

Adaptive reuse of an operating urban infrastructure: a conversation with raumlabor about the Floating University Berlin

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Abstract

Purpose – The adaptive reuse of heritage has the potential to socially and culturally re-signify dilapidated or suspended structures in the urban landscape. However, the scope of adaptive reuse could be broadened to include the constellation of infrastructure such as water and sewerage system, waste disposal facilities, power and communication plants and networks that support urban life but whose access – and maintenance patterns – remain the preserve of specialized technicians.

Design/methodology/approach – A conversation with some of the architects from the raumlabor collective involved in the Floating University Berlin project, about the stormwater detention basin of the former Berlin Tempelhof airport, provides an insight into the mechanisms by which adaptive reuse can also concern the infrastructural world in operation.

Findings – In Tempelhof's change of function from an international airport to a large abandoned urban space and then to a park, the detention basin has never ceased to function. But the subsequent process of reuse has reshaped the patterns of maintenance of the reservoir, leaving room for first non-human and then unskilled human action.

Originality/value – From this still overlooked reading perspective, it becomes clear how precisely flexible reuse, consisting of a constantly renegotiated interweaving of violated protocols and backward steps, allows the scope of adaptive reuse to be extended to infrastructures in operation. From secret domains of nature's transformation, they become places of openness in which to experience and better understand the entanglement of contemporary socio-ecological relations that underlie the urban condition.

Keywords Adaptive reuse, Technical infrastructure, Openness, Transformative platform

Paper type Research Paper

The Berlin – based collective raumlabor was awarded the Golden Lion at the 17th Venice Architecture Biennale. The group responded to the Biennale's title question: “*How will we live together?*” by presenting two projects, grouped together under the title “Instances of Urban Practice” to indicate possible ways of bringing people *together through spatial means*. What the *Haus der Statistik (HdS)* and the Floating University Berlin (FUB) – raumlabor's two “instances” – have in common is their unconventional pedagogical mission: both examples are driven by the intention to support emerging communities and, in the words of the jury, “inspiring collaborative approach that argues for participation, regeneration and collective responsibility, . . . a model for imaginative civic revitalization” (*La Biennale di Venezia*, 2021).

In the following interview, we focus on the FUB to analyse the relationship between the technical infrastructural site at its base and the socio-ecological, socio-technical and cultural



aspects related to heritage. FUB is a temporary public space, initially launched in 2018 by the raumlabor collective. Forgotten on the fringe of Berlin's greater public park (about 400 hectares), the former Tempelhof Airport, the site is one of its technical structures still functioning as stormwater detention basin. The closure of the airport has led to a low maintenance regime for the detention basin, opening it up to alternative forms of spatial re-appropriation. After the closure of the airport (2008), Tempelhof became a special refugium for various plant and animal species, which soon transformed the airfield in a garden colony. Constantly reshaped by the water cycles, the stormwater basin (the area of the FUB) is now also a natural reserve. The FUB opens us up to another striking perspective, namely the adaptive reuse of an urban infrastructure, a technical space for the public. The FUB operates as a fully-fledged water infrastructure that originally supported the airport and whose operation overcomes the loss and then the change of function of this facility. The detention basin collected and continues to collect surface runoff generated by rainwater intercepted from the airfield and other impermeable surfaces of the airport (see [Plate 1](#)). This reservoir – technically a peak storage – fills quickly when it rains and empties slowly, thus allowing it not to burden the drainage system of the city of Berlin, at least during the period of the storm.

In the FUB, an urban structure essential to the functioning of the city, previously the preserve of engineers and maintenance technicians, is inhabited by the public, both human and non-human. Like a power station or a water purification plant, the Tempelhof peak storage facility is part of the technological networks that support urban life by providing water, gas, electricity and information. However, like other technological networks ([Russell *et al.*, 1997](#)), the Tempelhof detention basin mediates the transformation of nature in the urban landscape, in this case an estimated surplus of stormwater. For more than half a century, the detention basin, although vital to the functioning of



Plate 1.
View of the FUB and
the detention basin
from the entrance

Note(s): In the background it is possible to glimpse the inlet pipe that gathers the rainwater from the former Tempelhof airport just behind

the airport and that of the city immediately downstream, was concealed by the perimeter fence and vegetation and thus hidden, inaccessible, locked or, as [Kaika and Swyngedouw \(2000\)](#) would put it, opaque. An element of the city that, precisely for the sake of exactness of its functioning, had disappeared from the urban landscape, giving rise to an *urban subtraction*, an untraceable and still impenetrable area. Part of the infrastructural networks that “have been relegated to the engineers and the software designers” ([Frichot et al., 2022](#), p. 12), its existence was unknown even to local residents (see [Elarji and Michels, 2021](#)). The FUB detention basin was ‘just’ a piece of that forbidden territory that either runs and lives underground or, when above ground, is simply barred and on the fringe of the available geography.

