

Adaptation to Climate Change in the Post-Socialist Urban Environment: Strategies, Risks, Good Practice (Prague Case Studies)

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Abstract:

Increasingly more visible signs of climate change together with the pressure of the climate movement are beginning to bring their first results at the level of local governments. First, Czech municipalities and cities have declared a state of climate emergency. After a long period of silence, the topic is beginning to gain relevance in the political debate. In addition to radically reducing carbon and other emissions (mitigation) that cause planetary warming, adaptation of human settlements is also necessary to overcome the climate crisis. Cities and regions are now adopting strategic documents to fight the changing climate and should implement them in binding regulatory frameworks and specific spatial measures. Adaptation programs have become an essential part of grant programs implemented by the municipalities as well as individuals. These are typically diverse solutions of blue and green infrastructure or preventive protection of endangered greenery, which if facing investment pressures of development.

This article presents different case studies from the Czech capital of Prague, showing problematic areas, minor adaptation solutions and the struggle of citizens for the preservation of insulating greenery and leisure areas in one of the Prague's largest housing estates. At the level of specific local government representatives and active citizens, the studies examine concrete measures and map the situation in the area. They also deal qualitatively with motivations and the discourse around the topic where the understanding of a place as home clashes with the understanding of a place as a real estate commodity. In contrast to the efforts and practices of the climate movement in the fight against (not only) the fossil industry, adaptation has in a way become a part of environmental gentrification. Yet it still brings an important community function and can be a motivation to spend active leisure time together. The topic of social housing is very specific in the Czech context. Like other post-socialist economies, we are burdened with a series of bad decisions from the past, such as the privatization of almost the entire housing stock. A series of such decisions has led us to a situation where social housing does not de facto exist in the Czech Republic of 2020 (except for a few bottom-up testing projects).

In the introduction, the article presents the basic principles of Prague's adaptation strategy and the ways (and difficulties) of its implementation into binding regulations. In addition to the case studies, realized during 2019 and 2020 and published in an inspiration brochure¹ for both the municipalities and the public, the contribution also presents current on-site activities realized by the Arnika Association—the “urban walks” focused on high-risk places, heat islands, and examples of good and bad practice. This contribution will present the adaptation of Prague as a complex problem influenced by political decision-making, private interests as well as local neighborhood activities.

¹ <https://arnika.org/lokalni-adaptace-na-zmenu-klimatu-pripadove-studie-prazskych-ctvrti-16>

Introduction

Climate change has become the menace of our time. The worsening extreme weather is ever more present in the media headlines and its link to the climate change seems unquestionable, which is beginning to have effect on the public debate. Unfortunately, clear declarations of the cause and of possible solutions—whether in terms of mitigation² or adaptation³—still do not receive enough attention in the mainstream media. The disinterest in the topic is even more pronounced in the Czech Republic: it is passive in international debates, often blocks decisions and acts ignorantly in political negotiations on the topic of climate crisis. This text presents various strategic approaches to the tackling of the climate change manifestations in a city in the context of post-socialist governance as well as concrete instances of practices and risks in the urban environment, specifically in Prague. While Prague has adopted its adaptation strategy, the question of implementation continues to be problematic as the city struggles to include it in its binding regulations (as e.g. in the case of the spatial plan) and to implement it into the particular practices of local neighborhoods.⁴

In the academic field (unlike in the majority of political discussions and solutions), this topic has been addressed for decades. Far from limiting itself to the approaches of natural sciences, the climate change has become an essential criterion for the analysis of our society as well as for predictions of its future development. In the context of Czech literature, for Keller (1997: 10 – 11), ecology represented a key limit to the sociological principles. For Ulrich Beck (1992), a pioneer who began enforcing the environmental framework in international mainstream sociology, ecological limits (or the climate change itself) represented the main danger of our contemporary society. In current literature, the topic is becoming crucial no matter the field. It is felt not only in texts about the principles of studying nature and weather; it is also beginning to have an unambiguous effect on the various descriptions of our society and its changes. In particular, changes in the most vulnerable of regions happening to the most vulnerable of peoples reflect its growing intensity. In the Czech context, a multitude of articles discussing specific manifestations of climate change in the urban environment, including reactions and formulations of the problem, was published in the last year alone (e.g. Hynčica, Huth 2019; Tomczyk et al. 2019; Popov et al. 2019; Ferenčuhová 2019; Aubrechtová et al. 2019; Dujka et al. 2019 and others).

