Urban Doers Community

Domestic Heat Comfort for Energy Poverty and Climate Adaption

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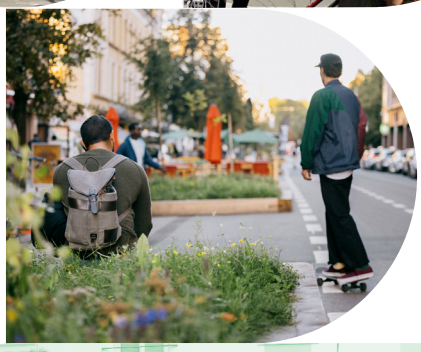


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Domestic Heat Comfort for Energy Poverty and Climate Adaption

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Abstract

With this project, we aim to contribute to the struggle for climate and social justice in order to increase people's resilience, influence public opinion through creative storytelling methods, and raise the awareness of policymakers by producing quantitative and qualitative data on the vulnerability of individuals and households regarding energy poverty and heat waves. The project follows a participatory research framework to study disparities in domestic heat comfort as a function of energy poverty as well as citizens' resilience to extreme heat events in different neighbourhoods of Istanbul, a city that experiences both heat waves and cold blasts. Working with a variety of urban communities vulnerable to climate change at varying degrees, we recruited and trained citizens of different ages, genders, and income groups to record and report domestic heat changes via heat and humidity sensors. In addition to that, we produced qualitative data through interviews carried out mostly by two citizen science communities we built.

Our project aims to popularise two new topics, energy poverty and extreme heat through the concept of domestic heat comfort by using citizen science methods. The project focuses on how different households cope with the heat. The exacerbation of the climate crisis increased the need for cooling which has transformed discussions around energy poverty. Energy poverty involves the ability to pay energy bills or the necessity to reduce energy consumption to a level that is detrimental to health and well-being. Recently, energy poverty has found a more central place in policy documents including the European Green Deal.

Extreme heat, the other focal concept of the project, is one of the deadliest results of the climate crisis. The elderly, children, women, and low-income groups are especially vulnerable to it. Fortunately, policymakers can address this threat through low-cost early warning and prevention mechanisms as WHO suggests. However, more data is needed for the preparation of such policies. From a policy impact perspective, our project tries to address the evidence and data gaps in the advocacy for the establishment of required policies.

Key lessons:

1. Engaging directly with individuals and offering practical advice is rewarding. This experience proved the importance of work that affects daily lives for social impact. While policy advocacy and research are common in the NGO sector, targeting social innovation can enhance advocacy. Additionally, creating opportunities for direct interaction with stakeholders is crucial.

2. Participation and inclusivity are not only defendable moral values, but they also enhance our work. While a participatory and inclusive approach demands more effort, the resulting relationships and work quality make it worthwhile. For civil society to truly prioritise social justice, it must consider the daily experiences of disadvantaged groups. This ensures sincerity towards the communities represented and strengthens advocacy with policymakers.

3. Field-focused research is crucial for quality work. This approach gains more interest from policymakers, with our project often highlighted in discussions.

4. Greater use of technological tools in civil society work is needed. Incorporating technology into project planning greatly enhances knowledge production, and supporting participants in using these tools leads to better understanding complex issues like the climate crisis.

5. Getting inspiration and learning from the good examples implemented in different contexts and countries should be one of the initial steps while designing new initiatives. This makes it a lot easier to transform ideas into well-defined projects. Also, this helps to develop a concrete understanding of the potential weaknesses of the project. However, a perspective that focuses on context-sensitive adaptation rather than directly copying should be used when drawing inspiration and lessons from good examples.

DOMESTIC HEAT COMFORT FOR ENERGY AND CLIMATE ADAPTION

Summer in Turkey: A Beloved Season Facing Climate Change Challenges

For many generations in Türkiye, the summer season has typically been the favorite time of the year. During childhood, the opportunity to play outside until late at night, the relaxing summer break following the end of school, eagerly awaited holiday trips to relieve the tiredness of work in adulthood and living in the coastal countryside as a retirement plan all contribute to this sentiment. Unlike the winter season, which is rainy, snowy, and cold, summer has long been seen as a period of longer holidays, relaxation, and freedom, where, unlike winter, the days are longer, and wearing a simple t-shirt and shorts is often enough. The contrast between the summer and winter is even more evident in Istanbul where we implemented our project because of its climate.

