
**From Warm Spaces to Cooling Centers; needs assessment for vulnerable groups
and the social acceptance of cooling technologies**

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Indicative summary

The impacts of a warming climate are increasing being reported in the press, not only through the increased prevalence of events such as wild-fires and droughts but also in reporting of the deleterious health effects being reported across major cities and conurbations. The increasing occurrence of heatwave events and visibility their damaging effects in cities of the Global North, has seen a growing priority given to policy level discussion of this topic, especially in places where such extremes have less frequently been observed, such as the UK. Although recognition of the damaging impacts of heatwaves in the UK is growing our work highlights that detailed policies and plans on how to tackle the threats of extreme heat events is still only emerging as a policy issue. Much of the existing and established policies around thermal comfort across communities in the UK revolve around heating in winter, with council resilience teams focussed on the impacts of energy costs on vulnerable communities. Discussions with council officers have reinforced the fact that pivoting resilience efforts to consider cooling is a relatively recent change in focus, however the increasing need for cool spaces is now widely recognised. This work provided an initial survey of the barriers being faced by the various organisations looking to increase provision of cool spaces.

In response to the increasing challenges of ever more frequent heatwaves many councils are now introducing initiatives to increase provision of cool spaces. London is probably the most advanced in this respect with an interactive app showing location and availability of cool spaces, however other local authorities are also developing policy and activity in these areas and there is good evidence of collaborative working across cities and local authorities. Many of the initiatives work in partnership with third sector groups and organisations, especially around the use of existing social and community networks and buildings. Such multi-partner working can create complex networks of interaction and the roles and responsibilities of the various actors from central government, local authorities, communities is still evolving. This is most evident around funding, where when enmeshed within the other budgetary pressures faced by governments at all levels leads to potential for inconsistent and precarious support potentially impacting the most vulnerable communities.

Such funding challenges may dictate the types of cooling solutions open to organisations looking to provide cool spaces. As well as costs of installation, some active cooling solutions will also likely have running costs. Such costs may incur further pressures on organisations already struggling with winter fuel bills now faced with summer cooling bills, a time often associated with lower energy outgoings and often seen as a period where winter expenses could be recouped or funds for the following winter could be accumulated. Therefore, pressures on funding winter heating could be exacerbated by increasing energy needs in the summer. Building type may also affect the types of solutions open to groups. While some types may be naturally cooler such as larger stone build buildings, age and maintenance issues may exacerbate overheating effects through reducing the ability to employ passive cooling methods of increasing ventilation. Similarly older building may have heritage aspects such as listed features which make installation of technical solutions inappropriate and unsympathetic to the building context. Further the agency to make changes or install cooling solutions may be lacking depending on the relationships of building users to building owners, such tensions can also feature with respect to who pays both for installation and running of any solution.

Together the above uncertainties reveal a need for better knowledge exchange around the different types of adaptations available for better building cooling. Such exchange of knowledge is required to better promote low energy demand passive solutions as well as technical approaches such as air conditioning or mechanical ventilation. Further, there is a strengthening case for bringing heating and cooling solutions together such as combined heat pump/air-conditioning units or Mechanical ventilation systems which provide both heating and cooling.

With many potential options available it is important that solutions are compatible with local social and community contexts. In this respect it is important that technocratic top-down solutions are not imposed and that participatory methods in determining the most suitable solutions for a community are essential. Such methods can engage with and draw from local knowledges which are often tacit or undocumented

and can be critical in minimising risks of unintended consequences from applying inappropriate technologies or approaches.

Scope and Objectives

The overarching aim of this project is to develop a better understanding of how existing indoor public spaces in the UK, and the organisations that manage these, can help vulnerable local residents (i.e. people who cannot adequately cool their home, due to infrastructural or financial limitations), to cope better with heat waves.

Our specific objectives were to examine:

- (a) the extent to which current 'warm space' providers are interested and able to (also) start providing cool spaces (a.k.a. cooling centres) to vulnerable local residents during heatwaves.
- (b) what the barriers are to providing such cool spaces.
- (c) what innovative ideas and (early) good practices are appearing in relation to retrofitting and then managing existing indoor public spaces as cooling centres.

Methodology

This study employed a mixed-methods approach, consisting of a literature review, an on-line survey and individual interviews with practitioners and specialists. The project was specifically designed to elicit insights from organisations that are most likely to confront the dual challenge of providing thermal comfort during both winter and summer, particularly for vulnerable and marginalised groups.

A survey was designed which aimed to capture organisational awareness of and experience with heat-related risks, existing adaptations or coping strategies during heatwaves, familiarity with and perceptions of different cooling technologies and organisational capacity and willingness to consider cooling provision. Survey participants were recruited through the mailing lists of intermediary organisations such as, The Warm Welcome Campaign network, Libraries Connected, Local Government Information Unit (LGIU) and Greater Manchester Combined Authority (GMCA). This gave a large pool of potential participants and mitigated a potential risk that even a relatively low response rate would still result in a reasonable number of survey completions.

Yielding 42 responses, the survey also served as a recruitment tool for the interviews, inviting respondents to express interest in participating in these. Further interview recruitment was achieved through snowball sampling resulting from discussions with initial interview participants and attendance at events on cooling research such as the REEF-UKC Symposium on Sustainable Cooling. The interviews aimed to add qualitative depth to the survey findings. Conducted using a semi-structured format, the interviews aimed to give further space for participants to reflect on some of the questions and issues raised in the survey and for more in-depth nuanced insights to be captured. List of interviews conducted is presented in Table 1.