However, as the appeal of the topic grows, examples of good practice at the level of local authorities as well as of local citizens themselves do so, too. This text deals with the concrete cases of adaptation measures implemented both at the macrolevel in the form of city politics as well as on the microlevel in the form of particular local solutions and measures. In doing so, it draws from informal research done by Arnika in 2019 where both local authorities and citizens and also good practices from abroad were investigated. We were

² Lowering of greenhouse gas emissions and an emphasis on the use of sustainable or carbon-neutral sources of energy.

³ Adjusting to the climate change by introducing adequate measures into the lived space, primarily through the so-called blue and green infrastructure (greenery and water in space and landscape).

⁴ This is becoming a universal problem across the various local authorities (for more, see Biesbroek et al. 2013; Zahariadis 2003; Knaggård 2015 ad.). Climate change presents a new challenge for the practice of city planning and administration (Matthews et al. 2015: 155 in Ferenčuhová 2019: 6), which has to react in the context of planning and design of the urban environment (Hagen 2016: 1 in Ferenčuhová 2019: 6).

researching the risks and examples of good practice related to the issue of climate change in the urban environment. The resultant compilation consists of five case studies of different possibilities of adaptations within the Czech metropolis, emphasizing good practice and high-risk areas (high-density developments or brownfields with a view to the potential of revitalization).

Our text and chosen methodology have a popularizing and educative character, as we present specific cases of measures from the Czech Republic which—though also common in the context of Austrian and German practice—are progressive in the post-socialist context where they are organized bottom-up as other system paths would not allow them. We draw from a qualitative study of documents and of concrete measures in the field and—in the Czech context—conduct interviews with the different players involved: local government representatives, citizens and investors. For each example, we also conducted terrain mapping.

Social Housing in the Czech Republic

Social housing policies in post-socialist economies remain burdened by concept-lacking decision making of the past. “The process of decentralization of power and the renewal of regional self-government included the transfer of the housing stock from state to municipal ownership. This transfer was initiated in 1991 and affected 1.44 million flats (approximately 39% of the housing stock in the Czech Republic). The municipalities were cast in the role of administrators of the housing stock, responsible for creating a local housing policy; they became the only owners of the long-term rental housing provided at below-market rents.” (Lux, Sunega 2017: 2) With the exception of rent regulations for the running tenancies, the Czech municipalities became free to manage and allocate public housing according to their own preferences immediately after the housing stock transfer. There was no state regulatory framework for public housing management and no regulations on the scale or in the form of the public housing privatization or the public housing allocation. Some municipal flats were privatized, some were rented out for market rent prices, and some were rented at below-market rent prices to people in housing need. For the latter case, the municipalities adopted each their own system to assess housing need. (Lux, Sunega 2017: 2)

The fact that there is almost no social housing in the Czech Republic naturally shifts this debate in a different direction. The Czech Republic provides housing allowances and supplements only. According to the data from the Ministry of Labor and Social Affairs, in November 2019, the state helped with housing less than one hundred and eighty thousand recipients. Even if each beneficiary is defined as a family of three (which it is not), it would still be help aimed at only six percent of the population.

There are 83,000 people in the state of homelessness; without an apartment or in unsatisfactory and insecure housing while others are in danger of losing it. Prices of houses and flats in the Czech Republic increased by 13.3 percent each year. We have the 4th highest cost of house ownership in comparison with other EU incomes. Rents in the Czech Republic are rising twice as fast as wages, while almost a million people in the Czech Republic is below

the income poverty line and a similar amount—with the exception of children—is burdened with foreclosures.⁵

In this alarming situation, the Czech Republic—by adopting a quality law on social housing—has a unique opportunity to join the ranks of progressive leaders in pursuing an ambitious but demonstrably functional and at the same time economical approach leading to an end to housing shortages. Despite everything mentioned above, we still seem to have a long way ahead before adopting the law in any form. It also does not seem that privatization of public housing is about to stop. In their study, Lux and Sunega reached following conclusion: not even a generous benefit system guaranteed to provide households for the vulnerable can find affordable options on the current housing market. Additionally, the large decentralization of power may force municipalities to behave “antisocially” towards the most vulnerable groups of households.