Figure 1: Two men sleeping under the shade of trees in a green space located in Taksim, the central district of Istanbul. Source: Onur Temel

However, we can say that over the past 10 years, the climate crisis has begun to significantly and rapidly change the positive perception of the summer season in Türkiye. Due to heat waves (climate crisis-induced disasters), coping with the rising temperatures gets more and more challenging both outdoors and indoors, and more people lose their longing for the summer season. We can even anticipate that the positive perception of summer may be replaced by a fear-induced nostalgia. In this context, the frequent reference to heat waves as the "silent killer" in climate-related media and academic literature offers a forecast for the future. But does it have to be this way? Is our future really as dystopian as it seems?

It is difficult to make quick judgments or definitive statements about what we should expect from the future. However, taking action to have a good future and be able to enjoy the summer season is an option. At least, at the Center for Spatial Justice, our aim was to create a space for ordinary people to act together through our project, Domestic Heat Comfort for Energy Poverty and Climate Adaptation.

At the Center for Spatial Justice, we work to make major policy issues understandable and relatable to people and to adopt a socially just approach to these issues. In early 2023, an open call published by the Impetus consortium, supported by the EU to promote citizen science, was an important opportunity for us. As a civil society organisation especially focused on fieldwork and participation, many of our team members were already familiar with the concept of citizen science, so we quickly embraced the idea of applying it with a concrete project that would use this method. Prior to this open call by the Impetus, the AdaptNY project implemented in the USA served as an inspiration for this project. We learned about it as a result of our research which aimed to document the community-based climate action practices from all around the world.

Figure 2: An aerial photo of Istanbul. Most of the sensors used in the project were distributed to households located in the area corresponding to the upper right corner of the photo. Source: Jack Krier/Unsplash

Our project focuses on Istanbul, where our offices are also located. Istanbul is the largest city in Türkiye with a population of 16 million, experiencing rapid growth since the 1960s. The city's urban expansion is driven by politicians prioritising short-term political gains over long-term planning, economic development policies focused on extractivism and the construction sector, and unmanaged migration from rural areas due to uneven development across the country. These driving forces have led to rapid urbanisation, which created various problems for the city.

The expansion of the building sector in Istanbul has taken place without consideration of the natural environment or the principles of urban planning. Istanbul is rigged with residential and commercial building units without any green spaces, with a few exceptions. This results in a major problem, namely the urban heat island effect. On top of the urban heat island problem, giant skyscrapers are blocking the prevailing cooling winds that could come from the green spaces surrounding the city.

Figure 3: Skyscrapers in Sisli, the target neighbourhood of the research. Source: Bert Cengiz/Unsplash

Şişli, the main district where we implemented our research, is located at the city centre and sets an example of all these mentioned problems. The skyscrapers that were built of glass reflect the sun, therefore increasing the heat problem in many neighbourhoods of Şişli. Socioeconomically, Şişli is not the most disadvantaged district in the city. However, from a diversity point of view, Şişli was a reasonable option because its neighbourhoods are home to both wealthy households and working-class families along with retired elderly people, minorities, students, or new graduates who are sharing flats to minimise their living costs.

Consequently, as we welcomed the spring of 2023, the three fundamental points we had to build our project on—climate crisis, citizen science, and cities—led us to work on heat waves during the summer season.

Figure 4: Sun exposure at midday in Taksim Square, a central urban gathering point located very close to the target area of the research. Source: Onur Temel

Urban Challenges and Concrete Issues Identified

In this context, we had discussions within the team, and we aimed to address energy poverty, urban climate adaptation, heat-related health problems, social and economic inequalities, and indoor thermal stress as the primary urban challenges. The concrete issues highlighted in our discussions regarding these challenges were as follows:

- **Health Impacts and the Importance of Proven Low-Cost Policies:**

According to scientific studies, especially in urban areas, people face severe health impacts, including death, during heat waves. To mitigate these negative impacts, there are categories of solutions ranging from green infrastructure, built environment, and public health to public information, and awareness. Since the first three of these categories are very much in contrast with the vested interest of privileged minorities, it might not be practical to expect much to be done by the government. However, actions under the category of public information and awareness have been proven to be effective even in troubled geographies such as South Asia. But, in our geographical area of focus, Istanbul, there is neither a public monitoring system nor an early warning and intervention mechanism centered on vulnerable groups against heat waves.