Yet water detention basins, reservoirs, water towers, pumping stations, power stations, gas stations have not always been opaque. On the contrary, their visual status and material prominence in the urban landscape have undergone important historical changes ([Kaika and Swyngedouw, 2000](#)). Thinking only of modernity – that is, Western countries – they were initially glorious icons, prominently positioned to celebrate the promise of progress (*Ibid*). Despite their powerful presence, they remained visual and impenetrable objects. Later, already a few decades into the 20th century, they begin to disappear completely, concealing the relationship with nature and signifying its total commodification.

By opening up the retention basin to the public and allowing those interested, both human and non-human, to immerse themselves in its space and the rhythms with which it records the intensity and frequency of the rain, we hope that the FUB will be the signifier of a new age of urban infrastructure. An age in which the transformation of nature is literally experienced, rather than just seen, and in which the separation between nature and culture is overcome. The FUB realises the metamorphosis of an industrial tool into a convivial instrument connected to the social body ([Illich, 1973](#)). The coexistence of technical performance with human and non-human practices is achieved by hacking into the existing infrastructure, without the need for its replacement or total overhaul. As the interview reveals, however, this realised, albeit temporary, “parliament of things” ([Latour, 1999](#)) is not necessarily free of tensions, but an object and site of constant negotiation.

Perhaps not surprisingly, in trying to define the FUB, we came across contradictory concepts that help to profoundly express the heterotopic nature of the project, which is better understood through the negation of the institutional way of doing things ([Karjevsky, 2019](#)). The FUB functions as an *ex-titution*, an “area where a multitude of agents can spontaneously assemble”, as something not fully established, free of rules and long-term prospects ([Karjevsky, 2019](#), p. 169 quoting Michael Serres). Echoing Miodrag Mitrašinić’s thinking ([Mitrašinić, 2016](#)), we call the FUB a *transformative platform*, namely a place where change is co-produced. In Koolhaas’ words, the FUB is a *social condenser within an urban sea* ([Koolhaas and Office for Metropolitan Architecture, 2004](#)); both ways of layering memories of solidarity. The FUB is also an *inclusive enclave*, introverted but accessible and hospitable, a place that catalyses, welcomes and accommodates people, uses and practices ([Berger and Moritz, 2018](#)). From a heritage perspective, the FUB is a place that needs to be preserved but also transformed, presenting challenges at the intersection of architecture, urban development and conservation. All in all, it is because of this ability to deal with dual (contradictory) aspects that we rename FUB as a *place of openness*. By openness we first mean the ability to open to the public what is usually hidden, barricaded, inaccessible or accessible only to a few. We also mean that even unprecedented proximities and relationships are made possible. A place of openness is where the “infrastructural love” desired by [Frichot et al. \(2022](#), p. 18) can take place, where infrastructural systems “express a demeanor we might not have habitually associated with them”, where we – who are not security and technical personnel – can radically engage, get to know the logic and rhythms of infrastructural operation, visualize and perhaps even interfere with the matter and resources that infrastructure mediates. Finally, with openness we think of fluidity (see [Ingold and Simonetti, 2022](#)),

unstable and uncertain conditions, their constant renegotiation and the quality of the place to take on unexpected configurations, in terms of space, uses and internal organisation.

The following interview was conducted online on 7 December 2022, after the visit to the FUB on 3 April 2022. The visit was conducted with Florian Stinnermann, while the interview was conducted with Christof Mayer (CM) and Lorenz Kuschnig (LK).

We would like to delve into the technical aspects of the FUB. Much has been said about the FUB. What we think has not been said enough is that the FUB is a technical device, a veritable urban infrastructure, of which there are many, but it is an inhabited, temporarily inhabited one. What we are saying is that it is possible—and the FUB is proof of this—to inhabit a technical device that continues to function even when activities taking place in/within it. We know that your work is relevant for many reasons: the pedagogy, the proposed temporary architecture, the governance structure and thus the struggle to remain ex-titutional, which you also describe well in the book *Floating University Berlin* (Raumlaborberlin et al., 2019). But what we are particularly interested in is the fact that the FU is and remains fundamentally a technical space.