Our representatives faced and ignored the diminishing options of public housing and the rise of homelessness and households living in poverty for too long. The city of Prague seems to (even thanks to the pandemic) be realizing that a lot still needs to be done. However, the upcoming steps might not be reassuring enough. The city is creating a “city developer company” to prepare city-owned land for housing construction. There is a pilot project of cooperative housing on city owned land in preparation at the moment. The city is also developing an action plan for Prague brownfields. The townhall has also changed the rules for renting municipal apartments; now they take into account how serious the housing insecurity of an applicant is. Prague has also announced the end of privatization of their housing stock and is starting to prepare a new conception of Prague housing policy, since the old one is almost sixteen years old.

Nevertheless, there are a few bottom-up projects that fill us with hope. The example of good practice comes from the city of Brno with a project called Housing First—Brno.

The project was able to reframe the so called “Roma problem” to a problem of family homelessness, which has potential solutions that can be tested and evaluated. The project provides a municipal flat and an intensive housing-first case management for 50 families who were previously living in private hostels, shelters or other forms of homelessness (ETHOS). The service provider is an award-winning, local pro-Roma NGO called IQ Roma Servis, trained by pioneers of Housing First in Europe, the HVO Querido. The impact of the project is measured by a Randomized Control Trial, counterfactual design, which allows it to isolate outside factors by comparing the treated group with the control group. The first families moved in in September 2016 and, by May 2017, all 50 families were housed. They aimed for a 80% housing retention rate after one year. Currently they are at 96%.⁶

Solving social and climate problems at once is an effective use of public resources, especially at a time when budgets are extremely stretched. It also allows local and national politicians pursuing a ‘green recovery’ to also support a fair transition to zero-carbon—to a world where the worst off do not lose. The Czech Republic should follow examples of good

⁵ <https://socialnibydeni.org/zakon-o-socialnim-bydeni>

⁶ <https://hf.socialnibydeni.org/>

practice from abroad and focus on the housing crisis once and for all because the situation is only about to get worse.

In our environment, housing-first projects in particular and social housing projects in general are marginal and are now in the pilot phase. There is no comprehensive assessment of the issue or its placement in the context of the climate crisis and other related design solutions. Currently, participatory housing projects are beginning to appear in several cities and may also have a significant ecological dimension. However, these projects are aimed at middle- and upper-income groups that can afford either an input share or even bear the entire investment, which pushes these projects completely out of the area of social housing.

Manifestations of Climate Change and Adaptation in Prague—Risks and Good Practice

Reactions from the part of the local authorities have only appeared in the last few years and as mentioned above, completely unrelated to social housing and thus to housing projects in general. The very first cities in Czechia began adopting their own adaptation strategies in 2014 and 2015, and Prague had not approved its *Strategy for Climate Change Adaptation* until 2017. The principles involved in this strategy form a complex system of different ways to prepare the city for extreme weather, drought and even new, more frugal methods of water management. All partial strategies are aimed at fulfilling the main strategic goal which is “to continuously work on improving the long-term resistance of the city of Prague to the manifestations of climate change” (Hl. m. Praha 2017: 17). The strategic plan draws from an in-depth analysis of temperatures, retention capacities, vulnerabilities of concrete groups of inhabitants and places and, subsequently, constructs the implementation of goals within its implementation plan with specific aims related to documents at the city, state and European levels, as well as examples of good practice. Nevertheless, the implementation into the day-to-day life of the metropolis appears to be problematic. The principles of this otherwise good-quality document have not so far been demanded enough and have not been appropriately written into the truly binding regulations. At the moment, it is private investors—who only rarely follow the principles of adaptation, of energy efficient buildings or of traffic and infrastructural services—that have the largest say in development zones. Effective implementation of the principles of these strategic documents (and we are speaking not only of the *Adaptation Strategy* but also of the e.g. *Strategic Plan of the City of Prague*—for more, see Hl. m. Praha 2016) thus appears to be the principal issue not only for the Prague authorities but also for other Czech cities (most of them have yet to develop and approve their own strategies). Similarly, The Czech Republic⁷ has also adopted an array of strategic and action documents, though when we look at the principles suggested in the forthcoming legislation, the real implementation of the above-mentioned principles is not only speculative; often, the new legislation goes directly against these principles.⁸

⁷ For example, in the area of adaptation, *The Strategy of Climate Change Adaption in the Czech Context*, *The National Action Plan of Climate Change Adaptation*, *The Concept of Protection Against the Consequences of Drought in the Territory of the Czech Republic* and others. In the area of mitigation, it is e.g. *The Politics of Climate Protection in the Czech Republic*, *The National Plan of the Czech Republic in the Energetics and Climate Area*.

