not embrace the idea of restoration of existing built stock; in fact every year, only less than 1% of buildings request a renovation permit (Vlaamse Regering, 2020). Considering that to enable transition a cultural shift is needed (Grin, 2010), Flemish governmental agencies are still seeking for innovative solution able to combine spatial transformation, environmental thinking, and policymaking.

Within this context, we could enlarge the purpose of "*Proeftuinen Ontharding*." If desealing is the main objective of the program, it could be said that another primary objective for the Flemish Department of Environment and Urban Development is to reduce the noticeable gap between policies and socio-ecological processes occurring in Flanders. The quest for establishing coalitions of actors through design processes is a key part of the living labs. Design becomes a means for negotiation between actors that operate on different scales (Manzini, 2015) and take a central role for enabling innovation systems (Lawhon & Murphy, 2011). In particular, the Flemish territorial agencies understood the importance of testing the design to stimulate collaboration and exploration. Design experiments, pilot projects, and living labs – that are all onsite actions – are taken as opportunities for learning and for exchanging between local knowledge and regional strategies (Dobre et al., 2018). The will to reduce the dichotomy between regional planning and local practices is addressed through the means of design. This is also to say: design, as a means to settle coalitions, has a relevant role in the process to achieve the sustainable transition of Flanders. Learning opportunities multiply. Possibilities of onsite testing of the hypothesis, on which territorial policy is based, are first discussed and oriented. By funding projects such as GreenWithGrey, the governmental agencies are exploring the objects of investigations – i.e. industrial platforms and rainwater management – in order to better orientate the acceleration in the coming years. Concurrently, and not less relevant, tables are being set up to discuss a shared and common vision between local and regional operators.

From its beginning, GreenWithGrey has been a process of collaboration between the research group, the governmental agency, and local and regional actors. Focusing on industrial platforms and their water management revealed the huge complexity of the actors involved. Industrialists, industrial platform managers, public and private developers, sewer and water distribution managers, surface water and waterways agencies and institutional representatives (municipal, provincial, regional) represent a part of the stakeholders that deal with GreenWithGrey. The complexity was disclosed through design – thus possible transformations of the rainwater management of industrial platform – which serves as the tool for debate and learning opportunity. The three main collaborative actions – the Summer School, bilateral interviews, and the roundtable – have been important favourable circumstances during which multi-scalar actors could freely negotiate among each other to transform the regional water management.

Following this line of thinking GreenWithGrey could be seen as one piece of experimental transition strategies directed by the Flemish government. As scholars investigated in-depth, experiments are today a specific approach to understanding how to govern transition (Matschoss, & Repo, 2018) and they pointed out how there has been an increase, especially in funding and testing them, in the recent years in many urban territories (Broto

et al., 2013). As an experiment, GreenWithGrey attempts to explore and trigger regional transition by producing design explorations negotiated with strategic multi-scalar stakeholders, this in order to deepen the role of the designers as mediators for change (Köhler et al., 2019).

5. Conclusions

GreenWithGrey, in this sense acting as a living lab, is an active experiment, and is merely one part of the difficult path towards the Flemish ecological transition. Through the whole research process, the continued re-conceptualization of water as an active design device for transforming industrial platforms has been continuously intertwined with a parallel discussion about existing and possible forms of better water management policies. More in particular, the tension between these two dimensions relies on the constant discussion carried on by the research team with the involved stakeholders. The aim of enabling *A Thousand Flanders Water Towers* is not only a mere speculation on design and actor coalitions, nor does it only aim at initiating local stakeholders in water desealing processes. It is also, and most importantly, the design of a process able to enhance a large-scale discussion on the need for a cultural shift in respect with soil and water.

In addition, one could consider GreenWithGrey as fertile ground for ecological transition in order to: (1) further deepen the role of design within a complex and multi-level process for drafting policies; (2) understand and redesign the different roles of the actors involved; and (3) foresee a further role for water within a framework of innovative climate strategies for a specific territorial pattern, such as that of Flemish diffusion.

Notes

[1] This work refers to industrial platforms as clusters of industrial companies – mainly placed on artificial topographies – with a surface of 5 ha or more. The geographic database produced by Agentschap Informatie Vlaanderen presents about 6,000 industrial platforms (bedrijventerreinen). 1,356 industrial platforms have a surface of 5 ha or more and are equal to 92% of the total industrial platform surface.

[2] These numbers are calculated taking into account a runoff coefficient of about 0.8 for sealed surfaces and 0.2 for soft surfaces.

[3] The runoff generated by the roof generally has a good quality and, although not drinkable, it is usable for many needs without having to be processed.

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[5] The two case studies are located within the same watershed of the Maelbeek. It is located in the northern proximity of the Brussels-Capital Region. The two case studies are two industrial platforms. One platform, namely Asse-Zellik Industriezone, is located in the upstream part of the watershed, immediately above one of the sources of the Maelbeek river, within the municipality of Asse. It lays on mainly high infiltration soil. The second case study is Cargovil, which is located in the downstream part of the watershed at the intersection of the Maelbeek river with the Senne river and facing the canal Antwerp-Brussels. The platform is within the municipality of Vilvoorde. It is located on low infiltration prone soil.

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