If we start from what the FUB is, we can ask ourselves: *Is it possible to inhabit* – I don't know – *a power station?* Or again, *in what way is it possible to inhabit a sewage plant?* In our opinion, the striking potency of the FUB is its own baseline. We believe that this is something that ought to be flagged up, perhaps shouted out, as an overwhelming opportunity to expand the livability of the urban space that is so densely packed with infrastructural heritage. Perhaps there are levels or technical features that you deal with in the FUB, and this is probably completely natural for you, but it is not necessarily so from the outside.

LK: Actually, it is not so natural for us either. When you think about this technical thing, that is the water detention basin as an infrastructure, you are referring to the existing layer of function. And then there is another layer that we have somehow introduced on top of that. We call this a *hybrid infrastructure*. This is an issue that we think about a lot in our association, especially this year. I am referring to the fact that this technical infrastructure and our work merge, work together. The FUB can also be seen as a pilot project in our city, it can be adapted or seen as an example for other places.

CM: After Tempelhof Airport ceased to function as an airport in 2008, the water infrastructure was still there and functioning, although it was no longer maintained. This is the interesting situation that led to what we might call a *third landscape*, because a lot of nature came back and took over. I think this has produced an interesting atmosphere and this power you can feel when you go there. On the other hand, it is still a struggle between technical aspects and the things that can be allowed within the resulting legal framework and the ecological aspects. At the moment, for example, we are not allowed to walk through the water with rubber boots anymore so as not to disturb the animals. At the same time, however, they [the infrastructure operators] can come with huge machines and remove all the plants to maintain the infrastructure, and there is a legal framework for that. And I am asking, how is this possible? Have you seen pictures of the evolution of this place since 2018?

Yes, we have seen the Google Earth images and indeed from there it is striking how, from 2012 and up until the 2018, the vegetation has expanded all over the water basin. We also noticed that, from 2019 on, the exit of the peak storage is clean again. What happened between 2008 and 2018?

LK: What is interesting to see in these pictures is that after airport closed, the place was somehow forgotten and no longer maintained by the cleaning machines that used to go down the slope of the basin. A bed of reeds began to grow in the basin, so that today the rainwater coming from the airfield into the basin is cleaned by the action of the reeds. Thus, this rebar has a crucial function in that it treats the water before it goes back to the city's drainage network. We entered the site in the middle of this evolution and forgetfulness. And what happens then is that we start to work with the water levels on-site, we block the water, we try to increase biodiversity in nature from the very beginning, actually experimenting with this

technical infrastructure. They [the operators] are trying to stop this because for them any biomaterial is somehow a problem. It is interesting to know that the company operating the site gives the contract for pruning management to another company (see [Plate 2](#)).

What you are saying is that, before its abandonment, the site was just a big water detention basin whereas now it is a water detention basin plus infrastructure that cleans the water. Because of this timeframe, because it was abandoned, vegetation started to grow and the result is that the infrastructure has increased its performance and now, in addition to buffering stormwater, it also purifies it.

CM: Yes. To acknowledge the interest in water purification issues, in the first year we had an artist as a guest who researched and tested different filter systems for water purification. The result, however, is that the existing ecosystem of plants – reeds – works as well or even better.

If I understand correctly, you are trying to reach an agreement with the operating company that it might be better to experiment with the water and keep it for a while to see how the visitors, human and non-human, react.

CM: We would like to keep the situation more or less as it is, but the property manager wants to see if it is possible to achieve natural infiltration, that is, to change from a water detention basin to an infiltration basin. They argue that they need to clean the basin to be able to see what might happen in the next two years. So, the situation is very fragile for us.

Did you ask to be involved in the experimentation required to establish whether the detention basin can be transformed into an infiltration pond? I assume that you have already thought about the possibility of doing these tests with people from the FUB.

LK: This has been discussed and is under discussion with Tempelhof Projekte, the private company owned by the state of Berlin, which is responsible [together with Grün Berlin



Note(s): The photo shows a phase of vegetation maintenance, in particular the pruning of trees

Plate 2.
View of the slope
forming the
detention basin

GmbH] for all the facilities at Tempelhof Airport, such as the buildings, and whose mission is to develop the area again. There have been ideas about the possibility of us becoming part of the future infrastructure. However, I think they have no real interest in working with us. There is the pressure to develop the site and certainly the land is important. Which means that they have to take care of us. Especially, the maintenance of the basin is somehow the biggest problem because they say that, due to our presence, they [the operators] cannot do their job. Another thing to mention is our position with the environmental department. The department says the frogs living in the basin are in danger. But in Germany, if the reeds are on technical infrastructure, they are not protected. But if the reeds are outside, they are protected. However, during the breeding season, the amphibians are protected as frogs. All this means the operators are allowed to go there with machines and remove the reeds. And that is a sort of big paradox that we are living in right now.