⁸ For example, the so-called recodification of the building law puts forward as one of its main principles the cancelation of the binding nature of opinions of the nature protection authorities in new construction or the so-called fiction of the approval, which is supposed to automatically issue a construction approval in case the responsible building office does not respond in the legal deadline. Both of these proposals are in a direct

In the sense of an administratively specified urbanistic space, Prague is the largest urban settlement in the Czech Republic. As such, it is—if we follow our initial argumentation—highly susceptible to the impacts of exacerbating extreme weather such as summer heat waves, droughts, floodings, etc. On one hand, the metropolis is among the greenest European cities; on the other, we can find there a whole range of high-risk sites prone to heat accumulation, the city is taxed with intensive car traffic and—in the case of new building projects—the standards of ecologically optimized construction are rarely enforced. In our overview, we have focused on a wide range of examples of dissimilar nature. It is possible to witness good practice in the varying-scale implementations of the above-mentioned measures, well-adapted (green) sites threatened by new development, limits to adaptation in intensive and high-rise construction, community and adaptation potential of green courtyards or the potential and risks associated with transformations of brownfields.

In our case, housing developments played a specific role. In the first example, we were investigating the workings of the local authority and its collaboration with local inhabitants in a housing estate in Prague 12. This city district belongs among the larger ones and is predominantly made of housing developments and boarder areas of rural character. The local development is unique for its extensive public spaces, which are either green already or have a significant potential to become greener and cultivated with a view to the climate change adaptation. The housing estate Kamýk is an example of the former, although the local authority has encountered certain problems in their effort to adapt.

On one hand, it is the management of public greenery that is expensive and that requires conceptual thinking for its maintenance, including a well-planned cutting:⁹

“The overwhelming majority of areas used to be cut about five times a year in the past. I have changed this system—we don’t cut according to the calendar but according to the particular situation on the ground—where there is enough precipitation and the grass is thriving, we cut, but if the climate is dry or if a certain patch of vegetation stays short even without cutting, we leave it alone. In addition to this, we’ve separated certain areas where we intentionally leave the lawns higher—they are mostly hillsides where we hope higher lawns will deliver higher retention capabilities and an anti-erosion function. We are also keeping an eye on the species composition and avoid cutting places where flowers blossom; in other words, we do a so-called mosaic cutting.”

Deputy Mayor

In some places, the city hall leaves the lawns to be grazed though this is only possible in areas which are less frequently used by the public or on sound insulation dikes. One of the strategies for the expansion of biodiversity is also the planting of grassland vegetation, which can—in suitable areas—help improve species diversity, and which improves water retention capacities. In terms of water management, the city district has implemented a collection of

contradiction to an effective and consistent protection of the climate in Czechia, as they de facto exclude key institutions from the decision-making process related to new construction.

⁹ Frequent cutting of lawns is one of the bad habits in public greenery maintenance – grown, tall grass is more effective at retaining water.

rainwater, primarily in places where the property state of affairs allows it. This water is subsequently used to water newly planted greenery.

On the other hand, however, the division of individual buildings between private owners seems to present a larger difficulty. Reaching an agreement between the various owners' associations is often very complicated while, at the same time, the technical possibilities of buildings from the 70s and 80s are quite limited.

“The problem of communist-style, prefabricated housing is the fact that rainwater is not channeled down through external gutters but through the center of the building and right into the canalization system. Under such conditions, building a retention container is only possible with great difficulty. One solution could be green roofs which can capture rainfall as well, work as an isolating layer, help cool down the buildings in summer and also decrease the amount of dust in the city. They can be built as extensive gardens, meaning their maintenance costs would be minimal. The main obstacle to their construction is the ownership relations within the buildings. First, the individual owners' associations often possess their own entrances. Second, each owners' association has to decide for the idea of a green roof together.