- **Lack of Public Awareness:**

The awareness of citizens about the serious effects of urban heat island phenomena and heat waves is very low. Moreover, the adverse effects of sun exposure are often neglected. On the other hand, problematising extreme heat as an issue related to the climate crisis might provide momentum for the uptake of climate urgency by the public. Currently, according to the polls, societal awareness about the climate crisis is relatively high in Türkiye. However, there are many misunderstandings due to the lack of a relatable perspective. For example, the majority of Turkish society thinks that having more green spaces in urban areas should be prioritised over the phase-out of coal for climate action. Therefore, there is a need to concretise the impact of climate change on our surroundings and daily lives.

- **Urbanisation and Green Spaces:**

Profit-oriented urbanisation increases the urban heat island effect, reduces green spaces, adversely affects the micro-climate of Istanbul, and prevents prevailing winds from entering the city, making climate adaptation efforts even more challenging.

- **Vulnerable Groups and Indoor Heat:**

There is no research on the experiences of vulnerable groups, such as children, the elderly, women, low-income individuals, and those living in old or uninsulated buildings, in dealing with extreme indoor heat and how they cope with it.

- **Cooling Needs and Energy Poverty:**

The inability to meet the need for cooling in summer with air conditioning and similar means is not part of the already limited discussions on energy poverty in Turkey. Although air conditioning cannot offer a widespread solution to extreme heat, the need for it during the heat waves—especially for vulnerable groups—is inevitable. In this context, the need for protection from extreme heat and cooling is not brought up as a right or a public service issue.

Exploring and Addressing Urban Heat Challenges Through Citizen Science: The "Domestic Heat Comfort for Energy Poverty and Climate Adaption" Project

In order to contribute to solving all these issues, we launched the project "Domestic Heat Comfort for Energy Poverty and Climate Adaptation" in June 2023. Our aim was to explore and document the experiences of individuals and households about the heat in Istanbul, with the help of citizen science methods. The Impetus provided us with the necessary trainings on impact assessment, sustainable development goals, responsible research and innovation, equity-diversity-inclusivity principles, engagement and communication, strategies, policy impact, open science, data management, and visualisation along with monetary support. Also, a mentor has been assigned to us to guide our project implementation. While we were implementing the initial steps of the project, we came across the call for the Urban Doers community which in our opinion was a tailor-made opportunity to address our concerns related to the continuability and scaling of the project's pilot phase. In this context, the main appealing feature of the call for us was the intention to highlight the potential of small organisations in bringing concrete urban solutions to life through larger research and innovation programs. This intention enabled us to work on the scalability of the project during its pilot phase through funding, networking, and capacity-building support.

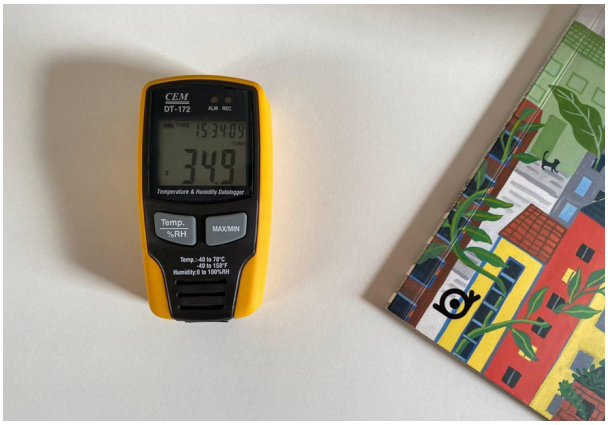

Figure 5: The heat and humidity snsor used for the research in the flats of participant citizen scientists. Source: Duygu Dağ

As initial steps of the project, we provided heat and humidity sensors to a community of 32 households, with a specific focus on individuals from disadvantaged groups such as the elderly, women, and children under 14. Using this equipment, we monitored the physical conditions of these households during the summer months. Furthermore, we conducted interviews with participants to produce qualitative data about their experiences.