Table 1; Interviews Conducted during this work.

Interview No.	Interview Subject
1	Management Committee Member – Village Hall
2	Community Engagement Worker (Social Housing Provider)
3	Representative - Voluntary Organisation
4	Local Government Officer (Birmingham)
5	Local Government Officer (Manchester)

In addition, two short fact-finding trips were undertaken to London during the heatwave event of June and July 2025. These field trips allowed direct observations on the functioning of designated cool spaces in London and the impacts of heatwave events on the thermal comfort within public buildings and the effects on both staff and users.

Stakeholder Engagement

As detailed in the methodology, we engaged with our interviewees and with intermediary organisations such as, The Warm Welcome Campaign network, Libraries Connected, Local Government Information Unit (LGIU) and Greater Manchester Combined Authority (GMCA). During the fact-finding trips to London, we also engaged with practitioners running public spaces during heat waves (mainly library staff). Once the writing

Risks & Mitigations

We faced two risks;

- Limited responses to the survey
- Continued availability of ERC staff for the data collection and the write-up of the findings.

As there are no publicly available mailing lists of warm space providers for us to use, we were dependent on the helpfulness of intermediary organisations to distribute the surveys. Given the size of the project. (in terms of available budget and our dependence on these organisations), 42 responses is not a bad result. But obviously the sample is too small to assume representativeness or to undertake detailed and meaningful statistical analysis. We mitigated against this (known) risk by adopting a mixed methods approach, complementing the survey data with interviews.

Project delivery and write up suffered delays due to limited finances to retain the ERC staff involved; first Connor Smith and then Mark Cassidy made contributions to the project but then moved on to more long-term post-doc positions that had become available in other schools and colleges of the University of Edinburgh. The precarity of ERC staff is a well-known problem in academia. This problem is especially acute in the social sciences, where (compared to the EPSRC) there is far less funding available for long-term post-doc positions. The problem could only be partially mitigated through replacement (Connor replaced by Mark), and by involving a PhD student (Kamlesh Meshram). Finding and engaging with new staff, has allowed us to complete the collection of sufficient data (relative to the scale of the funding), but it has caused significant delays in the write up of the paper and final report.

Report writing thus falls on the shoulders of the PI, who was unavailable for this task during the teaching season. With the PI going on sabbatical in January 2026, write up time will soon be available.

ECR Involvement

The following ECRs were involved in this project and will be co-authors on the publication we are currently working on:

Connor Smith (research fellow. Pursuing a PhD by publication)
Kamlesh Meshram (2nd year PhD student)
Mark Cassidy (post-doc researcher)

Connor Smith also played a key role in designing the methodology and writing the proposal. Unfortunately for the continuity of the project and the speed of write-up, Connor soon moved on to a post-doc position in another part of the university of Edinburgh (to a project that could offer him a new, multi-year contract).

Mark Cassidy was subsequently recruited to analyse the responses from the survey, to undertake the interviews and start drafting the findings. Kamlesh Meshram assisted with the exploratory fieldwork in London. This is a minor and additional contribution to the project, but synergistic since Kamlesh' PhD project is about the heat wave mitigation (but more in a global south setting).

Project Outcome

- In practice, the UK has barely begun to address the growing risk of heat waves to human health and wellbeing. Our respondents (potential cool space providers) had some awareness of this (growing) issue, but felt that they currently did not have concrete plans and facilities in place.
- At the moment, existing 'cool space' initiatives in the UK are largely limited to London. We observed that some social indoor spaces were practically abandoned due to overheating and that some cool spaces were more or less full. We also encountered highly suitable cool spaces that were not included in the official list, due to minor limitations. A lot of existing social spaces are in urgent need of retrofitting with cooling technologies. However, this can raise a secondary question; can such spaces afford the associated electricity costs?
- Existing UK experience in providing warm spaces in the winter, is of limited use for potential provision of cool spaces in the summer, due to differences between (installed) cooling and heating technologies, temporal differences (e.g. cold periods are long/chronic, whereas heat waves are relatively short/acute), different needs of customers (e.g. greater cooling needs in the day) and different cultural aspects that come into play when people look to adapt to heat or cold.
- There are some important translatable skills and know-how too, notably related to warm space providers knowing their customers and understanding their wider needs (beyond being hot or cold at home); both warm and cool spaces need to provide more than just an amenable temperature in order to attract and host vulnerable local residents.
- In older library buildings we observed how different rooms had very different cooling regimes and user groups. For example, study spaces contained diverse user groups, whereas computer rooms (more prone to overheating) were mainly used by teenagers. We were also alerted to particular seasonal and temporal trends, e.g. school kids depending on the local library to study for their school exams (especially important for school kids living in overcrowded accommodation).

- One systemic key difference between the demand for cooling and heating, is that the former can also be sought outdoors. This also means that there is scope for more holistic place-based approaches to cooling, for example by designing complementary facilities in libraries and adjacent green spaces.

Project outputs

We are working to finalise a paper, to be submitted to (the journal of) Urban Climate.

Project Impacts and their realisation

This was a seed fund project to explore the contours of a big societal challenge; how to help vulnerable residents of (overheating) housing to seek cooling outside but near their home. Our academic paper will help to inform the research and policy agenda on this matter.

Next Steps and outlook

we aim to develop a proposal for a much bigger follow-up project, in collaboration with some of the organisations we have already liaised with through this short project.

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References