The district's expert on greenery maintenance

Ďáblice, one of the urbanistically most appreciated housing developments with abundantly utilized areas of public greenery, currently faces another problem. Among other reasons, living in the housing estate has become very popular financially speaking. The social composition includes all ages and social groups. The housing development's quality also attracts investments in the long term. Unfortunately, it is precisely the intention of intensive building that is becoming the principal danger to the protection of many important green areas. After protracted conflicts with the intentions of the CPI company, it is the spatial study¹⁰, issued by the Prague Institute of Planning and Development, that has come to the forefront of the discussion. Originally, it was supposed to protect the housing development from the construction of high-rise buildings. Now, however, it aims to build intensively on both sides of the Střelničná street, where there are belts of greenery protecting the housing estate from noise and dust. This has sparked protests from the locals. They have calculated that the new construction would take away up to 500 fully-grown trees and decided to defend themselves with a petition. The Krásné Kobylisy (Beautiful Kobylisy) neighbor association, which unites and represents local inhabitants, has issued expert comments on the spatial study. The whole case is unique for its extensive citizen engagement, which has managed to mobilize thousands of the housing estate's inhabitants to an organized expression of disagreement with the construction on the areas of greenery. With respect to our objective, it is important to remark that the original areas of greenery with their function of public space as well as isolation are essential for a good quality of life and for adaptation to extreme weather.¹¹

¹⁰http://www.iprpraha.cz/uploads/assets/dokumenty/participace/dablice/uzemni_studie_sidliste_dablice_2019_compressed.pdf

¹¹ For more about this case, see Arnika 2019: 21 – 33.

The Prague location of Pankrác serves as a very different example. This area is characteristic for its intensive, high-rise urban structure. It is here, concentrated in the so-called Pentagon area, where we find the tallest buildings of Prague, some standing over 100 meters tall. It is exactly this kind of urban housing development that is the most problematic with a view to its possible climate change adaptation, energy performance and emission levels. The area is significantly affected by a poor natural ventilation caused by the densely arranged buildings. This is reflected in the environmental quality, which in an evaluation done by the Atlas of the Prague's Environment received the second worse grade (4)¹². Pankrác is also significantly taxed with individual automobile traffic.

For over 30 years, there has been a dispute between the city hall, the developers and the citizens, represented by The Citizen Initiative Association. In 1992, the initiative launched an investigation in which it found that what the local inhabitants wanted most was to invest in the development of services and in the building of a central square for the district Prague 4, which is still missing today. The uncoordinated construction has failed to meet this demand; to the contrary, its intensive sprawl has worsened the accessibility by foot, the public spaces, the area's climate change adaptability and the quality of its environment in general. High-rise buildings not only demand ecologically-unfriendly materials for their construction such as maraging steel and concrete (you cannot build a skyscraper with wood and bricks); it is also challenging to implement even the simplest adaptation measures such as green roofs of facades as the weather conditions in heights above 100 meters are unfavorable for any outdoor activities. What is more, there is no effect of such measures on the ground floor, which is virtually in no contact with the distant roof. Equally as challenging is the implementation of adaptation measures in spaces between the individual buildings due to the above-mentioned poor ventilation of the area. The green spaces between buildings are problematic even from a psychological perspective as they fail to fulfill their function as places of relaxation. Moreover, it is often not possible to plant any trees as there are high chances of underground parking. Construction of high-rise buildings thus appears unsuitable in times of climate crisis as they are less able to adapt to the increasingly more extreme climate conditions.

In the case of Pankrác, we focused on the ecological certification of buildings; we were interested in the real-world relevance of the certificate. We found that different investors approach the environmental question with varying levels of commitment. For example, the administrative building Parkview aspires for the LEED Platinum certificate. This certificate evaluates along 7 criteria: sustainability of an area, water management, energy profile and air quality, construction materials and sources of raw material, quality of the indoor environment, innovations and regional priorities. The results are then divided into 4 levels: LEED Certified, Silver, Gold and Platinum. This building in particular is fitted with a green roof watered by a rainwater collection system, uses energy-saving lighting with motion detectors and has a unique system of outdoor shading, which regulates the indoor environment while at the same time saving energy. Nonetheless, the same certification was also awarded to the controversial V-Tower, which further worsened the poor situation of the outdoor environment within the pentagon area. The certificates always focus on individual sub-factors, which is why it is necessary to evaluate buildings in a more complex way and with a view to the surrounding environment.