We compiled and analysed this data and used it to produce datasets and a report. We also created a second community called "facilitator citizen scientists", mostly consisting of higher education students and active citizens. We consulted this group to obtain additional support and perspectives to support our project's research design, its implementation, and the creation of interview questions. Our citizen scientists also participated in home visits to collect data and conduct interviews and played a role in analysing the data collected. Also, we tried to implement a social innovation mechanism which was designed as a micro early warning system targeting the participants of the project with the help of the facilitators. We informed our participants about the forthcoming heat waves and the behavioral changes they could make to cope with the heat and monitored their progress.

Figure 6: The first capacity building activity about heat waves, targeting citizen scientists involved in the study. Source: Duygu Dağ

Figure 7: The second capacity building activity about energy poverty, targeting the citizen scientists involved in the study. Source: Onur Temel

We organised two capacity-building activities to gain further insights from our participating communities, facilitate community building, and engage with different stakeholders about the increasing summer temperatures.

We organised a closing event and produced two podcasts and a video detailing our key findings and the potential health issues of increasingly warmer summers in order to help us spread our message and increase the visibility of the issue on social media.

We were very excited and therefore ambitious for the implementation of some of the project activities. First and foremost, the house visits to participants with the help of facilitators were one of the backbones of the project. These visits were physically quite challenging for us because of the hot weather. They enabled us to engage with the main stakeholders of our project, observe the actual field of our research and the physical interaction between the two citizen scientist communities of our project. Implementation of the micro early warning system and monitoring its potential impact was the second most exciting activity of the project. Observing the deadly impacts of the heatwaves during the summer months is devastating whereas these impacts could be minimised with a large-scale early warning system, which can be implemented by central or local governments as suggested by the World Health Organization. Testing this system on a micro level, despite its shortcomings, gave us a sense of satisfaction throughout our project.

Figure 8: The facilitator citizen scientists' meeting to discuss the analysis of the data. Source: Onur Temel

Collective Dreams: Expanding Our Citizen Science Initiative

At the heart of our project lies a research that has sparked numerous dreams for the continuation and expansion of our efforts. The participatory nature of the citizen science method allowed us to share and develop these dreams with stakeholders like our facilitator citizen scientists, and even implement some of them. The kick-off meeting of the Urban Doers community was also very beneficial in this sense, since we got the chance to interact with so many different but like-minded inspirational projects all over Europe and observe some of the concrete solutions and spaces of conflicts in Vienna through the walking tour organised on the first day of the kick-off meeting. Last but not least, the Urban Doers community was one of the important knowledge and networking resources for our continuation and scaling efforts.

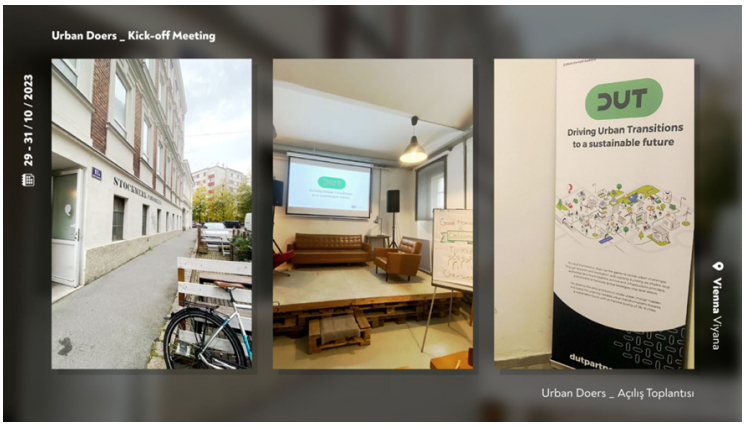

Figure 9: The kick-off meeting of Urban Doers Community. Source: Yağız Eren Abanus & Alp Şerif Besen

1. **Scaling the Project:** Our fundamental dream was to scale and expand the project in terms of time span and sensor distribution. By increasing the number of neighbourhoods we focus on and the number of households we could provide sensors to, we aimed to conduct a more meaningful research study. Observing similar projects worldwide achieving more than us bolstered this dream. For example, collaborations with universities and media in these observed projects, which for example implemented more detailed analysis with the help of a research center at a university, strengthened our belief that we should adapt our project to larger research and innovation calls.