Going back to the technical features of the FUB, and what we said before is the baseline, in July 2019, the FUB was flooded. In the book *Floating University Berlin*, you describe it as *the big flood*. The water had risen above the level of the walkways and the pavilions on stilts and the FUB facilities were no longer accessible. Where does the stormwater come from and how does it leave the peak storage/retention basin? What is the water level? What about flooding? What is the level of water? How does it work with floods?

LK: Stormwater enters the site from the south and exits to the northwest. It is important to understand that the water enters through a 3 meter wide inflow tunnel that comes in a straight line from Tempelhof. Then there is a 70 centimeter wide outflow tunnel which, when the water rises and there is a lot of water coming in, ensures that not too much water comes out of the site at the same time. And that determines how long the water stays in the basin. The flood of 2018 is the kind of flood event that happens maybe twice a year, where we have up to 1 meter and 80 centimeters of water for about 12–24 h. And 1 meter and 80 centimeters is the maximum level we experienced. The water could reach higher levels, but this is the maximum we have seen so far.

Does it also depend on how high you put the exit sluice? From the FUB, where does the stormwater go?

LK: The sluice is always fully open. It was clear from the very beginning that we were not allowed to manipulate it and that we were not allowed to enter the evacuation area. There is something interesting about the flood as well. These kinds of extreme conditions, where we have a lot of water coming in that is later wasted, and other periods where it is completely bright and looks like a desert, make it possible to experience climate change.

We do not know exactly where the water goes from here, but most likely it goes to the sewerage system, as in central Berlin, where we have a combined system. Rainwater and sewage are collected in the same system in the old district.

What happens when you have 1.8 meters of water in the FUB? Does the operator inform you “Hey guys there is a big flood coming, please leave the site.” How does it work? And who is responsible for what goes on inside the FUB?

CM: When it rains very heavily, we assume that there might be flooding. I held a workshop there before when there was flooding, I think it was in 2018. In the morning, we got a call from people on the ground telling us that we needed to find another place for the workshop. A day later, the water was gone. And it’s like Lorenz says, the flood won’t stay for long.

We have a contract of use, and of course we are responsible. If there was a flood, we didn’t open the house. There were always staff members who were responsible for controlling the situation. In the first year there were a lot of workshops held by different universities, and when there was a flood, they had to take a break.

LK: It is interesting for us to adapt to these changing conditions. Especially now, after a few years, it is also interesting to see how we can work with this, how we can be a little bit

resilient or creative with this flooding and not strictly close the site. It is really nice to be there when the site is flooded.

Sure, it's a big event, it's climate change that might manifest itself, and why not be there? Looking at the basin from above, it seems clear that both the walkways and the pavilions on stilts are parallel to the flow of water. What is the idea of not interacting with the water so much?

LK: The idea was to not interfere with the more regular flow of water, but also to be on the dry part of the concrete. We wanted to have the possibility to work on the concrete to make sure that we could hold people and workshops of a large size.

We understood that every year you have to dismantle the structure. Is that correct?

CM: Officially, yes. We had that kind of agreement for the first year because it was originally planned for one year. So, we applied to have the structures for one year. Then it was such a success that we decided "oh, let's do it again!" And we sort of agreed that some of the structures could stay and some of the others should come down. The "forest" will always remain, which is the Bow-Wow building and the entrance and some areas in the workshop, but maybe the boardwalks and the structures will change. It would be too much of a hassle to take the Bow-Wow building down, move it somewhere, store it and bring it back the following year.

We said it before, among other things, that what is astonishing about the FUB is the idea of inhabiting an urban infrastructure. Did you see any other technical space that you want to open in Berlin and that would allow people to approach it and dive into urban networks?

CM: I am quite interested in infrastructure in a broader sense. Berlin is under pressure in terms of property or land available for other users and real estate developments. I think this is a lens through which you can scan Berlin to find friendly places. I like the idea of the FUB being something else and being something similar as infrastructure. It is more like what I would call a *support structure*, in the sense of Céline Condorelli's book, *Support Structures*. I like the openness that things like the FUB allow. We don't want to make it a place for parties or weddings or whatever. It has a clear framework that has been shaped by the space. Maybe it wasn't so clear from the beginning, but it's the idea of coexistence and knowledge, a place of learning and a place to learn. I think this is quite interesting. So yes, of course I would like to find other places like this.