¹² [http://app.iprpraha.cz/apl/app/atlas-zp/?service\[\]=mapa_bonity_klimatu](http://app.iprpraha.cz/apl/app/atlas-zp/?service[]=mapa_bonity_klimatu)

In accordance with our exploration of the Viennese support of courtyards, we also focused on two courtyards in Prague, specifically Prague 3 and 8. District 8, where the first of the two selected courtyard is located, is characteristic for its diverse forms of urban development. The courtyard is located in the northernmost part of the block development in upper Libeň district. The largest, undeveloped part of the courtyard is accessible from six different buildings though the community and environment-improving function of the courtyard is only pursued by a handful of enthusiasts. The courtyard has about 1500 m² and its space is divided up by ground-level buildings and adult trees. Its users pay a symbolic rent to the Prague municipality, from which they also received a small grant. They take care of several community garden beds which they irrigate using two containers for rainwater collection. The space also offers outdoor seating, a wooden compost bin and a toolshed. In our interview with the most active inhabitant, we inquired about the nature of decision-making among the neighbors, which often seems to become quite complicated, and the maintenance of the courtyard thus relies solely on several individual enthusiasts. This is also made clear in an interview with the district's mayor who claims that a comprehensive development and revitalization of courtyards fails as there is a lack of will and willingness on the part of the inhabitants. An association called *Bieno* took a leadership role in the issue and started helping with the implementation of courtyard transformation while also publishing an instruction pamphlet titled "Seven Steps to a Beautiful Courtyard"¹³. The local authorities should work on creating similar instruction manuals as well as other motivational tools while also expanding their grant opportunities.

Courtyards are areas with a huge potential for the implementation of green and blue measures, but so far, this opportunity hasn't been seized yet. (...) The good news is that such adaptation measures in courts and courtyards are actually cheap and, in the case of green measures, consist of greening (adding of plants) and greenery maintenance in the area. Trees, bushes, perennial beds, edible gardens and composts, lawns, cultivation in containers or stringing of plants on walls and facades which are otherwise overheated and emit this heat into space—all of these variants find their uses in courtyards. The kind of greenery planted can be selected according to the scale and nature of the given space and its inhabitants."

*Barbora Týcová, association *Bieno**

The second courtyard is located in the middle of a classic Žižkov district¹⁴ block defined by the Křížkovského, Ševčíkova, Slavíkova and Kubelíkova streets. In comparison with the first example, this courtyard is significantly larger (it is composed of 17, mostly 6-storey buildings, each with its own access to the space), not further divided by other construction and significantly greener, with several fully-grown trees. Individual plots of land are divided up by hedges and each building has different equipment and tools, ranging from compost bins all the way to bike stands. The courtyard was revitalized by the above-mentioned association *Bieno*, which—using grant funding—purchased benches, an insect hotel, a swing or flower boxes. The problem of this courtyard and its management is primarily in its size and the resulting number of inhabitants involved. The revitalization was preceded by a community meeting where the inhabitants formulated their ideas about the possible uses of the

¹³ <https://www.vnitrobloky.cz/7kroku/jtzkqfpwaq0vmgw57p6rh9qcbepbdb>

¹⁴ The Žižkov district is a typical old built-up area, largely formed by tight building blocks. This part with a distinctive atmosphere and *genius loci* was completed around 1890.

courtyard. The place came to life for some time, but the activity has dissipated ever since the departure of the association from the project. According to a local woman, this is due to the absence of a leading figure who would be willing to invest their free time towards organizing neighborhood activities. Not unlike the first case, an important role is played by the local authorities, which in Prague 3 did put out grants for the revitalization of courtyards but the proposed projects suffered from a poor quality of execution. The approach of the district also envisages participative panels, workshops and lectures, which would introduce some of the courtyards possible design solutions.

In our last case study, we focused on a recently heavily-discussed reconstruction of the largest brownfield in Prague, Bubny-Zátory. The Prague Institute of Planning and Development prepared a spatial study¹⁵ for its transformation, stating that the area should provide living for 25 000 new inhabitants and 29 000 work places. The spatial study is supposed to become the grounds for the removal of the construction cap, which has been in place for 20 years, and thus inject new life into this area of 110 hectares. The current condition of the area creates a significant barrier in space and does not help with the cooling of Holešovice during the summer heat waves. To the contrary, the plain in its present state creates a heat island as there is a lack of trees and because the large railways function as heat accumulators, further warming the surrounding urban scape. Local traffic congestion is another downside. On the other hand, however, there is a very good natural ventilation caused by the area's location in the heart of the Vltava river's meander.