2. **Winter Monitoring:** As an extension of our first dream, we aimed to monitor heating needs during the winter of 2024. However, due to the rejection of our project applications and the impact of the El Niño phenomenon at the end of 2023 and beginning of 2024, we could not realise this dream. Instead, we initiated two smaller projects focusing on raising awareness about energy poverty

public events, producing video and podcast content on the theory of energy poverty and energy poverty experiences of ordinary people and vulnerable groups, and influencing municipalities to include energy poverty in their strategic plans.

3. **Crowdsourced Data Collection:** Facing setbacks in scaling the project, we dreamed of a crowdfunding initiative where citizens could purchase a sensor for their own house and share their data with us to support our policy advocacy efforts in this area.

4. **Creative Indoor Cooling Solutions:** We planned to organize idea marathons and communication campaigns to develop and promote creative and low-cost methods and devices to be used inside the homes during heat waves.

5. **Community-Based Early Warning Systems:** We envisioned expanding the social innovation mechanism we implemented on a micro level. This involved developing community-supported early warning and intervention mechanisms at the neighborhood level, such as supporting elderly individuals suffering from social isolation during heat waves with the help of young people.

6. **District-Level Tactical Urbanism:** We applied for a project in partnership with a district municipality to implement tactical urbanism practices, such as cooling centres, climate refuges, and providing shade in busy streets or parks with canopies. This project also aimed to create datasets on urban heat islands and heat indexes through public walking events.

7. **Adapting Proven Solutions:** Inspired by the solutions we encountered during our research, we dreamed of collaborating with actors implementing these solutions to adapt them to our local context. In this regard, we established close communication with the Climate Alliance organisation to implement Germany's Energy Caravan project in Turkey.

8. **Protecting Outdoor Workers:** Finally, we applied for a project aimed at developing urban policies and practices to protect outdoor workers from extreme heat.

By sharing these dreams, we hope to inspire and engage you in our journey toward more resilient and equitable urban environments. In this context, it is important to mention that our involvement in the Urban Doers community has significantly enhanced our ability, as a small organization operating between grassroots movements and think tanks, to participate in large-scale research and innovation initiatives. This aligns with one of the core objectives of the process. Many of the project applications and collaborations mentioned above were partially made possible through this support.

Sharing Insights and Lessons Learned: Inspiring New Dreams

Finally, we would like to share some experiences and lessons learned that we believe might inspire new dreams for your own work, plans, and projects.

Firstly, we found it particularly gratifying to observe, even on a small scale, the adoption of a behaviour change suggestion related to heat waves within our project's qualitative research phase. This direct engagement with individuals, offering practical advice for coping with heatwaves, was a rewarding experience. More broadly, we learned that creating work that directly affects people's daily lives is crucial for social impact. In the NGO sector, advocating for policies, conducting desk research for such policies and lobbying are quite common. We realised that moving one level up and targeting social innovation can significantly

strengthen our advocacy. Similarly, occasions created for physical interaction with the stakeholders, for example; house visits, and capacity-building events, were significantly effective for community-building.

Secondly, we closely observed that principles like participation and inclusivity are not only ethically sound and important but also play a crucial role in enhancing and enabling our work. Although this approach may require more effort, we can affirm that the relationships and the quality of your work make this effort worthwhile.

In order for the civil society sector to stand behind its claim of giving importance to social justice, it needs to consider the daily experiences of disadvantaged groups as its compass. This way, civil society actors can be more sincere towards the group they claim to represent and are in a more genuine position vis-à-vis policymakers when carrying out their advocacy.

Thirdly, we recognise the inevitability of using general predictions and policy-oriented generalisations in advocacy work. However, our project reaffirmed our stance on the essential nature of field-focused research in producing high-quality work. This position was further validated through our experiences during the implementation of this project. For instance, we noticed increased interest from policymakers in this project and in the meetings we had with them after the project's implementation, it was frequently highlighted as a key focus.

Lastly, we hope to inspire the effective use of technological tools, such as sensors and thermal cameras in civil society work. This awareness can potentially lead to more innovative and effective approaches. For us, innovation in our work is improved through two different channels. First, we gained a new perspective that takes technology into account in the preparation phase of the project applications. Because the technological tools we used in this project made contributions to the production of knowledge far beyond what we could provide. Second, we observed that supporting our participants to use technological tools could help them to better understand the problems around them, and thus to better grasp issues from a political perspective that remain abstract and at a risk level for the future, such as the climate crisis.

We hope these reflections serve as a source of inspiration and insight for your future endeavors.