LK: Of course we are also interested in the transformation of the basin. So we are really open to this process and are not the ones saying, no, no, no, we have to keep the asphalt and everything as it is. But this is really important: we want to be part of this process.

The conversation with raumlabor illustrates the conditions under which the adaptive heritage reuse of the Tempelhof detention basin is possible. These conditions are temporary, unstable and uncertain and the parties – the Tempelhof company, the site maintenance company on the one hand, and raumlabor and the people who manage the cultural activities on the other – have entered into a continuous negotiation and continue to do so. Since the beginning of the adaptive reuse process, raumlabor and its companions have used the site as it was found, adding flexible and easily dismantled architecture, making the FUB a vernacular heritage transformation (Scott, 2008 quoted in Plevoets and Van Cleempoel, 2019). Due to the agreement with the site owner based on an annual lease, a substantial part of the FUB has to be dismantled at the end of each season. Besides the baseline – the detention basin, a series of important structures – for example, the Bow-Wow building – remains too difficult to dismantle, store and reassemble the following year. Therefore, each year the FUB redesigns the relationship between the detention basin, the semi-permanent adaptive interventions and the interventions that are reassembled but in different forms including the addition and subtraction of elements. The continuous, low-term remaking of the FUB is essential for inhabiting a space – the detention basin – that itself requires adaptation. Fluctuating water levels are expected, but still respond to changing weather patterns, which

means that, over the years, flooding may increase in intensity and pace. This implies a continual revision of the architectural layout to achieve higher levels of adaptation to the fluctuations and rhythms of the detention basin, which in fact functions as a seismograph (Metta, 2022) (see Plate 3). Constructed from scaffolding materials such as metal frames, wooden planks and perforated metal panels, as well as inflatable plastic sheets and corrugated plastic panels, the architecture itself is an open structure (Elarji, 2022). The FUB gives the impression of being unfinished, under construction and provides “a feeling of anticipation of the final product” (Elarji, 2022, p. 6). As an open structure, it is available to be plugged or hacked by other elements, adapting to necessities. The open structure, in the strict constructive sense, has real consequences for the general openness of the FUB, for the visitor’s possibility to feel legitimized to operate. The making, unmaking and remaking of the FUB renders it a project that is always ready for new trends and needs of society and the environment (Plevoets and Van Cleempoel, 2019). FUB is a place of openness. Despite being in close proximity to the Kreuzberg district in the heart of Berlin, it is an offshore campus that creates another world (Elarji and Michels, 2021). It is imbued with a sense of mystery and wonder (*Ibid*) that helps visitors to unleash their imagination about what urban life, with its intricate infrastructure complex, actually is. As in a diorama, the FUB also allows visitors to immerse themselves in possible anticipated images of the future, such as those of wetter and drier conditions due to climate change.

While in recent decades in Europe there has been a shift from preservation to “adaptive reuse of all types of buildings and sites” (Plevoets and Van Cleempoel, 2019, p. 1), the FUB



Plate 3.
View of the FUB from
inside the
detention basin

Note(s): Traces, accumulation of materials, soil formation processes, as well as the architectural objects, reveal the intense inhabitability of the infrastructure space under the sign of co-existence

is pushing to broaden the scope from adaptive reuse to adaptive (re)use of urban infrastructure still in operation. The change of function of the airport that the reservoir serves did not restrict the functioning of the infrastructure. However, this suspension profoundly changed its configuration and maintenance patterns. In that decade-long moment, from the closing of the airfield to the initiation of the FUB, first non-humans and then humans invaded the infrastructure, altering its aesthetics, values and multiplying its uses. A change brought about by abandonment that even for the Tempelhof detention basin has opened a door of inestimable value (Bouchain, 2018). A change that also subverts the work of technical offices and professionals, forcing them to update maintenance procedures and even negotiate.

Unlike the Tempelhof airport building, the detention basin is not a site with a specific architectural or historical value, nor was it before its decade of neglect (2008–2018). On the contrary, the intermingling of its human and non-human inhabitants has substantially thickened the qualities of the site to such an extent that socio-cultural and ecological, rather than just pragmatic, reasons for its preservation have been posited. After all, the pond in the previous fifty years has never been so well known and so intensively enjoyed as it is today.

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