The ventilation of the developed area is one of the issues resulting from the spatial study. With a view to climate change adaptation, the aim of the study was to solve the following current issues: the lack of a larger, continuous area of greenery and publicly-accessible parking lots; the discontinuum between the northern and southern riversides, the fact that the existing green corridor does not correspond with the regional system of ecological stability; the lack of a terrain with fully-grown vegetation, which would allow for the soaking in of water into soil; the lack of trees, which aid cool down the area around them, and the lack of water areas, of systems for capturing rainwater or of other climate change adaptation measures such as green roofs and facades, drinking fountains, green courtyards or community gardens.

The study's main goals consisted of the different aspects of the adaptation potential of the area and the authors focused on them intensively. The suggested block development includes green courtyards as well as alleyways along the streets, including one central park with a water element. The problem, however, lies in the area's very dense construction, which will—despite the suggested adaptation measures—worsen the natural ventilation of streets. The situation with green spaces is also uncertain: the study suggests only a few courtyards with grown terrain while, in other places, only green elements in lowered atriums are supposed to appear. Comments to the study were formulated by the Prague platform of NGOs¹⁶. Although the study was very detailed with respect to adaptation, the planned density of construction would significantly hinder its other efforts. On the brighter side, however, the

¹⁵ The complete study can be downloaded here:

http://www.praha.eu/jnp/cz/o_meste/magistrat/odbory/odbor_uzemniho_rozvoje/uzemni_planovani/uzemni_studie/studie_porizovane/index.html

¹⁶ <https://arnika.org/nova-ctvrt-v-bubnech-nabidne-bydleni-nejspis-jen-pro-nejbohatsi-na-podani-pripominek-zbyva-pouhy-tyden>

need for adaptation is clearly reflected in the discussions about the development of strategic regions—stricter demands can help the city in preparation for the ever-worsening climate change.

Arnika and On-Site Activities

Arnika is an environmental NGO with an activist background. We are part of Arnika's Citizens Support Center program and are currently working on a campaign called Prague—The City for Living! Though it has not been easy lately due to the Covid-19 pandemic, we strive to work for the locals, organizing events in the public space, pointing at problematic development projects, instances of poor treatment of space by the city and at local developments. We believe it is necessary to meet with active citizens in person, and we always try to invite members of local government to the meetings so that the dialogue is balanced and shows the possibilities and limits of political decision-making in matters of urban development. Recently, we have started to organize critical urban walks in cooperation with architects and urban planners. We focus critically on territorial development, ecological sustainability, tourism and the commercialization of the center of Prague. We draw attention to how the city center's public space has changed in the last thirty years. In September, we will use the example of a gentrified district of Karlín as part of a cycling trip to show the importance of cities in a transformation caused by the climate crisis. We will describe individual adaptation measures and their potential on specific examples. It will be about the place's history, its urbanism and architecture, about the greenery in the city, ecological transport around it and about the everyday life of this originally working-class, now trendy Prague district. All walks and rides are always followed by a discussion with everyone involved. For example, on our last walk, organized in June this year, we drew the public's attention to the controversial development of the Penta development group, which is planned in the most valuable development area in Prague. Right at the site of the planned construction, we talked to the public about problematic aspects of the entire business complex.

Conclusion

Adapting cities to the changes in climate conditions, which bring about the manifestations of extreme weather, is a complex and long-term task. Local strategic documents need to be well-implemented into concrete and effective measures of varying character and scale. The smallest-scale measures can be done by the citizens too and it is necessary to motivate them for the cause. We should also moderate discussions during, for instance, neighborly initiatives related to green revitalizations. It is still quite hard to transfer some of the foreign experience into the Czech context although targeted cultivation and an emphasis on the climate change aspect can bring even our cities closer to the positive examples from abroad. The concrete case studies from Prague show that the topic has many dimensions and that there is a wide array of actors involved. These include the political leadership and expert preparations in the form of strategic documents and high-quality, binding spatial planning documentation, investors and economic players in the area and also the local inhabitants themselves. It is necessary to push for the climate change aspect on all these levels as only then it will be possible to prepare our cities to the worsening climate conditions sufficiently.

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